University of Southampton

FACULTY OF SOCIAL, HUMAN AND MATHEMATICAL SCIENCES

Southampton Education School

An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

by

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Abstract

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Constructivist learning pedagogies are gaining attention and primacy in educational policy framings in Oman, which parallels a growing emphasis in the global pedagogical landscape and the changing sociocultural demands of the 21st century context towards nurturing suitable and adaptable learner competencies. However, the transition from mainstream to constructivist practice is a widely recognised challenge in literature, especially in light of heavily structured educational systems, prominence of teacher-centric pedagogies, the primacy of conceptual and abstract learning, and predispositions toward teaching-for-the-test. These concerns are most relevant to the Higher Education (HE) context in Oman. While this continues to be a rich area of research in the local context, evidence on utilising Information and Communication Technologies (ICTs) to nurture constructionist learning proved to be scarce in the Omani higher education, particularly in the context of Initial English Language Teacher Education (IELTE).

To address this gap, this thesis explores Authoring Multimedia Artefacts (AMA) as a constructionist learning approach in the context of IELTE. The thesis is underpinned by Papertian constructionism as a theoretical and conceptual framework and draws on a qualitative case study design to explore Student-Generated Podcasting (SGP) as a case of AMA-based learning in relation to three areas of inquiry: (a) learner engagement in AMA-based learning, (b) key pedagogical design principles of AMA-based learning, and (c) key learning environment design principles of AMA-based learning. This research study focuses on students' and academics' perspectives regarding the three areas of inquiry in an Omani IELTE context and was conducted in four phases. The first phase included a quantitative investigation (using questionnaires) of students and academics' experiences, views, and perspectives regarding AMA-based learning, drawing on key areas of inquiry from the wider relevant literature. The second phase included a qualitative investigation (using semi-structured interviews) with nineteen students and three teachers to explore their personal experiences, attitudes, insights, and perspectives regarding the three areas of inquiry and to reveal in-depth accounts that take into consideration the interplay of personal, institutional, contextual, and sociocultural factors that influence this area of practice. The third phase included a qualitative analysis of students' reflective journal entries of their AMA authoring experiences to reveal their experiences and views concerning AMA engagement and AMA pedagogy. The fourth phase included a two-part validation of the research analysis, interpretations, and outcomes by study participants, which consisted of one-to-one interviews and a focus group discussion. This aimed at taking the research outcomes back to participants, involving them in validating the accuracy of the research report and outcomes, allowing them to revisit their views by refining and adding to them, and encouraging them to challenge the analysis by proposing alternate accounts.

The study findings revealed a comprehensive attribution of AMA-based learning and challenges associated with the different areas of inquiry: AMA engagement, AMA pedagogical design principles, and AMA learning environment design principles. Both students and academics generally held positive views towards AMA-based learning and suggested valuable implications for sustaining constructionist learning in this context. However, a number of personal, technical, pedagogical, infrastructural, educational, and sociocultural challenges were also identified, suggesting these issues need to be considered to improve AMA-based learning and constructionist learning at large. While the quantitative findings corroborated findings from the wide theoretical and empirical literature, the qualitative findings were especially significant on grounds of their depth, scope, and relevance, especially considering this study of SGP presents pioneering evidence in the IELTE context and the Omani HE context at large. Based on this, the findings from qualitative analysis consequently fed into the development of an operational framework for AMA-based learning to help in the systematic design and implementation of this approach, and by doing so the study findings contribute to filling a current gap in research regarding conceptualising and empirically analysing AMA-based learning enablers and inhibitors.

The outcomes of this research are particularly significant in the context of constructionist learning environments, pedagogies, as well as strategies. The most notable significance is attributed to the orienting model and framework for AMA-based learning, which is necessary to fill the relative gap in orienting frameworks grounded in Papert's theory of constructionism. The findings of the study have significant implications for integrating AMA-based learning into pedagogical practice, facilitating constructivist-constructionist pedagogical approaches, promoting active and deep learning, and harnessing the constructivist-constructionist potentials of ICT-mediated learning. They also have implications for teacher-education programmes in Oman, especially where developing active, deep, and productive learning skills is concerned, all of which are areas highly emphasised in the goals and objectives of educational policy and reform. As such, the study underscores a need to promote constructionist learning in the IELTE programme by considering the key enabling factors of AMA-based learning and the potential challenges that could inhibit this endeavour.

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Research Thesis: Declaration of Authorship

Print name: **Abdullah Said Hamed Alhasani**

Title of thesis: **An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman**

I declare that this thesis and the work presented in it are my own and have been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signature: ..... Date: .....

Dedication

This is in loving memory of my youngest brother, Rashid, who sadly left us too early and left a void never to be filled, but whose inspiration will continue to live with me forever. I love and miss him beyond words. May Allah the Almighty grant him peace and happiness in paradise. Amen.

Acknowledgements

"*Granting wisdom unto whom He wills: and whoever is granted wisdom has indeed been granted wealth abundant. But none bears this in mind save those who are endowed with insight* ". (Holy Quran 2:269)

All praise is due to Allah, Lord of the Worlds, for His grace and blessings throughout this PhD journey, with its struggles, perseverance and triumphs, and for the glimmer of hope at the end of every tunnel of desperation, disappointment and defeat.

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Finally, I wish to extend my gratitude to my parents, siblings and friends for their sympathetic ears and for their support throughout this journey.

Definitions and Abbreviations

Definitions

Analytical framework is a set of codes organised into categories that have been developed by the researcher which can be used to manage and organise the data (Gale et al., 2013).

Authoring Multimedia Artefacts refers to the authoring of digital artefacts (or products) through the mediation of ICTs.

Case study design is "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence" (Robson, 1993, p. 146).

Code is "a descriptive or conceptual label that is assigned to excerpts of raw data in a process called 'coding'" (Gale et al., 2013).

A **conceptual framework** "explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them" (Miles & Huberman, 1994, p. 18).

Constructionism is "a mnemonic for two aspects of the theory of science education underlying this project. From constructivist theories of psychology we take a view of learning as a reconstruction rather than as a transmission of knowledge. Then we extend the idea of manipulative materials to the idea that learning is most effective when part of an activity the learner experiences as constructing a meaningful product" (Papert, 1986).

A **podcast** has been defined as a method for distributing digital media files, whether video or audio, over the Internet, often in a series of episodes for playback on portable media players (Frydenberg, 2008; Lazzari, 2008).

Themes refer to "interpretive concepts or propositions that describe or explain aspects of the data, which are the final output of the analysis of the whole dataset. Themes are articulated and developed by interrogating data categories through comparison between and within cases. Usually a number of categories would fall under each theme or sub-theme" (Gale et al., 2013, p. 2).

Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail… as well as interprets various aspects of the research topic (Braun & Clarke, 2006, p. 79).

Abbreviations

AMA(s)	Authoring Multimedia Artefact(s)
AMA-BL	Authoring Multimedia Artefact-Based Learning
CLL	Constructionist Learning Lab
EduTech	Educational Technology
HE	Higher Education
HEI(s)	Higher Education Institution(s)
ICT(s)	Information and Communication Technologies
IELTE	Initial English Language Teacher Education
LGC	Learner-Generated Content
LGDM	Learner-Generated Digital Media
PBL	Project-Based Learning
SCC or SGC	Student-Created Content or Student-Generated Content
SCDV or SGDV	Student-Created Digital Video(s) or Student-Generated Digital Video(s)
SGDM	Student-Generated Digital Media
SGM	Student-Generated Multimedia
SGP	Student-Generated Podcasting
SGV	Student-Generated Video(s)
UGC	User-Generated Content

Chapter 1 The Study of AMA-Based Learning

1.1 Introduction

Higher education (HE) Pedagogies in Oman have been characterised by prioritising didactic and teacher-centric approaches, knowledge reproduction, and teaching for the test (Al-Badwawi, 2011; Al-Hajri, 2013; Al-Issa, 2005, 2011). These practices often give rise to the privilege of rote and surface approaches to learning, propositional and abstract knowledge detached from contexts of meaning, and lack of engaged and immersive learning (Herrington & Oliver, 2000; Papert, 1980, 1987, 2000). Such practices are common in educational cultures that view knowledge from the lens of objectivist philosophies, wherein knowledge is viewed as objective and residing in the world independent of the learners (Murphy, 1997). The constructivist philosophies and theories of learning, by contrast, advocate the view of learning as an active process of meaning-making and the learner as an active agent in knowledge building (Moallem, 2001). This advocates the view that knowledge is actively constructed by people based on their personal experiences and interactions with the socio-cultural context of meaning-making (Ackermann, 2001; Papert & Harel, 1991; Piaget, 1950, 1978). Therefore, constructivist theories prioritise learning over instruction and place central emphasis on the role of active engagement in learning experiences, participation in meaning-making, collaboration, learner autonomy, and the construction of one's own understanding and knowledge of the world (Moallem, 2001; Papert & Harel, 1991). Hence, the role of the teacher becomes more of a facilitator of the learning experience and learning environment (Papert, 1980).

These objectivist-constructivist philosophical tensions have been similarly imposed on the role of technology and its place in educational contexts (Papert, 1980, 1987). In the last three decades, there have been growing efforts to utilise information and communication technologies (ICTs) to enhance pedagogical efficacy and learning effectiveness (Dyson, 2012; Narayan & Herrington, 2014). This has contributed to the diversification of instructional strategies, integration of ICTs to enhance teaching and learning experiences, and the uptake of novel pedagogical aids (McLoughlin & Lee, 2007). While the proliferation of ICTs has been hailed with optimism, it nonetheless has contributed little to improving educational cultures and structures, principally in Oman; that is, ICTs have continued to replicate conventional education provision and practice, which reinforces the objectivist, rather than the constructivist view of learning. This reflects long-standing issues with educational theory and philosophy in the context of technology integration (Papert, 1987).

The educational policy in Oman shows a clear orientation towards adopting constructivist pedagogies with the chief objectives of improving students' attainment, engendering 21st century competencies, enforcing student-centric approaches in pedagogical enactment, and improving the skills of life and work, among others (Education Council, 2016, 2017). However, Omani HE still faces challenges to realise this vision in the face of conventional pedagogies and challenged graduate outcomes (Al-Badwawi, 2011; Al-Hajri, 2013; Al-Issa, 2005, 2011). The challenge also exists in the context of ICT integration. While local evidence shows an increasing utilisation of e-learning in HE, such as WebCT, Moodle, and Blackboard (Al-Musawi & Abdelraheem, 2004; Al-Senaidi & Gawande, 2013; Al-Senaidi, Lin & Poirot, 2009), these e-learning tools are underutilised and used mainly as content repositories, static communication channels, and teacher-dominated spaces (Al-Naibi, Madarsha & Ismail, 2015). In fact, it has been claimed that Omani HE lacks proper el-learning utilisation schemes (Baporikar & Shah, 2012) and that higher education institutions (HEIs) are yet to accept e-learning seriously (Al-Hajri, Ghayas & Echchabi, 2018).

This is where the present study finds its contribution. The central focus of the study is to explore ways HE pedagogical practice harnesses ICTs to empower constructivist approaches to learning, specifically by utilising ICTs to empower knowledge creation through digital, conceptual, or material artefacts. This is what is referred to in the context of this study as learning through authoring multimedia artefacts (i.e., AMA or AMA-based learning) in which AMA-based learning is a learning approach whereby students create digital, conceptual, or material artefacts using ICTs.

This study is primarily concerned with exploring student-generated podcasting (SGP) as a form of AMAs that has received little or no attention in the Omani educational context, even though it has been widely researched in the global context. Because of its relative novelty in this context and in order to generate an in-depth understanding of this approach, the study adopts a case study design to explore SGP as part of a module in the Initial English Language Teacher Education (IELTE) programme in a public HE institution in Oman. Among the chief objectives of this study is to explore learner engagement, the pedagogical design principles, and the learning environment design principles of AMA-based learning from the perspectives of IELTE students and academics. Hence, the case study design enables generating a thorough understanding of wider aspects of AMA-based learning, which is most useful to inform contextually-relevant AMA-based learning design and implementation. This exploration complements efforts by policymakers to adopt a variety of innovative approaches to integrate constructivist and student-centred pedagogies in the context of HE in Oman. This exploration is underpinned by Papert's theory of constructionism.

1.2 Context of the Study

To firmly ground the foregoing overview and understand the rationale for research and the research gaps, there is a need first to examine the context of the study in relation to the pedagogical context of Oman, the place of ICT integration, and the impetus for educational reform. The research setting is then explored as to its significance to this investigation to contextualise the rationale for this research.

1.2.1 Status Quo of Pedagogical Practice in Oman

There are several issues associated with the current educational provision, practice, and outcome schemes in Omani HE. They represent challenges to meeting the desired quality outcomes of the education system which align with the goals of Educational reform in Oman.

One major challenge pertains to the dominance of conventional pedagogical approaches and strategies. Pedagogical practices are largely defined by the educational provision schemes which emphasise the acquisitional models of learning (Sfard, 1998), given their emphasis on, inter alia, content delivery, informational retrieval, and abstract learning. For instance, there are indications that lecturing and testing dominate much of HE practice (Al-Hajri, 2013; Al-Issa, 2011), and there is a prominence of teacher-centric roles in classroom meetings (Al-Badwawi, 2011; Al-Issa, 2005, 2011). Such practices undermine student-centric modes of learning and assessment in favour of didactic and informational approaches. They also place emphasis on adherence to rigid programme structures, which inhibit teacher and student autonomy.

By the same token, ICT integration into HE pedagogy seems to reinforce conventional structures and replicate top-down processes (Selwyn, 2007, 2014) and acquisition-based learning models (Sfard, 1998), rather than enable productive approaches to knowledge creation and advancement (Paavola & Hakkarainen, 2005; Paavola et al., 2004). This is substantiated by the fact that few studies (Al-Mahrooqi & Naqvi, 2014; Naqvi, 2015; Naqvi & Al-Mahrooqi, 2015, 2016) have been published on student-authored content in the Omani HE, none of which are in the IELTE context.

In addition, several challenges have been identified concerning enabling learner-centric pedagogies in the Omani context. Using focus group discussions with 60 students and 30 teachers in two different HEIs, Emenyeonu (2012) acknowledged several linguistic, cultural, attitudinal, policy factors as major obstacles to implementing learner-centric pedagogies in Oman. Weak student competencies in the English language often influenced students' performance, and the culture of group segregation was an inhibiting factor to mixed-gender collaboration and peer learning. Additionally, weak exposure to productive learning, such as presentations and debates,

also inhibited learners' active participation, especially in mixed-gender classes. Exported materials and textbooks as well as the use of ready-made materials were also found to make learning irrelevant and therefore inhibit student interest and active learning. Poor perception of student-centred learning was another setback, indicating that perception of the traditional teacher role is still dominant. Group dynamics were also found to influence student-centric learning, where weak students tended to rely on the high-achieving ones. The suitability of pedagogical strategies was also perceived to play a significant role. Finally, lack of facilities conducive to promoting student-centric learning was cited among the challenges.

HE outcomes pose similar challenges to meeting the national quality plans. It seems current pedagogical approaches and strategies are not developing the required set of skills transferable to employment. Many studies (Al-Lamki, 1998; Al-Mahrooqi, 2012; Al-Mamari, 2012; Baporikar & Shah, 2012; Oman Mubasher, 2016) have shown that HE outcomes fall short of meeting competency requirements that meet standard proficiency levels or those demanded by local employers. For example, recent employer surveys (Graduate Survey Department, 2015, 2016) show a level of discrepancy between actual graduate competency and the level demanded by employers, where HE graduates were found to lack key employable skills such as English language proficiency (43.3%), stress management (37.5%), communication and social skills (36.5%), motivation and commitment (32.5%), autonomy and time-management (31.5%), analytical skills, problem-solving and creativity (28.8%), leadership skills (27.4%), and teamwork (21.6%), among others (Graduate Survey Department, 2016). According to Al-Ani (2017), it is common to find educational cultures characterised by top-down bureaucratic structures and teacher-centric pedagogies are generally inadequate to produce competency outcomes aligned with the immediate needs of the labour market. This suggests much work needs to be done regarding the current schemes of HE provision and practice to meet state objectives and employer expectations.

1.2.2 Technology Integration in the Omani HE System

In the context of HE, the rapid growth of ICTs has had significant impacts on how education is conducted, managed, and facilitated, and has contributed to re-shaping the teaching and learning processes in HE (Pulkkinen, 2007). HEIs have increasingly utilised ICTs to help boost the sector's processes and functions, including instruction, professional development, and student learning (Kumpulainen, 2007). ICTs seem to have helped redefine many educational practices, as seen in the introduction of computer-mediated learning. They have similarly helped redefine educational provision structures as represented by distance learning programmes and open universities. As such, it can be assumed that technology utilisation is steadily on the rise across HE sectors.

The past two decades have seen a rapid increase in ICT utilisation across the Omani HE sector. Oman continues to make ICT integration into education a priority, as represented in continued financial investments to boost infrastructural readiness in the educational sector. Most HEIs are now equipped with learning management systems, cloud computing services and e-learning portals, among others. Some HEIs are also equipped with automated grading systems and multimedia resource facilities, which reflects the significance of ICTs in enhancing and facilitating learning management and delivery.

Several studies report on the increasing integration of ICTs in Omani HE. For instance, the use of WebCT platforms has increased steadily since 2001 from eight to forty modules by 2002 (Al-Musawi & Abdelraheem, 2004). By 2006-2007, this number rose dramatically to 387 modules, with 268 modules on WebCT and 119 on Moodle (Al-Senaidi & Gawande, 2013). Similar growth was also reported in the Colleges of Applied Sciences with the utilisation of the Blackboard system, from 15 modules in 2007 to 30 modules by the end of autumn 2008 (Al-Senaidi et al., 2009). Furthermore, evidence shows many of these efforts to integrate ICTs into pedagogical practices produced positive results. Akinyemi (2003) has shown that both faculty and students were in favour of these new technologies and see the value they add to their learning experience.

While the prospects of technology integration may seem ambitious, there exist several obstacles to realising optimum ICT integration. Several studies have assessed ICT adoption and usage rates in Omani HE, and all revealed several deficiencies in ICT implementation. For instance, Al-Suqri (2007) used mixed-methods research to examine the informational needs of social science faculty members at a leading HEI. Results showed that while participants make extensive use of electronic sources, the major barriers to their information-seeking practices included poor internet speed and availability, lack of Arabic resources, and limited availability of full-text resources. Also, Osman (2005) investigated 31 undergraduate students' perceptions of WebCT implementation at an HEI. While results showed participants had positive attitudes towards the facility, the limited number of computers and slow internet speeds presented major challenges. Additionally, a qualitative study by Al-Washahi (2007) on the perceived effectiveness of educational technology faculty development activities at an HEI found that irrespective of the positive disposition of faculty members, there seemed to be a lack of a clear structure that underpinned faculty development schemes. The study also revealed a lack of systematic evaluation and follow-up measures for faculty support in integrating technology into teaching. Al-Senaidi et al. (2009) also found the lack of institutional support and lack of time as major obstacles among faculty members, whereas lack of equipment, lack of confidence, and disbelief in ICT benefit are of relatively weak influence. Furthermore, Al-Naibi et al. (2015) found that Blackboard was underutilised and mainly used as a content repository by faculty members in six

colleges of applied sciences. Findings showed that technological infrastructure and faculty support were the main inhibiting factors behind the limited use of Blackboard.

These studies suggest that ICT integration still faces challenges to achieve desired and large scale results. Many attempts to bring ICT utilisation to desired levels are met with obstacles and, accordingly, fall short of facilitating wider ICT integration in the HE sector at large (Al-Musawi, 2007; Al-Senaidi et al., 2009). This suggests that more work is needed with institutional and technical support to encourage optimum ICT integration in pedagogical practice. Baporikar and Shah (2012) argue that proper utilisation schemes seem to be lacking at times. Moreover, Al-Hajri et al. (2018) argue that Omani HEIs are yet to accept e-learning seriously as there is still hesitance to e-learning acceptance due to high costs, fear of undesired consequences, and dissatisfaction.

1.2.3 Imperatives for Educational Reform

Dissatisfaction with the current status quo and the motivation to improve quality have inspired honest reform initiatives in Oman. A major aim for this reform has been to bridge and closely align the HE sector with employment and increase the 'HE-employment' partnership.

The current educational policy maintains progressive thinking with regard to educational provision and practice so as to respond to the global scientific and technological advances and to encourage raising performance standards and quality outcomes (Education Council, 2017). The educational policy aims to "…adequately prepare students to meet the challenges of living and working in a rapidly changing world and to ensure the achievement of the nation's development plans" (Education Council, 2017, p. 10).

The flux of the Omani society has rendered it imperative to update the educational system and align its outcomes with the national demands to compete in this globalised economy. There have been increasing investments from the state in education as a tool to help achieve national plans and aspirations for growth and development (Al-Lamki, 1998). These investments capitalise on the need for well-educated and skilled local graduates who will replace the expatriate workforce and sustain national development plans and aspirations (Al-Issa, 2006; Al-Lamki, 2006), which represents another drive for aligning educational provision with the demands of the labour market.

Educational reform has emphasised the need to introduce constructivist pedagogies to establish the transition towards realising its vision. The aims and objectives of the Omani philosophy of education are delineated into sixteen principles and eighty-nine objectives (later expanded into a hundred and twelve). These goals and objectives place major emphasis on improving quality

standards in relation to student outcomes (e.g., improving students' attainment, fostering 21st century competencies, improving students basic skills of life and work), improving pedagogical efficacy (e.g., use of student-centric pedagogies and approaches), and improving systemic and institutional efficacy (e.g., providing international benchmarking of educational provision and outcomes, setting national standards, aligning the education sector with employment), among others. These foci reflect the changing dynamics of the socio-economic and political landscape of Omani HE. These principles and objectives provide the catalyst for educational provision and practice in the HE sector. HE is therefore expected to align these across academic programmes and modules.

Even so, there is an explicit acknowledgement that the challenge facing the enactment of these goals and objectives lies in translating them into feasible and measurable learning outcomes (Education Council, 2012). This concern reflects a level of urgency facing HEIs in aligning their academic provision, practices, and outcomes with the chief aims of the reform framings.

1.2.4 Description of the Research Setting

The specific context of investigation is the IELTE programme in the University of Technology and Applied Sciences at Rustaq (previously known as Rustaq College of Applied Sciences from 2006-2017, and Rustaq College of Education from 2017-2020), which is a state-funded institution that offers Bachelor of Education programmes in English, Mathematics, and Sciences. In 2020, the institution joined under the umbrella of the University of Technology and Applied Sciences following the Royal Decree 67/2020. The IELTE programme prepares pre-service teachers who are qualified to teach in the local schools following graduation.

There are several justifications for selecting this particular programme. First, this is the only IELTE programme in Oman that utilises SGP as part of a programme requirement. Secondly, SGP has not been studied before in Omani HE and it is little understood as an AMA-based approach to learning. Considering the interest in educational policy in Oman in adopting constructivist methodologies (Education Council, 2017), there is a need to explore this approach and understand its implications to learning and practice, which can pave the way for a large-scale implementation across HE programmes in Oman. Additionally, the choice of this case complements ongoing IELTE programme review and accreditation processes in the context of the investigation, and therefore the study implications can help inform future programme reviews. All these factors serve to increase the practical value of this study and its outcomes in the context of Omani HE.

Among the IELTE programme requirements (outlined in Appendix A), one module in particular is designed around project-based learning (PBL) and includes various elements of AMA-based learning. This model represents a radical design element within the programme. Appendix A details how the module differs in its approach to delivery and assessment. Unlike other modules, there are no final and midterm exams for this module and seventy per cent of the assessment weight is allocated for practical multimedia projects.

SGP happens to be one of those projects and presents a unique case of AMA-based learning in the Omani HE context at large. As per the module requirements, students are expected to produce two podcasts: a solo and an interview podcast with an expert. The solo podcast comes first and is aimed to provide students with an opportunity to produce their first podcasts. Having been provided with orientation, hands-on workshops, and access to YouTube tutorials, students engage in a process of self-learning and discovery of the software functionalities and identifying appropriate recording equipment. Then, students produce interview podcasts with experts on a topic of their choosing. Project expectations, such as ensuring prior planning and sequencing (e.g., choice of themes, designing interview scripts, identifying experts to interview, etc.), are discussed beforehand by the instructor. Teacher guidance and support are provided throughout these projects. Additionally, students are provided with assessment rubrics beforehand, and these outline the task requirements and expectations, along with descriptions of the main areas of emphasis and their respective grading weights (see Appendix A).

1.3 Need for Research

In the light of the above contextual realities surrounding pedagogical practice, technology integration, and impetus for reform, this research aims to respond to the calls of educational reform in Oman and its efforts to introduce constructivist pedagogies and promote constructive technology integration, as well as respond to programme review and accreditation needs to introduce a policy responsive and aligned practice. Despite technology integration efforts, it can be claimed that the biggest challenge to technology integration into Omani HE pedagogies is in utilising these technologies to nurture a culture of deliberate knowledge creation and co-creation (in line with McGarr, 2009; Paavola & Hakkarainen, 2005) such as those represented by AMA-based learning. The literature commends the educative value of engaging students in constructing material and conceptual artefacts, as it has been found to contribute to enhancing students' understanding (Lee & Chan, 2007; Nie, Cashmore & Cane, 2008), facilitating their metacognitive engagement and reflection on learning (Burt, 2008; Campbell, 2005), fostering collaborative and social learning (Huann & Thong, 2006; McLoughlin, Lee & Chan, 2007), promoting independent

learning (Nie, Cashmore & Cane, 2008), and improving learning engagement and motivation (Dale & Povey, 2009; Lee & Tynan, 2008).

However, evidence on utilising AMA-based learning in the context of Omani HE is extremely limited and has been difficult to locate in many popular platforms (e.g., Google Scholar, British Library for Online Theses (EThOS), ERIC, Open Access Theses and Dissertations (OATD)). An extensive internet search has only identified four relevant studies only, and these seem to be complementary studies by two authors: Al-Mahrooqi and Naqvi (2014); Naqvi (2015), and Naqvi and Al-Mahrooqi (2015, 2016). These four studies appear to be the only published evidence that supports the deliberate creation of multimedia artefacts. Naqvi and Al-Mahrooqi (2015) also acknowledge the research limitations regarding integrating digital videos into language teaching in the gulf region. Likewise, Naqvi (2015) and Naqvi and Al-Mahrooqi (2016) acknowledge the dearth of frameworks for facilitating this approach, a gap that has also been acknowledged by many researchers and theorists (Kearney, 2009, 2011; Reyna et al., 2018b; Reyna et al., 2017). While these local research studies provide significant evidence with regard to the viability of AMA-based learning, they show several limitations regarding the theoretical lens (i.e., Kolb's Experiential Learning Theory, Piaget's constructivism, Vygotsky's social constructivism), type of artefacts (i.e., digital video commercials), study participants (i.e., undergraduate engineering students), type of research approach (i.e., experimental, longitudinal), and type of methodology (i.e., single intervention-type study).

1.4 Purpose of the Study

Considering that research on AMA-based learning in Omani HE is limited, there remains a need for research that explores and extends AMA-based learning to corroborate existing evidence, provide comprehensive insight into this approach, understand its implications for educational policy and practice, and suggest wider implications for its integration into HE pedagogies in Oman.

Based on these gaps, this thesis aims to explore SGP as a form of AMA-based learning in the context of IELTE through the lens of Papert's theory of constructionism. No research has looked into SGP in the whole Omani context, and none has examined it through the lens of Papertian constructionism.

The main aim of this research is to provide an in-depth understanding of SGP as an AMA approach to learning in HE and the research therefore adopts a case study design to achieve this. The study mainly aims to understand students and academics' experiences, perspectives, views, and attitudes regarding AMA-based learning in relation to three key areas: 1) learner engagement in

AMA-based learning, 2) key pedagogical principles that underpin AMA-based learning, and 3) key environment design principles that complement the enactment of AMA-based learning.

The objectives of the study are to:

a) Identify IELTE students' and academics' experiences, views, and perspectives regarding AMA-based learning engagement.
b) Identify the challenges and difficulties of AMA-based learning faced by IELTE students and academics.
c) Identify IELTE students' and academics' suggestions for improving AMA-based learning.
d) Identify IELTE students' and academics' views and perspectives of the pedagogical design principles of AMA-based learning, and the challenges that surround them.
e) Identify IELTE students' and academics' views and perspectives of the environment design principles of AMA-based learning, and the challenges that surround them.

1.5 Research Questions

The study is intended to explore the following main research question: **How do students and academics evaluate authoring multimedia artefacts (AMA) as an approach to learning in the context of Initial English Language Teacher Education (IELTE) in Oman?**

To address the major research question, it is broken into operational research questions:

1. How do students and academics evaluate learner engagement in AMA-based learning?
   1.1. What challenges do students and academics associate with AMA-based learning?
   1.2. What suggestions do students and academics propose to overcome these challenges of AMA-based learning?
2. How do students and academics evaluate the pedagogical approach of AMA-based learning?
3. How do students and academics evaluate the learning environment of AMA-based learning?

1.6 Potential Significance of the Study

The literature on AMA-based learning in the Omani context is very limited. The study derives its significance from the fact that SGP has received so little attention in the context of Omani HE, particularly in the context of IELTE. As such, the study has been influenced by the paucity of research in this area and it attempts to present a first substantial attempt to explore, understand

and conceptualise students and academics' experiences and views of the case of SGP as a constructionist approach to learning. Considering that this investigation covers key aspects relating to AMA engagement, pedagogy, and environment, as well as the challenges associated with them, the experiences, views, and perspectives of participants help provide a comprehensive account that can inform the planning, design, and implementation of AMA-based learning in IELTE programmes in Oman, and it may also have pedagogical implications for similar contexts in Oman and the Gulf countries. The study also proposes a framework for AMA-based learning gleaned from findings to systematically facilitate the integration of AMA-based learning into HE pedagogy.

1.7 Theoretical Framework

This study is theoretically underpinned and framed by Papert's theory of constructionism. While this theory evolved from the fields of mathematics education and programming (esp. Logo, Scratch and its subsequent versions), its implications go far beyond (Papert, 1980, 1993; Papert & Harel, 1991). To this day, this theory continues to inform the fields of programming, coding, mathematics education, robotics, and more recently, maker education. What is noteworthy is that the literature on multimedia authoring has been slow to adopt constructionism as a framework for AMA-based learning, even though the theory presents an appealing fit. This is where this study finds its contribution: it departs from traditional attributions of Papertian constructionism and advances constructionism as a theory for AMA-based learning.

Three major reasons justify adopting this theoretical framework, and these are used to operationalise this theory to serve the purposes of this study (further expanded in Chapter Three): 1) its epistemological and methodological robustness to frame constructivist and constructionist learning practices, 2) its pedagogical suitability to frame multimedia authoring practices given its emphasis on the construction of artefacts, and 3) its contextual under-representation in the local literature and in pedagogical practice in the context of Omani HE.

1.8 Structure of the Thesis

Chapter One has described the context of the study, the rationales and purposes of the study, the research questions, potential significance of the study, the case study context, and the theoretical framework underpinning the study. **Chapter Two** provides a review of relevant literature on AMA-based learning and a critical appraisal of the strengths and challenges associated with this approach from the global and local contexts. **Chapter Three** reviews Papert's theory of constructionism as a theoretical framework and elucidates its major philosophical, epistemological, and pedagogical underpinnings to provide a comprehensive understanding and

appreciation of its implications for AMA-based learning. A reconceptualisation for Papertian constructionism is then discussed with the aim of providing a more coherent and hierarchical model for the theory and constructing a conceptual framework for the design of research instruments, data collection, data analysis, and discussion of findings. **Chapter Four** elucidates the philosophical assumptions, research design, methods and analysis procedures adopted in this study, as well as the ethical and reliability and validity considerations relevant to qualitative research. **Chapter Five** describes the findings from quantitative and qualitative methods and then merges these findings to allow for comparison of the datasets and the provision of a better understanding of the case. **Chapter Six** discusses study findings by comparing and contrasting quantitative and qualitative findings. The discussion then proceeds with addressing the major themes emerging from the findings and situating them within relevant theory and the existing literature. This is used as a basis for revisiting the conceptual framework and proposing a refined model for AMA-based learning. Finally, **Chapter Seven** presents a summary of key findings, conclusions, implications for practice, study limitations, and recommendations for further research.

Chapter 2 Literature Review

2.1 Introduction

Evidence shows a thriving user-driven paradigm of meaning-making empowered, facilitated, and advanced by Information and Communication Technologies (ICTs), which manifests itself in an increasing uptake of participation (Sfard, 1998) and knowledge-creation roles (Paavola & Hakkarainen, 2005). This information-driven tendency has gained momentum in mainstream practice and has been manifested in growing trends towards connectivity, collaboration, and deliberate knowledge creation, co-creation, remixing and sharing (McLoughlin & Lee, 2007; Reyna, Hanham, & Meier, 2018a; Siemens, 2005).

The shift from mere consumption to active participation in the production and co-production of content has had direct implications for facilitating a 'prosumer' culture, in which the user has become both a producer and a consumer of content (Dyson, 2012; Reyna, Hanham & Meier, 2018a). Dyson (2012) relates the rise in user-generated content (UGC) to several technology-related characteristics, including the convergence of multiple functionalities, portability, affordability, and capabilities for networking, storage, editing, and content-sharing. As such, the proliferation of these technologies has had direct influences on the democratisation of media creation (Reyna et al., 2018a). The rise in UGC appears to meet a parallel interest in knowledge-building in the field of education to promote digital literacies and digital citizenship (Reyna et al., 2018a). In discussing the use of podcasting, Atkinson (2006) notes "…emerging developmental and research direction seems… to be learning through *creating* podcasts and similar, in contrast to learning *from* podcasts" (P. 2, emphasis in original). This seems to also parallel voices that call for the need to enable knowledge-creation approaches for extending and enhancing knowledge (Paavola & Hakkarainen, 2005; Reyna et al., 2018a).

This new paradigm of meaning-making, particularly regarding content creation and the skills underpinning it, presents interesting implications for educational practice, both concerning learning design, processes, and outcomes. This chapter aims to highlight these educative potentialities and, in so doing, it aims to elucidate the different learning impacts as reported by the wide literature.

This chapter first presents a glimpse into the field of AMA-based learning by noting current research gaps and reviewing the relevant literature on AMA-based learning across disciplines, contexts, and artefacts. It then reviews the literature on SGP with emphasis on the learning gains and the challenges associated with this approach.

2.2 Authoring Multimedia Artefacts (AMAs)

2.2.1 Introduction

Many acronyms have been used across the literature to describe this thriving knowledge-creation and co-creation paradigm, including user-generated content (UGC), learner-generated content (LGC), student-created content (SCC), student-generated content (SGC), student-generated multimedia (SGM), student-generated digital media (SGDM), and learner-generated digital media (LGDM). While these suggest general areas of emphasis, some are tied to specific types of artefacts, like student-generated podcasting (SGP), student-generated video (SGV), and student-created digital video (SCDV). It is evident that 'learner' and 'student' and 'created' and 'generated' tend to be used interchangeably. This indicates a lack of consensus in the literature regarding naming the approach.

Various definitions have been adopted to reflect the nature of these acronyms, but this distinction has been largely determined by the nature of emphasis communicated by each acronym, level of specificity intended, and type of media or artefact being emphasised. This is why the literature abounds with definitions, many of which overlap or communicate similar premises. The activity is often expressed in terms of creation, generation, production, or authorship. For instance, Reyna and Meier (2018) adopt the acronym LGDM and define it as "digital artefacts developed by students to showcase their learning" (p. 95). The concepts 'digital' and 'artefact' are key to theorising media produced by students. For Naqvi (2015), SCDV is "a practice where students, either individually or in groups create a short digital video" (p. 247). This definition emphasises a specific artefact. By comparison, van Dijck (2009) adopts 'UGC' to refer to any form of content created by end-users. This view suggests wider motivations for content creation informed by perspectives from cultural theory, political economy, and consumer sociology. As can be gleaned from these examples, the different acronyms seem to highlight student-centred activities involving them in the production of various digital media, content, and/or artefacts.

Throughout this PhD thesis, the AMA(s) acronym is adopted to refer to all forms of learner-authored multimedia artefacts. The 'authorship' premise communicates such assumptions as creation, ownership, and innovation. It is believed to convey a more comprehensive nuance ranging from the initial phases of production to the final polishing, as well the nuances of personal investment and novelty in productions. The 'multimedia' premise denotes emphasis on products authored using ICTs, including material and conceptual media artefacts. Finally, the 'artefact' premise represents a major premise of constructionist learning and fits more with the

conceptualisation of outcomes in Papert's theory, which is adopted as a theoretical and conceptual lens in this study. Artefacts communicate emphasis on polished products, which features such assumptions as extensive manipulation of tools and objects, lengthy exposure to various materials and managing the artefacts from conception to completion. For these reasons, AMA fits more closely with the purpose of this PhD thesis.

2.2.2 Current State of the Field

Student-generated artefacts have only gained traction in recent years, such as in the field of SGP (Phillips, 2017). Forbes (2015) notes that most literature on podcasting rarely considers SGP, particularly regarding criticism of this approach in facilitating effective learning. Forbes also notes that consideration of learning from SGP outcomes in tertiary contexts is rare.

The literature indicates several research gaps regarding facilitating AMA-based learning in pedagogical practice across educational contexts. Several studies (Kearney, 2009, 2011; Reyna et al., 2017; Reyna et al., 2018b) argue that learner-centred frameworks and models to systematically implement and evaluate LGDM are lacking, which suggests this area is under-theorised as well as under-researched (Reyna & Meier, 2018). Reyna and Meier (2018) also note that frameworks for implementing learner-generated animations are also lacking due to the lack of marking rubrics and the ignoring of student training. The literature of SGV emphasises parallel gaps, which suggests the lack of theoretical models for assessment, the use of small samples, and the disregard of student training. Kearney (2011) argues there has been a paucity in frameworks for facilitating SGV. Similarly, Kearney (2009) argues there has been a paucity of frameworks to structure the integration of constructionist learning tasks such as digital storytelling into pedagogy, as well as a paucity of literature on the principles of effective integration of these tasks considering that existing frameworks have a technical focus. These concerns are reiterated by Reyna et al. (2018b), who argue there has been insufficient research on digital media education wherein learner media production is often used as an opportunistic agent. They attribute this to a lack of understanding by educators regarding media creation.

Reyna et al. (2018a) posit a reluctance in embedding AMA for assessment in HE, which also underscores the lack of effective principles for AMA design, implementation, and assessment (Reyna, Hanham & Meier, 2017, 2018a, 2018b). In response, Reyna et al. (2018a) have explored the principles by which the technological tools can be effectively taught and scaffolded in pedagogical design, beyond thinking about the tools. These include principles relating to, inter alia, colour theory, layout design, typography, and video production. They argue for the need to use LGDM assignments as pedagogical agents, not only to enable learners to create content

online but also to enable them to engage in effective communication using digital media. Their argument is grounded in the lack of understanding of digital principles in various literacy standards reports. As such, their contribution has many implications for educators.

In the light of the gaps in research regarding the provision of systematic frameworks for embedding digital artefact creation into pedagogy, Reyna et al. (2017) propose three domains for producing engaging digital artefacts, which they identify as a digital literacy framework: conceptual, functional, and audio-visual. The first domain concerns itself with the planning stage, the second domain with the necessary skills underpinned in mastering the use of devices, software, and tools, and the third domain addresses the digital media principles for artefact production. The authors also developed a taxonomy for digital media types mapped against the competencies required for each media type according to the three-domain model for multimedia creation.

Several other frameworks have been developed to facilitate AMA-based learning. The Digital Artefact for Learning Engagement (DiAL-e) framework sets out to help educators identify ways to support learners in producing externally produced videos (Burden & Atkinson, 2008). It outlines ten meta-categories of learning design concerning ways students can engage actively and cognitively in AMA experiences: stimulation, narrative feedback, collaboration, conceptualisation, enquiry, authoring, empathising, research, representation, and figurative analysis. These ten design principles can be clustered in relation to engagement, knowledge construction, and reflection. The framework offers the means to structure the activity and understand the processes through which learners engage in the learning process.

What is noteworthy in the AMA-based learning literature, however, is the lack of frameworks underpinned by Papert's theory of constructionism. This is an interesting finding, especially considering Papert's contributions to the fields of ICT-mediated learning and educational computing. There is also insufficient research underpinned by Papert's constructionism to frame AMA-based learning in general, and SGP in particular. These gaps are used as a basis for developing a conceptual framework for Papert's theory in Chapter Three.

2.2.3 Review of AMAs in the Global Context

2.2.3.1 Evidence from Tertiary Science Education

One of the recent systematic reviews of literature in the field was done by Reyna and Meier (2018), who conducted a literature review search of AMA in the literature of science education on several popular platforms, including Informit, EBSCO, ProQuest and LearnTechLib. This study

presents some of the latest insights into the research landscape. It draws on findings in reviewed journal papers, books, conference papers, and student-created content, and considers different media types including podcasts, digital storytelling, screencasts, animations, and digital videos. The findings generated 4, 6, 4, 9, and 12 papers (n=35), respectively, as outlined below.

Findings in relation to podcasting suggest that evidence is limited, suffers from inconsistencies in the approach to evaluation, and suffers from some methodological problems (Reyna & Meier, 2018). One study used insufficient survey items for measuring the intended areas. A follow-up study used a quantitative approach to compare students' marks against their performance in the previous year. However, Reyna and Meier argue this basis of comparison is faulty since podcasting was not used in the previous year. Additionally, both studies overlooked training and neither used a theoretical model to frame the design of podcasting assessment. A third study in geography used a three-step model for production. While it was useful, it failed to embed the roles of both students and educators. A follow-up study adopted both quantitative and qualitative methods from students in two different cohorts. Reyna and Meier contend that the small sample size is a major limitation of this study, along with the method of data gathering. An additional qualitative study with postgraduate engineering students which adopted an action research approach acknowledged that students appreciated the intervention but viewed the podcast-creation task as difficult and arduous.

Concerning digital storytelling, Reyna and Meier (2018) posit that the use of digital storytelling for assessment in the science disciple is rare and still in its infancy. They attribute this to the misinformed belief that it lacks rigour. One study with undergraduate 'Biology and Environmental Studies' students adopted storytelling in assessment tasks. However, the methodology was flawed as it provided no analysis of data and used a rubric with mismatched elements. Findings revealed storytelling was time-consuming. Another study with postgraduate science education students revealed storytelling enabled them to improve their communication skills, understand the topic, and explore multimodal communication. However, the methodology lacked clarity because data were not included in the paper. A third study with undergraduate and postgraduate students revealed that while students appreciated the autonomy, they experienced minor technical challenges.

Screencasts are a recently emerging form of LGC, but the literature in the field is also insufficient (Reyna & Meier, 2018). An experimental study in computer programming, which gleaned data from four semesters, revealed that students who used screencasts as a form of notetaking during tutorials had better score results than those who used the traditional alternative. Another experimental study in which screencasts were used as tests to complement code-writing revealed

this method helped students reflect on code-writing. Yet, this study suffers from methodological ambiguity and fails to mention the number of participants.

Student-generated animations also suffer from insufficient theorisation (Reyna & Meier, 2018). One study with pre-service teachers found this method helped foster learning and reinforce relevant concepts. The major shortcoming of this study is its generalisability since it focuses exclusively on qualitative data. Another study with undergraduate pharmacology students revealed this method helped enhance communication, problem-solving, critical thinking, project management, and teamwork skills. On the other hand, it was also emotionally and technically challenging. This study, however, suffers from methodological shortcomings, including the lack of a theoretical model for assessment design, lack of student training, and drawing data only from a qualitative survey.

Student-generated videos are rather common in comparison (Reyna & Meier, 2008). A study with 75 undergraduate physiotherapy students which used a qualitative survey revealed mixed results, including stress and anxiety in relation to task requirements and planning. According to Reyna and Meier, the study suffers from several shortcomings, including the lack of student training, lack of framework for implementing the method as an assessment and relying on qualitative data alone. Another study with geography students revealed satisfaction with the approach, as well as some coordination and technical issues. Reyna and Meier argue the study lacks a framework for task implementation, which also aligns with Kearney's (2011) contention that frameworks for facilitating specific genres of learner-generated video are lacking. Furthermore, a study with 92 undergraduate pharmacy students and 83 health sciences students which used a qualitative survey revealed that the students enjoyed the task and it helped enhance their communication, time-management, problem-solving, and critical thinking. The study, however, found the task also increased students' anxiety and apprehension. Also, it lacked a theoretical framework for the assessment, and no training was provided for students.

2.2.3.2 Evidence from Pre-Service Teacher Education

The AMA-based learning literature seems to be in its earliest stage of development, particularly in the context of pre-service teacher education. This is the position held by Kearney (2009), who maintains that research on learner-generated digital storytelling in HE is still in its infancy and is under-theorised regarding the role of teachers and peer-learning structures. Furthermore, Simsek (2020) found after careful examination of the literature on the use of digital storytelling in L2 contexts that pre-service teachers are the least studied group. The author also notes that most of the literature ignores the assessment of final products and providing clear details on how these

were assessed. In many cases, traditional tests (e.g., oral communication tests, essay tests) were used. Also, Simsek notes most studies lacked underpinning theoretical frameworks.

Simsek (2020) conducted a study with 56 pre-service EFL teachers who engaged in collaborative digital storytelling in conjunction with collaborative writing to explore the impacts on L2 writing performance, personal growth, and academic learning using 1) a comparative analysis of textual complexity-accuracy-fluency factors, 2) peer and teacher assessment of final products, and 3) reflective writing as a process evaluation. Findings revealed grammatical accuracy and lack of mutual interaction contributed to poor performance among groups. Learning gains included more procedural, creative, critical, and practical thinking, but lower disciplinary and integrative thinking. The author attributes this to the immediate concern with task achievement at the expense of achieving deeper learning.

In a case study in the context of an online initial teacher education programme in New Zealand, Forbes and Khoo (2015) explored the use of SGP for supporting interactive formative assessment as part of large-scale interdisciplinary research on the use of ICTs to advance modern pedagogical approaches. They only report one aspect of research. Following teacher-generated podcasts to model the process, students created two three-minute podcast episodes to facilitate reflective learning. The first was based on their reflection on observing assessment approaches during a six-week practicum, while the second was on their emergent teaching philosophy and future teaching dispositions. Reflections were shared with their peers and they interacted with them to provide feedback on each other's ideas. Data were gathered from teacher and tutor interviews (n=3) about the value of podcasting for supporting formative assessment, as well as from open-ended course evaluation survey (n=43) and student focus-group discussions in Moodle (n=17). Findings revealed the approach contributed to valuing cooperative learning (e.g., valuing shared learning between tutors and students, valuing teachers as self-learners and risk-takers; valuing the learning process and learning from mistakes; valuing social learning for feedback, reflection, inspiration; valuing the role of ICTs for meeting diverse contexts), valuing knowledge-skill dispositions for digital learning (e.g., supporting diverse student needs, supporting reflection-in-action and on-action; building learner confidence; enabling relevant learning). No challenges were reported, however.

Khoo, Forbes and Johnson (2013) also conducted a semester-long qualitative case study in an online initial teacher education class. In this module, students were required to create two podcasts, three minutes each. The sample included eighty second-year undergraduate adults enrolled in the 'Professional Practice and Inquiry' module. A qualitative interpretive methodology was adopted as a design. The methods included course evaluation surveys (with a response rate

of 57%), and an online forum (only 17 students participated). Findings revealed several themes. First, SGP enhanced and extended students' technical skills and confidence in technology, which consequently motivated them to adopt more effective strategies, especially in creating their second podcast. Secondly, this project afforded transformative possibilities in relation to humanising the learning experience, adding a multimodal dimension to students' learning, and fostering collaboration and interaction among learners. Furthermore, it promoted interpersonal engagement and helped foster a sense of community amongst distance learners. It also yielded a humanising effect in that students felt empowered to express their ideas verbally for an authentic audience and exchange feedback. Added to this, this project enabled further reflection, revision, and refinement of ideas as part of a formative approach. However, the authors found the project technically challenging, and thus support and modelling are necessary.

2.2.4 Review of AMAs in the Omani Context

Efforts to integrate knowledge-creation approaches into pedagogy seem relatively limited in the Omani HE context. To date, there is little evidence on student-generated content or the use of AMA-based learning in the context of Omani HE, none of which is on podcasting, which warrants further research.

The paucity of research on AMA-based learning in the Omani context is noticeable. As indicated in the introduction of this thesis, only four studies were located after extensive research in online databases and platforms, all of which seem to address SCDV in the context of an undergraduate Engineering programme and which are authored by two researchers.

In two studies, Al-Mahrooqi and Naqvi (2014) and Naqvi and Al-Mahrooqi (2015) report findings on a study conducted at a private college that used a blend of SCDV, a presentation, and student reports with 58 full-time and part-time undergraduate engineering students in two cohorts. Drawing on the perspectives of teachers, students, and observers using focus group discussions in an online forum, teacher reflective journals, and observer comments, positive findings were reported. They revealed that students enjoyed the task, and the approach improved their language and social skills. The reported challenges included time management, intragroup project management (esp. dividing up work and coordinating it between full-time and part-time students), and diverse class schedules. Even so, the findings indicated that students were able to resolve these issues, albeit with variance among individuals.

Furthermore, Naqvi (2015) conducted a study on undergraduate engineering students who engaged in the creation of SCDV using English. Using data from the perspectives of students, teachers and observers and triangulation of results from interviews and focus groups, the findings

revealed that this approach improved students' language skills, increased their motivation and enjoyment, and contributed to meaningful learning and a sense of achievement. Key challenges included technological glitches. The execution of the task lacked proper coordination (e.g., insufficient preparation time, difficulty managing suitable timing for both teachers and students, some students missed the training session, difficulty keeping track of students' progress). The small sample size is also a study limitation.

Naqvi and Al-Mahrooqi (2016) conducted a study on collaborative SCDV in Omani HE with two batches of undergraduate engineering students (n=36). Gathering data from a questionnaire and focus group discussions, their results showed that most students agreed this approach improved their language skills, most notably speaking and vocabulary (M = 4.17 and 4.08, respectively). It also helped improve several sub-skills, especially research skills, critical thinking, collaboration, and creativity (M = 4.51, 4.30, 4.29, 4.29 respectively). From a pedagogical standpoint, the authors believe this practice can improve pedagogical efficacy and offer valuable ICT-assisted practices. Reported challenges included the challenging nature of the task (89%), compiling the report (39%), meeting deadlines (31%), video design (19%), and group work (11%).

2.3 Review of Literature on the Case of Student-Generated Podcasting (SGP)

2.3.1 Overview

This section first reviews the literature on student-generated audio and video podcasts as a popular example of AMAs. It then critically examines their learning implications and the challenges associated with this approach to learning. The range of areas (especially in terms of knowledge and skills) that audio and video podcasting address is helpful in understanding the link between AMA and ICT-mediated learning practices, as well as their implications for pedagogical design and implementation.

2.3.2 Podcasting as AMAs

A podcast has been defined as a method for distributing digital media files, whether video or audio, over the Internet, often in a series of episodes for playback on portable media players (Frydenberg, 2008; Lazzari, 2008). Podcasting has been a valuable web tool and has been commended for promoting learning convenience, flexibility, and accessibility (Frydenberg, 2008; McGarr, 2009); promoting learner motivation, engagement, and control; and affording an appealing alternative for the dissemination of knowledge (Salmon & Nie, 2008). Podcasting has

been used in education for different purposes, but mainly as a knowledge dissemination tool (Forbes, 2015). Nonetheless, the uptake of podcasting in education is relatively low when measured against its affordances.

While the early literature has generally focused on teacher-based podcasting (Lonn & Teasley, 2009; Salmon & Nie, 2008), much later emphasis has shifted towards student-created podcasts (Forbes, 2015; Frydenberg, 2008; Lazzari, 2008; Pegrum et al., 2014). McGarr (2009) identified three major uses of podcasting in education: substitutional, supplementary, and creative. As the references suggest, substitutional podcasting is used to replace traditional class lectures, often through providing recordings of lectures to help students review the material or to help those who miss class meetings. Supplementary podcasting is used to supplement conventional classrooms by providing syntheses or additional materials. Finally, creative podcasting is that which requires students to create podcasts. McGarr maintains that it is creative podcasting that unleashes the true potential of podcasting for promoting deeper learning. This is because podcast creation requires a deeper level of engagement with the theoretical material, production tools, production teams, and the creation process. According to Lee et al. (2008), "…the true potential of podcasting technology lies in its knowledge creation value, and its use as a vehicle for disseminating learner-generated content" (p. 504).

Creative podcasting (or SGP) has facilitated effective learning in HE. Forbes (2015), for instance, conducted a pilot study on 35 initial teacher education undergraduate students, a few in-service teachers, and some social science students in an online ICT module. Part of the requirements for the module was for each student to create a reflective podcast. Students were instructed to educate themselves about podcasting and then were given three topics to choose from. Technical assistance was made available to them. Findings showed that students learned about podcasting, became aware of their availability online, created a self-reflective podcast, self-assessed their own podcasts, and gave and received feedback. Furthermore, the findings showed that SGP engaged students in metacognitive reflection, and in learning how to learn. Some community-building benefits were also recognised, including social skills, communication, and exchange of feedback and feedforward. Moreover, the cognitive outcomes of this task included enabling students to make links with other curriculum areas and gain insight into pedagogical processes.

A pilot study by Nie et al. (2008) on thirty second-year medical students enrolled in a 'Development in Genetics & their Ethical Implications' module also found positive results of SGP. The students were divided into five groups and each created a podcast on some ethical issues around genetics. The study used semi-structured interviews to gain an insight into how students created the podcast in groups and what the perceived benefits were to their own learning. The

module leader who utilised this approach was also interviewed. Moreover, a questionnaire was used to obtain feedback from students about their download statistics. The experience of podcast creation was found to afford many cognitive benefits to students, particularly regarding enhancing understanding. For instance, students were enabled to broaden their knowledge about the subject matter, link information with previous knowledge, view the issue from different perspectives, and share opinions among group members. Findings also showed that students became more independent and active in handling this responsibility for content, where they felt empowered to conduct more research to ensure proper coverage that met audience expectations. It also made them think about the delivery style to appeal to the audience, and thus they tried different approaches to make their podcasts attractive. In addition, it was found that this experience promoted students' engagement and motivation and enhanced their team-working skills.

Besides audio podcasts, student-created videos have also proved valuable to students' learning as they help enhance and promote many skills such as fluency, pronunciation, speaking skills, non-verbal communication, student motivation, cultural awareness and group cooperation (Carney & Foss, 2008). Also, Young and Rasinski (2013) found that involving students in creating a movie improved their sense of accomplishment and motivation. Other outcomes included promoting multi-faceted learning and developing a range of academic and non-academic skills. Student-created videos also afforded opportunities for active and experiential learning wherein students exercised their metacognitive, reflective, social, and knowledge-building skills.

2.3.3 Review of Learning Outcomes of SGP

The literature indicates a broad range of learning benefits associated with student-generated audio and video podcasting, classified into the following categories (following Nie et al., 2008):

a) cognitive and affective benefits (e.g., cognitive, metacognitive, reflective, and affective)
b) social and interpersonal benefits (e.g., collaboration, negotiation of meaning, perspective taking, opinion feedback and sharing)
c) technical benefits (e.g., digital literacy skills, technological problem-solving, project management)
d) practical benefits (e.g., employability skills)
e) intrapersonal benefits (e.g., autonomous learning, accountability).

As to cognitive and affective benefits, SGP has been commended for promoting several cognitive processes, such as promoting a deeper understanding of the material (Bart et al., 2011), enhancing students' understanding of the subject matter (Frydenberg, 2008; Lazzari, 2008),

encouraging engagement with the theoretical material (Dale & Povey, 2009), and helping students form links with previous knowledge (Miller, 2007, cited in Nie et al., 2008). Besides cognition, metacognitive engagement has also been enhanced. McLoughlin et al. (2006a) found that SGP enhanced students' metacognitive thinking and their self-regulation of thinking. Similar findings were also reported in a pilot study by Forbes (2015) wherein students were encouraged to engage in metacognitive reflection, articulation of opinion, and learning how to learn. Lazzari (2008) also found that students showed a high level of engagement during the project. Reflective benefits have also been attributed to SGP as it was found to help students reflect on their own learning (Huann & Thong, 2006). The technical aspects of the creation process have helped students reconsider and modify their ideas during podcast creation (Lazzari, 2008). Added to these benefits, SGP has had a positive effect on students' motivation and engagement (Nie et al., 2008). Additionally, McLoughlin et al. (2006a) found that SGP was successful in promoting engagement and in enhancing the motivation of undergraduate 'Information Technology'' students. Probably the most notable finding is that it helped motivate otherwise unmotivated students (Pegrum et al., 2014).

In addition, several studies have reported social and interpersonal benefits of SGP. For Lee et al. (2008), SGP tasks may include both elements of cooperation (i.e., division of labour) and collaboration (i.e., joint effort of completing a task). This learning dimension is underpinned by constructivist epistemology and collaborative learning theories which view learning as a reciprocal social process (Lee et al., 2008). In this regard, many scholars (Carney & Foss, 2008; Khoo et al., 2013; Nie et al., 2008) found that podcast creation promoted collaborative learning, interpersonal engagement, and team-working skills. Furthermore, a study by Lazzari (2008) with full-time multimedia communication students found that the SGP experience developed collaborative learning skills. He notes, based on results from data and observation, that:

> *…podcasting design, recording, and editing spurred the development of reflective learning skills, stimulated students to go deep into the questions they had to face, and fostered positive collaborative behaviours, promoting the growth of students' collaborative learning skills. (p. 32)*

Similar results indicated that the SGP experience nurtured a sense of community among distance learning students, suggesting it contributed to humanising the learning experience, allowing students to exchange verbal feedback and feedforward with the rest of the group in the distance learning module (Khoo et el., 2013). This social dimension was associated with the constructivist and sociocultural views of learning. In addition, Bartle et al. (2011) found, in their study of SGP with undergraduate chemistry students at the University of West Australia, that collaboration is

the second-highest advantage of the SGP assignment, following deeper understanding being the highest-rated advantage.

Technical benefits have proved also central to SGP experiences. Not only have ICTs enabled active involvement and concrete learning, but the digital literacy skills they develop have proved to be a far greater advantage. In several studies (Khoo et al., 2013; Lazzari, 2008), SGP has been recognised for its value in enhancing students' technological skills as well as enhancing their technological confidence and competence. Also, a study by Forbes (2015) found some technical outcomes wherein students learned to set up and use Audacity (an open-source software) for podcast recording and editing. This process, according to Forbes, involved both problem solving and perseverance. Similarly, Frydenberg (2008) found that SGP involved both critical thinking and technology skills since students had to produce a synthesis of many IT topics to fit into a narrow timeframe (between 6-10 minutes), and then they had to master the technical tools of recording, editing, and publishing the podcast. As to McLoughlin et al. (2006a), their study's findings indicate that this experience helped students identify some areas of skill deficit, including their technical skills of scheduling, scripting, and editing.

Some practical outcomes have also been associated with creative podcasting. For instance, Dale and Povey (2009) conducted a study on third-year undergraduate students enrolled in a module on heritage management. This module ran for twelve weeks, the first half of which consisted of regular instruction, while the last six weeks involved students in group-based podcast creation for the purpose of enhancing the interpretation of a local tourist site. To get students prepared, a field trip to a museum was organised so students could collect relevant information. Using reflective blog entries and interviews, the authors found that students developed several creative, imaginative, and practical skills. The authors note that such outcomes would not have been achieved using conventional methods of assessment. Therefore, they note:

> *…the activity has the potential to further develop the employability skills of students [as] students felt that they gained a greater understanding of the subject from both a manager's and a customers' perspective and acknowledged how the activity would benefit them as prospective candidates in the employment market. (p. 121)*

Furthermore, the literature reports several intrapersonal benefits of SGP, particularly in relation to self-direction and independent and autonomous learning. For instance, Nie et al. (2008) reported that podcast creation encouraged students to learn independently, by conducting independent research to broaden their knowledge of the topic. This finding is also reported by Forbes (2015). Furthermore, these aspects concur with evidence from Papertian constructionism.

In elucidating the constructionist premise of teaching children to programme and the fundamental effect of computers on intellectual development, Papert (1980) acknowledged many of these intrapersonal benefits to learners, noting:

> *…when a child learns to program, the process of learning is transformed. It becomes more active and self-directed. In particular, the knowledge is acquired for a recognisable personal purpose. The child does something with it. The new knowledge is a source of power and is experienced as such from the moment it begins to form in the child's mind. (p. 21)*

This suggests that constructionist learning recognises the potential of self-direction in empowering learning through adding a personal value to it. A similar stance is voiced by Nie et al. (2008), noting that feedback from SGP showed that learners could become independent and active when given responsibility for the quality of their own productions. In this context, one group noted that they made an extra effort with the topic they chose themselves to ensure they had researched and understood it well. Another group reported paying attention to their presentation style to ensure it appealed to the audience. A third group tried different editing approaches to enhance the appeal of their podcast.

2.3.4 Review of Challenges Associated with SGP

Despite the positive gains of SGP, several challenges and concerns have been raised in the literature on student-generated audio and video podcasting, and these can be classified into the following categories:

a) Personal challenges (e.g., learner perceptions, readiness);
b) Pedagogical challenges (e.g., time-consuming);
c) Task administration challenges (e.g., group dynamics);
d) Technical challenges (e.g., glitches) and
e) Infrastructural challenges (e.g., access to resources)

The research literature on SGP highlights several challenges associated with students' readiness. Lack of prior experience in producing digital media has been shown to be an inhibiting factor, suggesting technological knowledge and confidence can impact the quality and processes of learning (Dale & Povey, 2009; Phillips, 2017). In a pilot study with academic staff, Middleton (2009) found that faculty's lack of prior experience contributed negatively to approaching and working through the podcasting activities. Frustration and anxiety were among the featured issues associated with the use of new technology, which led to technology avoidance.

Additionally, Khoo et al. (2013) found that students had negative perceptions about the podcasting task at the initial phases, believing it would be difficult and daunting. Dale and Povey (2009) also found that SGP did not engage all students deeply with the subject matter. Another challenge concerns students' confidence in their voice. In this context, Phillips (2017) found from post-production interviews with students that they did not like the sound of their recorded voices.

Another major concern relates to how ICT-mediated learning can be time-consuming (Bartle et al., 2011; Burt, 2008; Huntsberger & Stavitsky, 2006; Lee & Tynan, 2008; Phillips, 2017), hence requiring additional time and potentially increasing anxiety. For instance, McLean and White (2009) found engaging students in group podcasting projects for Journalism writing to be time-consuming and that this impacted the initial plan to publish the outcomes. Faculty training was also found to be time-consuming given their lack of prior experience. Likewise, Phillips (2017) found that the lack of relevant ICT experience, coupled with the novelty of the approach increased learner anxiety.

Other issues with SGP have been attributed to collaboration and division of labour. For instance, Carney and Foss (2008) found several issues when conducting SGV projects in EFL classes in Japan. Having tried two approaches, the first involving four individual pairs and the second a group of eight students, the findings revealed that the first approach afforded little teacher intervention in language-related aspects, such as pronunciation and intonation. The outcome was that students were hard to understand, and language issues were frequent. For the second approach, which involved close teacher monitoring and collaboration, the challenges included achieving equal division of labour, which resulted in unequal learning where some students were excluded from certain parts of the task. Furthermore, Bartle et al. (2011) found group work to be the highest disadvantage in collaborative podcasting projects with undergraduate chemistry students, suggesting group projects are ill-suited for assessment as they can be stressful, time-consuming, and difficult to schedule and manage.

Moreover, the use of technologies is plagued with technical difficulties (McLean & White, 2009), often requiring technical support and training (Lonn & Teasley, 2009; Phillips, 2017). In collaborative SGV, McLean and White (2009) found that anxiety about technology affected the degree of learner creativity and negatively affected some students' final outcomes. Further, given the diverse student aptitudes and readiness levels, there were challenges in determining suitable extents of training and the time needed to support students. Additionally, the authors emphasise that more forms of control are needed, such as the need to break down the task and increase hands-on practice with equipment to enhance learner confidence. In addition, Bartle et al. (2011) found technical difficulties to be the second-highest disadvantage to SGP for undergraduate

chemistry students, whether concerning technology access or use, lack of familiarity with this approach, or preference for conventional approaches. The authors suggest that some students could have benefited from additional technical support, guidelines, and workshops. Dale and Povey (2009) found that students required support with their activity, suggesting that lack of technological confidence is among the challenges in conducting SGP projects. The findings also acknowledged the need for wider and flexible access to hardware to enhance students' confidence.

Infrastructural challenges have also been identified in the AMA literature, suggesting infrastructural readiness and maintenance can be problematic. For instance, Dale and Povey (2009) note in their study of SGP with undergraduate Heritage Management students that technology can be a barrier to engagement if no sufficient support and access to infrastructure are provided. Furthermore, lack of sustainable support systems could also inhibit the quality of AMA-based learning, as indicated by several scholars such as Forbes (2015) and Phillips (2017).

2.4 Literature Review Summary

This chapter provided a detailed discussion about the field of AMA-based learning. It highlighted the current state of research, noting key research gaps. It provided a review of relevant literature on AMA-based learning across disciplines, contexts, and artefacts. It then provided a review of the literature on the SGP approach, with emphasis on the learning gains and the challenges associated with it.

The next chapter uses this understanding as a basis for developing a conceptual framework to underpin this research study.

Chapter 3 Theoretical and Conceptual Framework

3.1 Introduction

To understand and frame AMA-based learning, this study adopts Papert's theory of constructionism as the chief theoretical and conceptual framework. This suggests the need to view this theory in terms of its philosophical ethos, theoretical assumptions, and pedagogical warrants. The review below is presented and structured in such a way as to glean a systematic conceptualisation of this theory despite the paucity of operationalised models in the literature.

Accordingly, a detailed exploration of the epistemological and methodological assumptions and principles underpinning constructionism is first presented, followed by an exploration of its pedagogical warrants and how they intersect with relevant theories and literature. This is used as a basis for offering a reconceptualisation of Papert's theory. References are also made between the salient areas taken from the theory and the ways they complement the purposes of this study.

3.2 Epistemological Grounds of Papertian Constructionism

3.2.1 Overview

Papert's (1993) learning theory of Constructionism is underpinned by Piaget's constructivist connotation of learning as building knowledge structures (Papert & Harel, 1991). The Piagetian view of children's intellectual development is based on the idea that children learn through interaction with the objects around them. In this way, children are viewed as "active builders of their own intellectual structures" (Papert, 1980, p. 19), which contrasts with the notion that learning results from assimilating transmitted knowledge. This acknowledges that learners play an active role in the process of constructing their knowledge structures (e.g., eliciting ideas, negotiating meaning, making connections) and continuously refining these structures (e.g., adding extra knowledge, changing old perceptions). This constructivist basis of learning is, therefore, fundamental in Papert's constructionist theory.

Even so, Papert does not limit the constructive basis of learning to the building of intellectual (or mental) knowledge structures. Papert counters the Piagetian internalised processes of knowledge-building by suggesting learning happens best when it is deliberately externalised in the

form of external or tangible artefacts or products (Stager, 2001), as captured in his definition of constructionism:

> *The word constructionism is a mnemonic for two aspects of the theory of science education underlying this project. From constructivist theories of psychology we take a view of learning as a reconstruction rather than as a transmission of knowledge. Then we extend the idea of manipulative materials to the idea that learning is most effective when part of an activity the learner experiences as constructing a meaningful product. (Papert, 1986, p. 2)*

While this views learning as learning-by-making, Papert and Harel (1991) posit that constructionism cannot be defined by such an attribute since it is "…much richer and more multifaceted, and very much deeper in its implications than could be conveyed by any such formula" (p. 1). This suggests the creation premise transcends the indulgence in a process of making, and therefore it should manifest in external artefacts. This assumption is driven by the notion that learning in the head can best be ensured when represented in an external outcome (Papert, 1993; Stager, 2001).

The outcome artefacts need not, however, be limited to mathematics and programming, which correspond to the areas on which Papert based his work, but can include any conceptual or object artefacts:

> *Constructionism--the N word as opposed to the V word—shares constructivism's connotation of learning as "building knowledge structures" irrespective of the circumstances of the learning. It then adds the idea that this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it's a sand castle on the beach or a theory of the universe. (Papert & Harel, 1991, p. 1)*

Papert's primary concern is not so much on creating a digital artefact as it is about the learning underpinning the process of construction (Beynon, 2017). In this context, tinkering (or bricolage) is advanced as a congruent approach to constructionist learning where the process becomes the end goal rather than the means (Stager, 2005, 2008). Papert (1980) argues that while tinkerers (or bricoleurs) and planners (i.e., analytic learners) approach the product differently, the difference "is not in quality of product, it is in the process of creating it" (Turkle & Papert, 1990, p. 140). The flexibility of interaction with the tools offered by tinkering is what interests Papert. In programming, for instance, Papert's interest has been in how far the process of programming invokes active, reflective, and autonomous learning (Beynon, 2017; Papert, 1980). This shifts the

focus from an interest in outcomes to the thought processes underpinning construction. Despite advocating the use of computer-aided construction, Papert acknowledges non-technology objects could trigger just as valuable learning processes (Papert, 1980).

As a mathematician, most of Papert's work involved the use of computers in teaching children programming with Logo. Papert's fascination with computers is noteworthy. He believed this tool has the potential to transform learning (Levin & Tsybulsky, 2017). Papert considers computers as tools that can facilitate both thinking, working and learning; as tools that can enable concretising abstract concepts and interacting with them in concrete ways and flexible manner (Harel & Papert, 1990; Papert, 1971, 1993; Turkle & Papert, 1992); as tools that can enable open conversations with the representational objects of those abstract concepts (Ackermann, 2001); and as tools that can extend the thought processes (Ackermann, 2001; Stager, 2001).

3.2.2 Constructionism vs. Constructivism: A Philosophical Perspective

As established, Papertian constructionism is an offshoot of Piagetian constructivism. Both, therefore, share similar fundamental beliefs and principles regarding learning, such as in respect to the role of the surrounding environment and culture (e.g., in supplying schemas, frames of reference, and existing knowledge structures), the role of instructional intervention (e.g., in helping guide and bridge learners to their edge of meaning), the process of learning (e.g., through manipulating and interacting with social objects and tools), and the view of knowledge as incremental (i.e., a developmentalist perspective). The philosophical underpinning of both traditions postulates that knowledge structures are constructed and re-constructed through personal experiencing (Ackermann, 2001; Papert, 1988). A central notion in both Piagetian constructivism and Papertian constructionism is that children learn by "making connections between different aspects of personal experience" (Beynon, 2017, p. 9).

However, several differences exist between the two traditions. The first is attributed to the emphasis of Papertian constructionism on the construction of external artefacts as a representation and outcome of learning. The primary concern behind artefact construction is the way this process invokes such aspects as active and deep learning, reflective thinking, and learner autonomy (Papert, 1980). This is projected here as a major strength of the constructionist approach, the value of which can extend to the community beyond. Stager maintains:

> *It is believed that through the construction of personally meaningful projects students will not only develop content-area knowledge, but the habits of mind and social skills required to make contributions to society in the twenty-first century. (Stager, 2001, p. 5)*

This bears a connection to the thriving industry that revolves around the construction of digital artefacts (i.e., digital content in text, graphic, audio, audio-visual formats), as reflected in the growing popularity of UGC platforms, such as YouTube, Snapchat, Instagram, and similar. Viewed from a sociocultural perspective, this can be seen to concur with Stager's (2001) remarks on the type of contributions to society that will be demanded of students in the twenty-first century.

Another distinguishing factor is attributed to the role of social cultures in the supply of building materials (Papert, 1980). Where Piaget attributes the slow development of concept formation to complexity or formality, Papert attributes it to the poverty of cultural stimuli that make concepts simple and concrete. Papert also maintains that, through attributing negative associations, some cultures place a cultural block in the way of learning. That is, despite the availability of learning materials and resources, such cultures can contribute to inhibiting and obstructing learning. This is where Papert sees computers to play a transformational role in education since they afford children access to a world of connected ideas and rich sources. This connectivist premise of learning is suggested (even argued) to transcend the limitations of the traditional views of learning, given its inclination towards broader social learning practices overlooked by traditional approaches to schooling. The significant explosion of the world of connected ideas reflected in modern-day proliferation of ICTs and connectedness corroborates these propositions.

Papert also makes a strong case for 'concrete learning' to counter the biases for 'abstract learning', which is seen as 'the real stuff' (Papert, 1993). He argues that "more often, …concrete learning is more deserving of this description, and abstract principles serve in the role of tools that serve, like many others, to enhance concrete thinking" (p. 146). Yet, his advocacy for concrete learning "…is not to be confused with a strategy of using it as a stepping stone for the abstract" (Papert, 1993, p. 146). While Papert commends the findings of Piaget's study of children (i.e., stage of concrete operations) and Levi-Strauss's study of distant societies (i.e., science of the concrete) in that they recognised 'concrete thinking' as a developmental stage, Papert asserts that these accounts have the same blind spot in that they both confine concrete ways of thinking to denote the 'underdeveloped', whereas Papert believes it applies even to the 'sophisticated'.

Additionally, although Papert accepts Piaget's distinctions between concrete and formal learning processes, he feels computers (as objects to think and work with) could dissolve the boundary between these two phases of child development. Papert argues that computers help afford formal learning processes through concrete learning. This way, computers enable "…knowledge that had previously only been accessible through formal processes to be approached concretely" (Mackrell & Pratt, 2017, p. 422). This counters the pure intellectual stance of many constructivist

traditions. Along with the intellectual perspective, Papert acknowledges the importance of bodily knowledge as well as affect, and how both inform and shape our understanding of the world.

3.3 Elucidating Papert's Progressive Education Views

To fully appreciate Papertian constructionism, it is important to highlight Papert' personal views and convictions about education, and those which have shaped his theory and influenced his work.

Papert has always been wary of the rift between in-school and outside-school learning. He has criticised how formal education prioritises propositional and abstract knowledge over practical and applied knowledge (Papert, 1993, 2000), and how it reinforces the de-contextualisation of learning and meaning-making from actual contexts of use (Herrington & Oliver, 2000; Papert & Harel, 1991; Resnick, 1987). Additionally, he criticised how formal education cultures and structures have become reductionist, that is, predisposed towards established routines of learning; how they end to engender defined expectations around the construction of aptitudes, as reinforced by the testing culture of admission thresholds, assessment schemes, and exit levels (Papert, 1980); and how they breed conformity and a bias towards facts and skills, while diminishing the potential of idea invention inherent in constructivist epistemologies which alternatively prioritise naturalistic inquiry, exploration, and tinkering (Papert, 1993, 2000; Stager, 2005, 2013). The latter is what Papert (2000) refers to as 'idea aversion'.

Alternatively, Papert (1987) advocates a radical change in education, a need for an alternative theory, culture, and methodology altogether, preferably one that can grow in the new technological setting. As a strong advocate for constructivist approaches to learning, Papert (1987) has advocated a more authentic and naturalistic approach to inquiry, one that can enable learners to construct new knowledge, as well as make connections between old and new knowledge, between concepts and their referents in the environment, and between concepts and the context in which they emerged (Harel & Papert, 1990; Papert, 1980, 1987; Stager, 2005). He has also called for the need to appropriate the cultural materials to facilitate and support the development of thought (Papert, 1980, 1987). He holds that traditional methodology is incapable of bringing about the desired levels of change necessary to meet the needs of progressive education.

He has, therefore, proposed 'educology' as the new theory for education, with 'constructionism' serving as its approach. The following subsections outline its guiding principles and propositions.

3.3.1 Design Principles of Learning Environments

A key aim for Papert (1980, 1987, 2000) is the creation of learning environments for productive learning, a theme quite recurrent in his critique of mainstream schooling and congruent with his attempts to re-empower the constructivist ideals. Three types of alternative learning environments seem to dominate early literature on constructionism: Logo as a virtual environment, the Constructionist Learning Laboratory (CLL) as a physical environment, and the Samba schools as a sociocultural environment. Each of these contexts has had implications for the theorisation of Papertian constructionism as a theory of learning.

Early work by Papert has sought to define the environments for productive learning and naturalistic inquiry. This is particularly relevant to his work on teaching mathematical concepts to children. He argues for the need to provide a native-like environment for learning mathematics resembling those for learning a native language. Papert (1980) argues that learning math in an abstract fashion detached from contexts of use treats it as a set of facts to be memorised. Based on this, he proposes creating a 'Mathland', "a context which is to learning mathematics what living in France is to learning French" (Papert, 1980, p. 6). Through this, Papert intends to highlight that embedding math in the surrounding environment renders the assimilation of math like that of a native language and provides a space where children can grow with an aptitude for math. Papert has written of his fascination with his childhood gear and the way they were part of the 'natural landscape' of his childhood, which underscores the role of the environment in supplying learning materials. He has advanced Logo and turtle robots as tools that can aid children in developing their mental structures and exploring environments (i.e., microworlds) rich with ideas (Catlin & Woollard, 2014).

Besides the Logo, the CLL, a facility established as an alternative learning environment for at-risk teenagers, represents an embodiment of many of Papert's philosophical and pedagogical convictions about education and provides a concrete example of constructionist learning environments (Stager, 2001, 2005, 2013). The design of the curriculum, assessment and learning spaces at CLL presented a model radically different from mainstream schooling where students engaged in producing long-term projects, created many artefacts, collaborated on projects, and constructed public displays (Stager, 2001, 2005, 2013). This project was underpinned by eight chief ideas: 1) learning by doing, 2) technology as a building material, 3) hard fun, 4) learning to learn, 5) taking time, 6) freedom to get things wrong, 7) doing unto ourselves what we do unto our students, and 8) a digital world (Papert, 1999). These ideas are explicated in Appendix B.

Papert (1980) has also been fascinated by the way Samba schools embodied an authentic sociocultural model for learning, given their emphasis on naturalistic learning, social cohesion,

shared purpose, and collaboration between experts and novices. Comparing this to the context of schools, Papert argues that learning in schools is not significantly participatory (Papert, 1980). He believes the Samba School model is similar to the Logo model, where both emphasise real activities, shared activities by novices and experts, discovery-rich activities, and an exchange of ideas.

3.3.2 Learning Processes and Activities

Papert views learning as an emergent activity, characterised by iterative cycles of trial-and-error, exploration, and reflective engagement (Ackermann, 2001; Papert, 1980, 2000; Turkle & Papert, 1992). This emphasises the significance of open-ended inquiry in facilitating the construction and refinement of knowledge structures (Papert, 1971, 1980); enabling experimentation and trying different strategies (Resnick & Rosenbaum, 2013; Turkle & Papert, 1990); and enabling adapting, negotiating, and rearranging knowledge (Resnick & Rosenbaum, 2013).

The situatedness of learning in native-like contexts is a central proposition in Papertian constructionism. Drawing on his constructivist ideals, Papert argues the ways people relate to the situations of meaning-making suggests that ideas do not exist in a vacuum. Accordingly, engaging learners in real-world problems and having them interact with real-world contexts helps them exercise their intuitive knowledge, identify with the objects of learning, apply their thinking and learning styles, and make learning personal (Harel & Papert, 1990).

Papert emphasises tinkering (or bricolage) as an approach to learning because it establishes the primacy of process and exploration over product (Stager, 2008), and because it emphasises free interaction between learners and mediating tools (Papert, 1980). This stipulates a risk-free environment in which errors are not punished and learners are supported to advance through learning safely (Resnick & Rosenbaum, 2013). In the case of Logo, the process of debugging is central to understanding programming, wherein students are encouraged to engage with the bug rather than skip it altogether (Papert, 1980). This is where Papert sees computers (or ICTs) as key to sustaining exploration and appropriation of the task because they provide the ability and flexibility to study bugs, try different solutions, and turn errors into educative experiences.

3.3.3 Role of Teacher Facilitation: Constructionism vs. Instructionism

Papert's work provides several implications for pedagogical design. According to Papert (1993), "[t]he role of the teacher is to create the conditions for invention rather than provide ready-made knowledge". In his vindication of constructionism, Papert is wary of the dependence that school

teaching creates on school and its methods. He argues that this indoctrinates a culture of 'instructionism', which depreciates personal experiencing and personal knowledge.

Papert's use of 'instructionism' is intended to denote an ideological, rather than pedagogical, perspective (Papert, 1993). Instructionism implies an underlying belief that "…the route to better learning must be the improvement of instruction" (p. 139). Papert critiques the prevailing tendencies of instructionist approaches to overvalue abstract reasoning, which he sees as a major obstacle to progress in education. Instead, he advocates an 'epistemological reversion' to more concrete ways of learning since concrete modes of expression provide better justifications for how learning takes place. In contrast to instructionism, 'constructionism' suggests a minimalist approach in which "…the goal is to teach in such a way as to produce the most learning for the least teaching" (Papert, 1993, p. 137).

This distinction between actively involving students in constructing their knowledge and knowledge transmission has implications for the directions of innovation in the field of education, according to Papert and Harel (1991). Kafai (2006) holds that 'instructionists' are naturally inclined towards the design of instructional materials, such as in the case of educational games that harness the motivating nature of games to energise children to learn and enjoy learning. Kafai argues, however, "the greatest learning benefits remain reserved for those engaged in the design process, the game designers, and not those at the receiving end, the game players" (Kafai, 2006, p. 39).

Feurzeig (2007) claims the distinction between 'instructionism' and 'constructionism' is deceptive because these two are intimately joined in the learning process, and often instruction is a precursor for construction. Feurzeig argues that this distinction seeks to portray a dichotomy, but this could also suggest vague implications regarding the bearing of instruction on construction. In the extreme case, instructionism may suggest the dominance of instruction and lack of opportunities for knowledge construction. This can be a clear representation of schooling as opposed to learning. Alternatively, constructionism taken to the extreme can be viewed as lacking any form of instructional intervention. Even so, neither version affords the appeal of uptake in education.

3.4 Pedagogical Grounds for Papertian Constructionism

This part aims to shed light on the pedagogical implications of the chief principles underpinning Papert's constructionism by situating them in relevant research and theory, namely 1) learning-by-doing, 2) artefact construction, 3) student-centred learning, and 4) ICT-mediated learning.

3.4.1 Learning as an Experience: The Experientialist/Pragmatist View

3.4.1.1 Overview

This part further explores hands-on learning as represented by tinkering (or bricolage) and active experimentation; an approach chiefly underpinned by experiential-pragmatic epistemology. Earlier discussion established the centrality of learning-by-doing, learning-by-making, and learning-by-creating to Papert's constructionism. Papert has emphasised the need for children to draw conclusions through active experimentation. Papert's advocacy for creating artefacts is attributed to how the process invokes active, deep, and engaged learning, compared to information-delivery approaches (Beynon, 2017). His constructionist approach celebrates empirical learning and its role in aiding learners in creating their knowledge-structures. This resonates with the experiential learning literature, which emphasises the centrality of engaging in concrete experiences and interacting with the socio-cultural environment to aid learners in meaning-making and building their knowledge structures (Dewey, 1938). Such commonalities substantiate the link between Papertian constructionism and experientialism.

The experientialist accounts have yielded valuable attributions of learning and the learning process, beyond pure behaviourist, cognitivist, and constructivist views. A major contribution revolves around how they contributed a holistic view of learning and the learner. Experientialist perspectives (Dewey, 1938; Lewin, 1951, etc.) celebrate the active role of the learner, viewing learning as an active and holistic process of meaning-making based around personal experiences. 'Experiential learning', a subset of 'experiential education' (Itin, 1999), draws chiefly on the work of John Dewey, Kurt Lewin, Jean Piaget, Carl Jung and Paulo Freire, among others. Dewey (1938) views learning as a dialectical process that incorporates concrete experiencing and concept formation, and observation and action. Through this, Dewey emphasises active experiencing, reflection on experience, formation of purpose, and the educative potential of the experience (Roberts, 2003). Kolb (1984), a leading theorist in experiential learning, identifies the following characteristics of experiential learning: (a) learning need be viewed as a process, not an outcome; (b) learning is a continuous process grounded in experience; (c) learning is about resolving conflicts between dialectical modes of adaptation to the world: feeling, thinking, reflection, and action; (d) learning is a holistic process of adaptation to the world.; (e) learning is a transaction between the individual and the environment; and (f) learning is a process of creating knowledge.

3.4.1.2 Structural Dimensions of the Learning Process

The literature proposes various accounts for the structural dimensions of the learning process, mostly conceptualised in cyclic models. The different theorisations of the learning experience are

valuable in delineating the core components of the learning process from varying perspectives and fields of study and in scaffolding the learning processes and planning effective interventions.

Of all experiential learning models, Kolb's (1984) has been quite prominent. It has seen a wider uptake as well as critique, making it central to any discussion of experiential learning (Kolb & Kolb, 2005). Building upon the experiential learning foundations of Dewey, Lewin and Piaget, Kolb's Experiential Learning Theory is a four-stage cyclical process of adaptive learning modes comprising concrete experience (CE), reflective observations (RO), abstract conceptualisation (AC), and active experimentation (AE). It is a holistic perspective that combines experience, perception, cognition, and behaviour, and mainly shows how experience is translated into concepts through reflection, and how concepts guide future experimentation and choice of new experiences. Kolb notes that the structural basis of the learning process materialises because of resolving conflicts between the dialectical modes in each dimension. "Knowledge results from the combination of grasping experience and transforming it" (Kolb, 1984, p. 41), but neither dimension is independently sufficient for learning; that is, a perceived experience must be acted upon for it to be recognised as a learning experience. These adaptive modes constitute four different forms of knowledge and learning styles.

Despite its impact across many disciplines (Kolb & Kolb, 2005), Kolb's theory has been widely critiqued, particularly regarding disregarding the role of goals, intentions, purposes, and choices (Rogers, 1996), disregarding unconscious, non-reflective and tacit forms of learning (Miettinen, 2000; Mollaei & Rahnama, 2012), and that the mechanical stepwise representation cannot capture the holist nature of experiential learning (Seaman, 2008). Notwithstanding criticisms, Ord (2012) argues Kolb's theory has been misunderstood and misrepresented by mistakenly targeting the structural basis of experiential learning of Lewin, which Kolb adopted to his model. Ord's justification is reasonable considering the critique overlooks the dialectical modes of 'prehension' and 'transformation' as the heart of Kolb's thesis. Moreover, Kolb's theory has had significant implications for institutional cultures, programme structures, and curricula orientations. Additionally, Kolb's theorising of knowledge forms and learning styles is illuminating as to whether pedagogical cultures promote learning grasp via apprehension (authentic experiencing) or comprehension (conceptualisation), and whether they cultivate introversion (reflection) or extroversion (acting out).

3.4.1.3 Experience-Based Learning and the Study of AMAs

The relevance of the experientialist view to this study can be summed up in these points. Firstly, both experiential and AMA-based learning emphasise engagement in concrete experiences to enable learners to exercise their perceptual, reflective, cognitive, and behavioural faculties of

knowing. Both aim to engage learners in hands-on activities that involve the manipulation of objects (e.g., ICTs), which serve to mediate thinking, working, reflecting, and constructing knowledge. Secondly, AMA emphasises the creation of artefacts, which necessitates command of the theoretical material, utilisation of many skills, and iterative cycles of learning. These learning dimensions are similarly shared by experiential learning. Thirdly, both experiential and AMA-based learning place emphasis on learner autonomy, self-direction, self-choice, and applying individual learning and thinking styles.

A notable attribution of experience-based learning is contributed by Itin (1999), in which experiential education (rather than experiential learning) is proposed as a holistic philosophy of learning, inclusive of the roles of the environment, the teacher, and the learner. The following is a working definition for experiential education:

> *Experiential education is a holistic philosophy, where carefully chosen experiences supported by reflection, critical analysis, and synthesis, are structured to require the learner to take initiative, make decisions, and be accountable for the results, through actively posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, constructing meaning, and integrating previously developed knowledge. Learners are engaged intellectually, emotionally, socially, politically, spiritually, and physically in an uncertain environment where the learner may experience success, failure, adventure, and risk taking. The learning usually involves interaction between learners, learner and educator, and learner and environment. It challenges the learner to explore issues of values, relationship, diversity, inclusion, and community. The educator's primary roles include selecting suitable experiences, posing problems, setting boundaries, supporting learners, insuring physical and emotional safety, facilitating the learning process, guiding reflection, and providing the necessary information. The results of the learning form the basis of future experience and learning. (cited in Itin, 1999, p. 93)*

Itin's conceptualisation of experiential education presents a remarkable parallel to Papertian constructionism in many respects. Both emphasise conditioning the learning environment, identifying the role of the teacher, and the role of the learner. Additionally, they emphasise the centrality of experience and experimentation, construction and reconstruction, social rapport and negotiation, and refinement and reaffirmation. Both establish the need for educators to support

learners and aid their intellectual and emotional growth, suggesting the need to facilitate active learning, self-direction, and meaningful teacher-facilitation (Papert, 1999; Stager, 2007).

Also suggested in Itin's definition is the idea that experience-based learning facilitates holistic forms of engagement in learning. Many experiential learning accounts (Kolb, 1984; Lewin, 1951) emphasise that concrete, cognitive, social, and behavioural forms of engagement are inherent in experiential learning. This similarly resonates with Papert's (1980) constructionism because Papert advocates the sort of learning that invokes holistic forms of engagement which he sees as being supplied by the process of constructing artefacts.

3.4.2 Learning as a Process of Knowledge Creation: The Constructionist View

3.4.2.1 Overview

Externalising learning in the form of conceptual or material artefacts constitutes a major thesis of Papertian constructionism and constitutes a unique contribution that sets it apart from other constructivist theories. The construction of artefacts is a means of augmenting mental processing and construction of knowledge (Ackermann, 2001) and a means of sustaining learner attention and investment in learning (Papert & Harel, 1991). For Papert, the construction of artefacts enables access to implicit thought processes, making implicit thoughts public, and manipulating abstract ideas and concepts in concrete ways (Alimisis & Kynigos, 2009; Stager, 2013; Turkle & Papert, 1992). Papert has been interested not only in the ways artefact construction supplements building comprehension, but also in how this process enables conversation between learners and their products as they experiment, try out new things, and solve issues (Ackermann, 2001; Resnick & Rosenbaum, 2013). The process is believed to enable learners to examine their comprehension, self-expression, and thinking about their own thinking (Papert, 1980; Stager, 2005).

3.4.2.2 Knowledge-Creation Approach

Sfard (1998) and Paavola and Hakkarainen (2005) propose three major metaphors to characterise the learning discourse, namely 'acquisition', 'participation', and 'knowledge-creation'. The 'acquisition' metaphor is associated with learning as a process of concept formation and construction of meaning (Sfard, 1998), that is, learning as a process of acquisition (i.e., cognitive psychology) and a process of concept development (i.e., constructivism). Both perspectives consider learning a process of the mind and thus isolate mental processes from the surrounding social and cultural environment (Paavola & Hakkarainen, 2005). Knowledge is considered a property of the mind and once acquired it can be sharable and transferable (Sfard, 1998; Paavola & Hakkarainen, 2005). The 'participation' metaphor, on the other hand, accentuates the centrality

of the surrounding environment and social context in which the learning process takes place to the process of learning. Learning is viewed as a process of participating in social and cultural activities that shape knowledge building (Paavola & Hakkarainen, 2005). The social dimension, therefore, characterises this type of learning discourse, bringing forth matters of embeddedness and social mediation to learning processes (Sfard, 1998).

Besides 'acquisition' and 'participation', Paavola and Hakkarainen (2005) identify a third metaphor inspired by this knowledge-based society, namely the 'knowledge-creation' metaphor or the "artefact creation metaphor of learning" (p. 546). The authors argue that the 'acquisition' and 'participation' metaphors of learning are insufficient to address the knowledge shift in this networked knowledge-based society, which in turn has introduced a new set of challenges to human competency (Paavola & Hakkarainen, 2005). With the increasing interest in knowledge capital, knowledge production and sharing have become central to the personal and professional lives of individuals. This can be understood as a form of epistemological shift facilitated by ICTs (Paavola & Hakkarainen, 2005), which have become central to this knowledge society, both as tools of meaning-making, expression, knowledge, and intelligence.

The deliberate creation and expansion of knowledge introduce a new realm of participation, one that is defined by knowledge building and the contribution of conceptual and/or object artefacts. Based on this, Paavola and Hakkarainen (2005) call it 'trialogical' because it "concentrates on the interaction through these common objects (or artefacts) of activity, not just between people, or between people and environment" (p. 545). The authors view 'knowledge-creation' models as a form of innovative social processes, while at the same time "emphasise the importance of individual competencies and initiative" (p. 546). The innovative aspect of these models lies in their explicit advocacy of knowledge-building in the form of conceptual and/or material artefacts. In fact, Paavola and Hakkarainen criticise the 'acquisition' and 'participation' approaches for their insufficient focus on inciting creativity and on placing emphasis on mastery of content rather than on deliberate efforts of adaptation and transformation. This, in their projection of learning, represents reductionism: 'acquisition' reduces learning to mental processing and logical reasoning, while 'participation' reduces it to social processes and social aspects of knowledge.

3.4.2.3 Knowledge-Creation and this Study of AMAs

The 'knowledge-creation' approach has been advanced as a better alternative for framing creative and constructive learning and deliberate knowledge creation (Paavola & Hakkarainen, 2005). Lee et al. (2008) contend that knowledge-creation provides a measure for engagement and regulation of learning, and it "defines successful outcomes of inquiry-based and project-based learning" (p. 517). However, they acknowledge that little effort has been expended on creating contexts for

knowledge-creation by way of harnessing the affordances of ICTs. At the same time, they predict a move in pedagogical practice towards an emphasis on knowledge-creation, especially in the light of ICT affordances and how they empower social learning and knowledge production and sharing.

Some studies (Stager, 2013; Turkle & Papert, 1992) indicate that the construction of artefacts enables access to implicit and tacit knowledge, construction and refinement of knowledge, construction of personal and relevant knowledge, and engagement with abstract concepts and ideas in concrete ways. The focus on learning through making "…helps understand how ideas get formed and transformed when expressed though different media, when actualised in particular contexts, when worked out by individual minds" (Ackermann, 2001, p. 4). As such, the 'knowledge-creation' approach provides significant implications for the educative potential of AMA-based learning as a 'knowledge-creation' approach to learning.

3.4.3 Learning as a Learner-Centred Process: The Learner-Centric View

3.4.3.1 Overview

Current educational thinking appears to show advocacy for student-centric approaches and strategies to learning. Gibbs et al. (as cited in McGarr, 2009) note "there is an accelerating trend in teaching methods in HE away from teacher centred pedagogy towards learner centred approaches" (p. 311). The literature suggests changing learner demands have pushed many HE programmes to accommodate learner-oriented approaches to learning, including wider integration of technology, wider options of engagement and interaction, increasing demands for participation, refining learning policies, to name but a few (Dale & Povey, 2009).

This motivation towards enabling learner-centric approaches has been central to the work of Papert. This is evident in his vindication of progressive education and his criticism of the various forms of enculturation found in formal schooling which privilege propositional and abstract knowledge over practical knowledge (Papert, 1993, 2000) and detach knowledge from authentic contexts of use (Papert & Harel, 1991). Accordingly, Papert's work has sought to reinstate the role of authentic and naturalistic inquiry in formal schooling because he believes situating learning in native-like environments enables both intuitive and incidental learning, encourages new ways of thinking about the experience, and enables tapping into personal knowledge and relevant learning (Harel & Papert, 1990; Papert, 1987). To realise this, he advocates engaging students in open-ended and ill-defined experiences where they assume ownership and responsibility for their own learning. While he acknowledges the significance of expert facilitation for maximised

learning, he warns against coercion and orchestration, which he believes inhibit discovery, learner persistence, and forming linkages among new and old knowledge (Papert, 1987, 2000).

3.4.3.2 Adult Learning Theories: Andragogy and Heutagogy

Student-centred learning has long been central in the adult-learning literature and theories. The perspective of learner-centredness in this tradition is significant in revealing how this approach facilitates effective learning. Two theories are reviewed here: andragogy and heutagogy.

Andragogy is defined as "the art and science of helping adults learn" (Knowles, 1980, p. 43). As a theory of learning, andragogy has instigated a paradigm shift in the way pedagogy is conceptualised by extending the conventional understanding on which it was premised and redefining its underpinnings, assumptions, and principles. Five crucial assumptions underpin andragogy based on the learning characteristics of adults (Knowles, 1984): (a) adult learners have a self-concept towards being self-directed; (b) they have rich life experiences and resources for learning; (c) their readiness to learn is increasingly oriented towards developing their social roles; (d) they are problem-centred and oriented towards the immediate application of knowledge; and (e) their motivation to learn is internal. To anchor these assumptions, Knowles proposed a holistic programme planning model to complement the application of andragogy in educational practice. A main postulation of Knowles' theorising concerns conditioning the classroom atmosphere physically and psychologically to nurture learner-centric and self-directed learning, as well as providing support and reciprocity between teachers and students (Knowles, 1980). Interestingly, many of Knowles' specifications parallel those of Papertian constructionism.

Knowles' andragogy, however, has been critiqued on grounds of the tension it creates between human agency and existing social structures within education (Merriam, 2001). This is because it is believed to fail to consider "the organisational and social impediments of adult learning" in the grand scheme of application (Merriam, 2001, p. 8). Moreover, Pratt (1993) is of the opinion that andragogy has contributed little to clarifying the definition and process of learning, compared to its contribution to the understanding of adult learners. Others argue that it does not seem to work with unmotivated learners (McGrath, 2009). Nevertheless, Knowles' contributions have proved valuable to the educational field and have helped enrich the understanding of learners' characteristics (e.g., role of learner proactivity, intentionality, and motivations), pedagogical styles (e.g., role of student-centric approaches), design of learning environments (e.g., role of real-life experiences and interaction with the social world), and design of learning activities (e.g., problem-centred experiences with real-life relevance and application).

Heutagogy, or self-determined learning (Hase & Kenyon, 2000, 2007; Narayan & Herrington, 2014), is a subsequent development of andragogy. While heutagogy builds on Knowles's (1970, 1980, 1984) andragogic principles of student-centric learning, it transcends the teacher-student relationship inherent in andragogy. As a holistic adult learning approach, heutagogy invests in involving individuals in actively designing and deciding their own learning choices. It therefore amplifies the role of agency with the aim of nurturing lifelong learning competencies and capacities (Hase & Kenyon, 2000, 2007; Narayan & Herrington, 2014). A key distinguishing characteristic of heutagogy is its advocacy of the elimination of pre-selected and pre-determined learning structures. It proceeds from the belief that adults are able to control their own learning structures, choices, and approaches. A fundamental aim, therefore, is to relinquish learning ownership to the learner in relation to learning design and plans, choices and processes, and progress milestones (Blaschke, 2012). This approach to learning seems to have come as a natural response to a growing body of literature that has expressed a need to unlock the learners' potential to self-navigate their learning by way of promoting active engagement and self-choice (Hase & Kenyon, 2001; McLoughlin & Lee, 2008, 2010).

However, there are concerns regarding the appropriateness of heutagogy across fields of study, academic disciplines, and age groups and regarding the tensions it may create with HE dynamics. Some suggest the heutagogical approach works best with postgraduate levels (Blaschke, 2012). However, it has been argued that the appropriateness of heutagogy is not contingent upon academic level but on the pedagogical design, facilitation, and learning process (Narayan & Herrington, 2014).

3.4.3.3 Learner-Centred and Directed Learning and this Study of AMAs

The andragogical and heutagogical principles concur with Papert's (1980, 1993, 2000) theorising of facilitating active learner involvement in learning, facilitating self-direction and management of learning, and enhancing learning ownership and responsibility. The three traditions share the view that learners construct their own knowledge structures (Papert, 1988) and construct their subjective and personal views of the world based on their worldly experiences (Ackerman, 2001).

Papert's approach advocates learning that enables self-directed discovery and experimentation, construction and reconstruction of knowledge, engagement, ownership, and access to rich ideas. These principles have implications for the design and facilitation of AMA-based learning.

3.4.4 Learning as an ICT-Mediated Activity: The ICT-Mediated Learning View

3.4.4.1 Overview

ICTs have been defined in various ways and in relation to various applications and disciplines. In education, ICTs have been defined in reference to devices and equipment, skills and competencies, and pedagogies (Zuppo, 2012). The United Nations Development Programme defines it as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information" (Tinio, 2003, p. 4). This definition converges key social functions (e.g., communication, dissemination of information), constructivist functions (e.g., creating information), and technical functions (e.g., storing, managing information). There is also an emphasis on the technological infrastructure.

ICTs have played a central role in the evolution of constructionism. Papert has envisioned the technological devices to have a potential to transform learning and thinking processes (Papert, 1980; Singer, 1982). He notes:

> *…computers can be carriers of powerful ideas and of the seeds of cultural change, … they can help people form new relationships with knowledge that cut across the traditional lines separating humanities from sciences and knowledge of the self from both of these. (Papert, 1980, p. 4)*

Papert's (1980) constructionism contrasts the commonplace use of educational technology which, he argues, results in programming children to think and behave in certain ways. His approach invests in having children programme the computer because in teaching the computer to think students learn how to think themselves. This process is active, self-directed, has a personal purpose, and can produce powerful knowledge. Papert (1980) is critical of how ICTs are used to perform behavioural learning when they can enable reflective and self-conscious thinking processes. He argues computers can help challenge, refine, and expand thought processes. However, he warns many good ideas remain of marginal value in education, which impacts the rate of invention.

3.4.4.2 ICTs and Higher Education Pedagogy

ICTs have played a key role in redefining and expanding learning, communication, and pedagogical practice through a range of transformative learning affordances (Narayan & Herrington, 2014). Whether to enhance pedagogical efficacy (e.g., dissemination and management of learning materials), self-efficacy (e.g., self-access, self-management), or interpersonal productivity (e.g., communication, flow of feedback, community building), ICTs are endowed with invaluable

potentialities in relation to learning ubiquity, convenience, mobility, and interactivity (Dyson, 2012).

The literature suggests a continuum of ICT integration into educational practice, ranging from replicating the conventional approaches of passive consumption and acquisition of knowledge (Selwyn, 2014) to leveraging it for enhancing the quality of the learning experience, process, and outcomes, extending knowledge building, increasing social collaboration and engagement, and enhancing student motivation (Harel & Papert, 1990; Papert, 1980, 1987, 1993). ICT integration in education meets ongoing calls for pedagogies to foster competencies relevant to this day and age. Such factors as changing learner expectations and demands have driven HEIs to adopt blended modes of instruction (Dale & Povey, 2009).

Nonetheless, claims for ICT affordances need to be viewed with scepticism and criticality. Selwyn (2014) argues that many technologies are used to reinforce and reproduce the existing power structures of teacher authority and informational learning. Selwyn's argument counters the deterministic hype and optimism that appear to dominate the ICT-assisted learning discourse through debunking their transformative claims. Furthermore, Selwyn questions the underlying ideals of technologies, arguing that they are manipulated by, inter alia, ideological motives, political interests, and profit-oriented motives (see van Dijck, 2009 for a similar critique).

Possibly the biggest challenge to effective ICT integration concerns such factors as "appropriate educational philosophy, curriculum and learning environment" (Alimisis & Kynigos, 2009, p. 11). Papert (1987) argues that for a radical change to happen, there is a requirement for an alternative vision, theory, and methodology; a whole culture of learning that can be taken in its totality, with its defining characteristics of learning environment, relationships, and atmosphere (Harel & Papert, 1990).

3.4.4.3 ICTs and this Study of AMAs

The centrality of ICTs to learning is attributed to the ways they have unlocked, fuelled, and inspired user-end trajectories and the ways they have enriched and diversified the sources and methods of knowledge-building and meaning-making. The literature establishes the significant role of ICTs in enhancing learning and thinking (Papert, 1980) and facilitating concrete, reflective and developmental knowledge building (Kafai, 2005; Papert, 2005). Furthermore, ICTs have facilitated a shift from teacher-centric to student-centric and constructivist pedagogies (Paavola & Hakkarainen, 2005; Vygotsky, 1978). This shift parallels a changing development towards deliberate knowledge creation and advancement (Paavola & Hakkarainen, 2005).

There are, however, still obstacles regarding leveraging ICT affordances in pedagogical practice, particularly in relation to empowering knowledge-creation approaches (Cochrane et al., 2014; Selwyn, 2014). These obstacles are relevant to the Omani HE context, revealing wider gaps in the literature in this area, which also establishes a major motivation for the present study.

3.5 Reconceptualising Constructionism

This section focuses on building a conceptual framework on which to anchor this research study. For Miles and Huberman (1994), a "conceptual framework explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them" (p. 18). The definition establishes the role of conceptual frameworks in identifying key constructs that inform research and in identifying relationships among them to frame the application of research, analysis of data, and discussion of findings.

Papert's constructionism amounts to a learning design philosophy, given the consideration Papert devotes to fleshing out his theory and its functioning in different hierarchies. The constructivist foundations underpinning Paper's theory, coupled with his progressive reform views and critique of education, all reflect Papert's motivation to counter the ways institutional learning is reduced to decontextualised and unproductive learning spaces (see Papert, 1980). The work of Papert and of colleagues in CLL also reflects this standing commitment, since the CLL was underpinned by a desire to "…build an alternative learning environment unencumbered to the greatest extent possible by the policies, practices and heuristics of traditional schooling" (Stager, 2013, p. 487).

Drawing on the philosophical, pedagogical, and theoretical discussion of Papert's approach to constructionism, a coherent reconceptualisation can be delineated, and it revolves around three salient areas, listed in a hierarchical order from specific to general (see Figure 3.1):

(a) Facilitating active learner engagement in the learning process;
(b) Adopting an appropriate pedagogy to facilitate constructionist learning; and
(c) Creating an enabling environment to nurture constructionist learning,

In totality, the three salient areas characterise key premises in the thinking and design philosophy underpinning Papert's constructionism. They are also heavily grounded in most of Papert's contributions to the field of constructionism, such as Harel and Papert (1990), Papert (1980, 1987, 1993, 1999), and Turkle and Papert (1990, 1992), and in the contributions of constructionist learning theorists and proponents, such as Kafai and Resnick (1996), Martinez and Stager (2013), and Stager (2005, 2007, 2013).

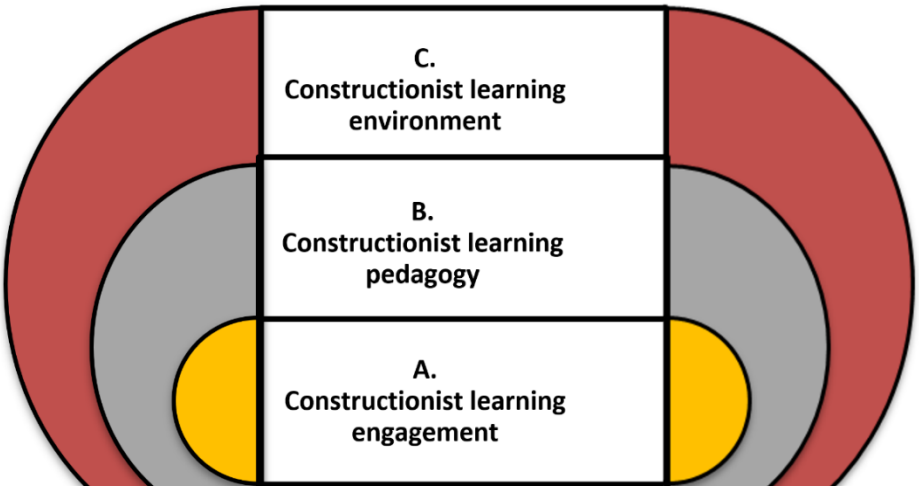


Figure 3.1. Three Salient Areas of Papert's Constructionism and their Hierarchical Sequence.

In the dominant descriptive accounts in the literature of constructionism, the proposed reconceptualisation in Figure 3.1 aims to present a coherent as well as hierarchical framework for constructionism in relation to its core constituents. The aim is to provide a systematic attribution of Papert's theory as well as a rationale for understanding the enactment of his constructionist approach. A systematic elucidation of the major implications of each is given below.

3.5.1 Constructionist Learning Engagement

Constructionist learning is commended for the value it adds to learner engagement, productivity, and learning skills (Papert, 1980, 1993; Stager, 2001, 2008). According to Stager (2001), "…through the construction of personally meaningful projects students will not only develop content-area knowledge, but the habits of mind and social skills required to make contributions to society in the twenty-first century" (p. 5). Studies that have employed constructionist learning have reported valuable gains in this respect. The open-ended tasks of artefact construction, for instance, have been found to afford personal, intellectual, and emotional engagement (Papert, 1971, 1980); promote comprehension and enable forming connections (Papert, 1993); provide opportunities for iterative and reflective learning (Papert, 1980); enable understanding of complex learning processes; and enables learners to self-direct and self-manage learning (Kafai, 2005).

A review of the relevant literature revealed different aspects of the engagement afforded by constructionist learning, categorised in Figure 3.2 (elucidated in Appendix C). Drawing on the theoretical and empirical literature on constructionist and AMA-based learning, particularly the case of SGP, six engagement dimensions are acknowledged: 1) cognitive, 2) metacognitive, 3) reflective, 4) affective, 5) behavioural, and 6) social.

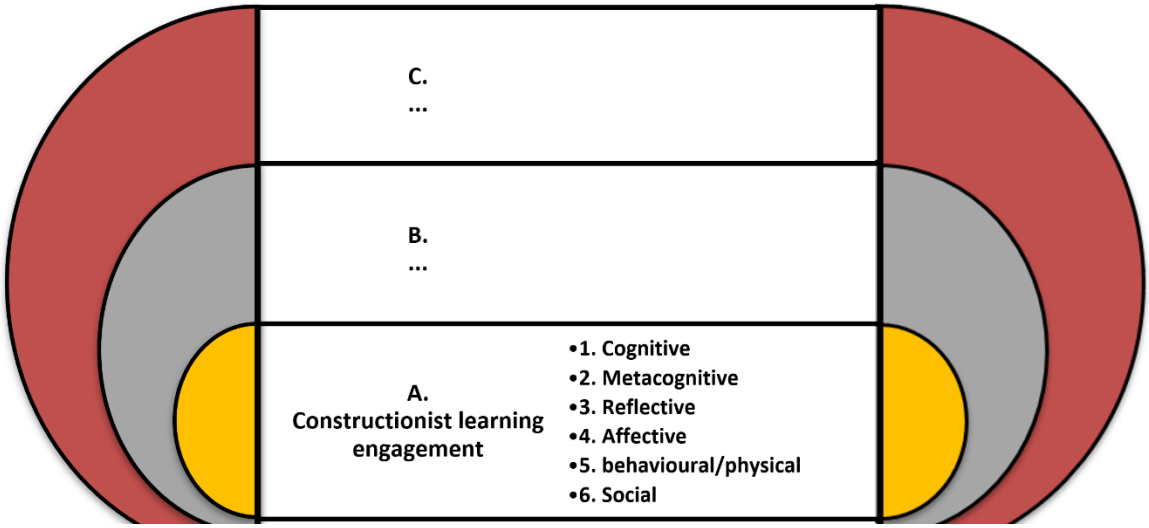


Figure 3.2. Aspects of Learner Engagement in Constructionist Learning

Papert, however, does not address these aspects of engagement in isolation, but rather as complementary per the demands of the task. For instance, Papert maintains that open-ended projects of artefact construction afford students personal, intellectual, and emotional engagement (Papert, 1971, 1980) and improve cognition and understanding (Papert, 1993). This is because constructionist learning converges behaviour (i.e., learning-by-doing), self-regulation (i.e., student-centred and directed learning), and production (i.e., artefact construction). These engagement levels also concur with the literature on self-regulated learning.

Because these dimensions lack operationalisation in the literature of constructionism, the broader literature has been consulted to help conceptualise and validate these engagement dimensions, but many inconsistencies in the engagement constructs, classification, definitions, and measurements are found in the literature (Fredricks et al., 2003, 2011). Firstly, learner engagement is theorised broadly in terms of discrete areas, such as cognitive, emotional, and behavioural (Connell, 1990; Fredricks, Blumenfeld & Paris, 2004) and academic, social, cognitive, and affective areas (Finn & Zimmer, 2012). Secondly, there is inconsistency concerning the discreteness of the engagement constructs and overlap among many constructs. For instance, there is variability among the instruments that measure motivation, where it is associated with behaviour (i.e., behavioural-self motivation), cognition (i.e., cognitive self-motivation), meta-cognition (i.e., motivational self-regulation), and affect (i.e., motivational attitudes and feelings) (Zimmerman, 2008). Thirdly, engagement is conceptualised according to contexts, such as engagement in activities, classroom environment, and institutional environment (Finn & Zimmer, 2012; Fredricks, Blumenfeld & Paris, 2004; Kuh et al., 2008; Newmann et al., 1992). Other engagement variables are also considered, including teacher-related factors and the influence of the surrounding environment (Finn & Zimmer, 2012; Kuh et al., 2008). Finally, engagement is theorised as a phase-based model where each phase incorporates several aspects of engagement,

such as in the context of self-regulated learning (Winne & Hadwin, 1998; Zimmerman, 2000; Zimmerman & Moylan, 2009; Zimmerman & Pons, 1986).

Given these disparities, this study dealt with this issue as follows. Firstly, in quantitative data, and given that the classification in Figure 3.2 is validated by relevant literature, this classification of six dimensions is utilised for the purposes of (a) measuring these theoretical and empirical findings against the perspectives of study participants in this context, and (b) providing a basis for additional in-depth exploration to reinforce qualitative findings. Secondly, for qualitative data, the study utilises the phase-based model to elucidate more comprehensive aspects of engagement. This is because treating these dimensions in isolation may run the risk of drawing inconclusive boundaries which define and distinguish each dimension, and drawing false conclusions considering the overlap and/or complex treatment of the different engagement constructs (e.g., motivation as behaviour, cognition, metacognition, affect).

3.5.2 Constructionist Learning Pedagogy

In elucidating the defining principles of constructionism, four pedagogical areas receive the chief emphasis (in Figure 3.3): 1) learning-by-doing, 2) construction of artefacts as the anchor for the learning process, 3) student-centred learning, and 4) ICT-mediated learning.

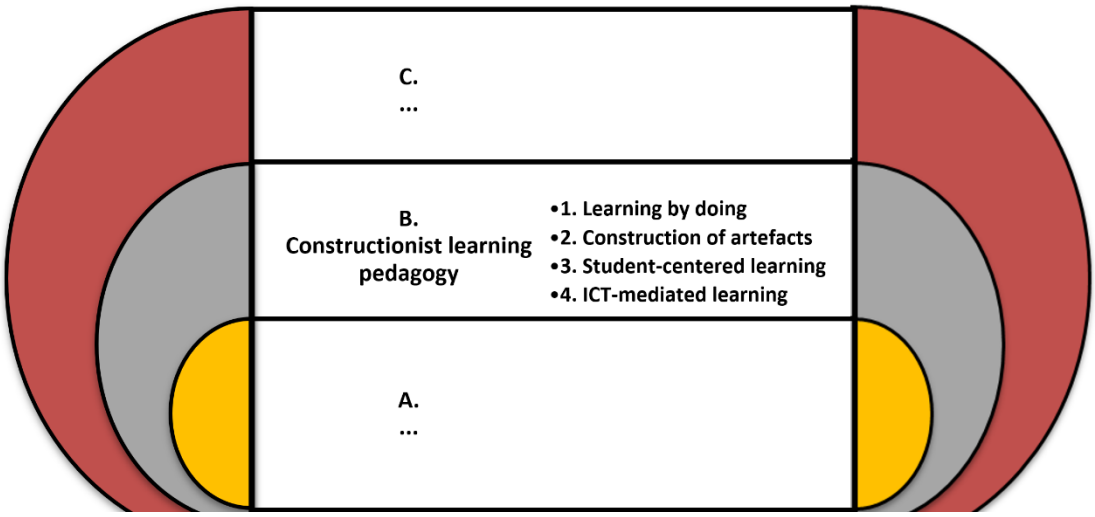


Figure 3.3. Pedagogical Principles of Constructionist Learning

Papert's experientialist-pragmatist disposition of learning (especially tinkering and manipulation of objects, and affording students room to experiment, construct and refine their learning) parallels the assumptions held by experiential learning theorists (e.g., Kolb, Lewin). For Lewin, learning involves a cycle of concrete experiences, reflection, abstraction, and experimentation, which binds experience, perception, cognition, and behaviour. Similar elements are emphasised by Kolb (1984), wherein learning results from the combination of grasping the experience and

transforming it. These elements resonate with Papert's theorising of constructionism. Papert (1980) argues learning-by-doing and tinkering (e.g., manipulation of objects) in the process of creating artefacts affords not only authentic and contextualised learning but also comprises elements of experience, reflection, cognition, and behaviour.

Secondly, externalisation (or exteriorisation) of learning in the form of artefacts, especially through the mediation of ICTs, is central to Papert's thesis. Papertian constructionism emphasises the need to translate cognitive structures into external artefacts (whether material or conceptual) as a way to demonstrate learning (Papert, 1980, 1996). Papert (1993) maintains that constructionism "…attaches special importance to the role of constructions in the world as a support for those in the head, thereby becoming less of purely mentalist doctrine" (p. 143). Articulating learning through artefacts is also central to the work of Paavola and Hakkarainen (2005) and Paavola et al. (2004) and it is associated with recent ICT-empowered shifts towards knowledge-creation.

Thirdly, the assumptions of student-centric theories, such as andragogy and heutagogy, align with many of Papert's views on constructionist learning, principally those regarding the role of learners and educators. Papert emphasises that learning should afford opportunities for self-direction and discovery learning and stresses the need to provide students with room to construct and reconstruct their knowledge free from teacher direction (Johnson, 2014). Knowles' assumptions of andragogy also accentuate the elements of self-direction, learning through doing, the relevance of learning to real-life needs, the role of learners' rich life experiences, and their motivation to learn (Merriam, 2001; Merriam & Caffarella, 1999). In a similar manner, Heutagogy places emphasis on active involvement on the part of learners in the design of their own learning (Blaschke, 2012).

Finally, Papert (1980, 1987) emphasises the centrality of ICT-mediated learning in complementing constructionist learning, seeing ICTs as objects to work and think with, native tools of expression and communication, and tools that enable personalised learning (Harel & Papert, 1990; Papert, 1980, 1987). Papert (1980) argues for the versatility of computers as incubators for knowledge and powerful ideas. He is especially fascinated by how computers enable contextualised and relevant learning experiences (Papert, 1980, 1996).

3.5.3 Constructionist Learning Environment

Papert argues for the need to provide the appropriate environment to aid learners in the pursuit of creating their knowledge structures. He holds that intellectual growth is rooted in experience, and therefore proposes "…creating an environment in which the child will become highly involved

in experiences of a kind to provide rich soil for the growth of intuition and concepts for dealing with thinking, learning, playing, and so on" (Papert, 1971, p. 4.1). Papert's advocacy for alternative learning environments, as in the case of Logo, CLL, and Samba schools, reflects his interest in nurturing naturalistic inquiry, rich discovery, and knowledge construction.

Papert (1993) acknowledges the need to support students "…morally, psychologically, materially and intellectually in their efforts" (p. 139), noting that the richness of the environment in supplying building materials can be a determinant to developing knowledge structures. All forms of support, including psychological (e.g., encouragement, support, guidance), material (e.g., supply of tools and objects of learning), or intellectual (e.g., probing, prompting, inspiration) can be determinants of the richness and depth of learning experiences (Harel & Papert, 1990; Papert, 1980).

Papert (1980, 1999) makes several assumptions about the learning environment and conditions needed to nurture fruitful constructionist learning, three of which seem more prominent: 1) role of facilitation, 2) nature of learning atmosphere, and 3) nature of learning activities (Figure 3.4).

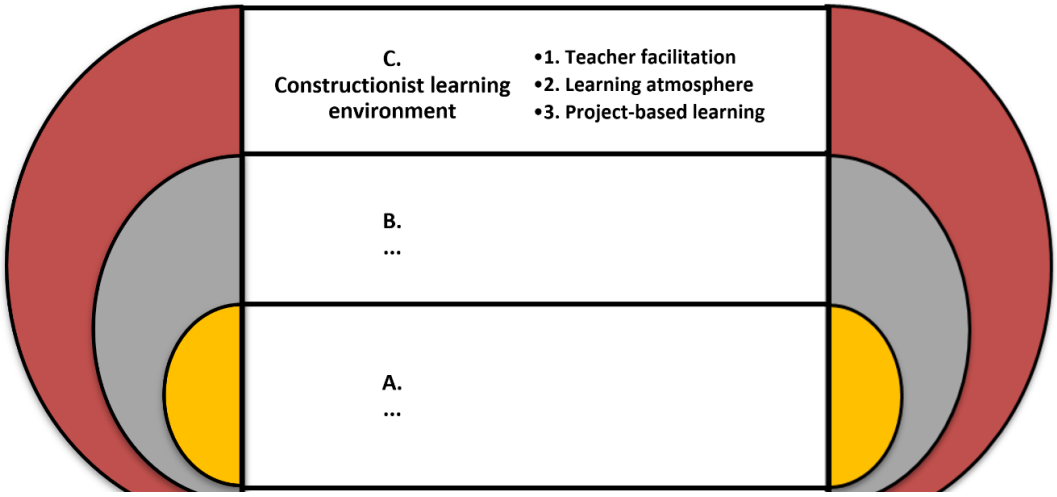


Figure 3.4. Environment Design Principles of Constructionist Learning

The role of teacher facilitation in assisting students in reaching their edge of meaning is highly emphasised. As a theory of learning, constructionism is not dismissive of teaching but is rather minimalist. Papert (1993) holds that the goal of the constructionist approach is "…to teach in a such a way as to produce the most learning for the least teaching" (p. 139). For Papert (1996), teachers need to "create the conditions for invention rather than provide ready-made knowledge" (p. 45) and should provide a supportive and constructive learning environment (Levin & Tsybulsky, 2017; Papert, 1980). This includes, first, enabling learners to assume responsibility for their own learning and providing them with room to construct, reconstruct, and refine their knowledge structures (Alimisis & Kynigos, 2009). As facilitators, teachers need to provide constructive feedback, encouragement, and support and enable social collaboration and the

construction of knowledge (Papert, 1993). Secondly, teachers need to enable tinkering, experimentation, and free interaction with objects, tools, and peers to facilitate the creation of connections between ideas, objects, and situations (Papert, 1980). The ICT mediation is central to Papert's thesis, arguing that the constructive interaction with social tools helps improve and extend learning and thinking processes (Harel & Papert, 1990; Papert, 1980). Thirdly, teachers need to enable collaborative inquiry to help learners talk, discuss, and try their ideas (Papert & Harel, 1991). This reflects the social dimension as a form of negotiation with peers and experts.

Papert (1980) emphasises the need to create a safe and supportive environment that encourages a culture of learning (i.e., constructionism) rather than teaching (i.e., instructionism), and in which learners are enabled to construct their meaning-making, form connections among different ideas, and validate their meaning-making through constructive processes of experience, reflection, and action. Students should not be weighed down by a sense of right or wrong, nor by the need for precision (Papert, 1993) but should consider mistakes as part of the learning curve. They should feel safe to progress through their learning confidently because "emotionally supportive working conditions encourage them to keep going" (Papert, 1980, p. 197). In short, a culture of learning needs to be nurtured, where mistakes are treated as opportunities for refining learning and providing a locus for future action. Overall, learning struggles can be constructive and can facilitate the refinement and advancement of learning (Papert, 1999; Stager, 2007).

Finally, Papertian constructionism advocates open-ended, discovery-rich, and ill-defined activities, such as those afforded by PBL. PBL encourages sustained engagement in the process and, therefore, enhances the likelihood of deeper engagement (Papert, 1971), provides opportunities for iterative and reflective learning (Papert & Harel, 1991), and provides opportunities for immersive learning and deeper understanding (Papert, 1999). Parallel to the experiential learning cycles of Lewin, working through open-ended projects can provide students with opportunities for iterative cycles of learning and re-learning based around concrete experiences (i.e., manipulation of materials); opportunities for reflection on and about their experiences (i.e., considering what went wrong and ways to improve); opportunities for construction, reconstruction, and refinement of their knowledge and meaning (i.e., translating experiences into abstract models); and opportunities for trying out and applying refined thoughts and plans (i.e., trying different solutions, improvements).

3.6 Conceptual Framework

Drawing on the discussion above, figure 3.5 shows the conceptual framework for this study. A fundamental aim for this framework is to break down the complex attributions of Papertian

constructionism into tangible and specific areas of emphasis and to enable a systematic exploration of identifiable constructs in the domain of constructionist learning.

Developing this framework required different iterations. It adopts a hierarchical structure, corresponding to 1) learner engagement in constructionist learning experiences (i.e., AMA engagement), 2) the pedagogical principles of constructionist learning (i.e., AMA pedagogy), and 3) the enabling environment for constructionist learning (i.e., AMA environment).

This framework is used to inform and guide the different stages of the research in terms of:

a) design of research instruments and framing data collection processes (Chapter Four)
b) framing the analysis procedures (Chapter Five)

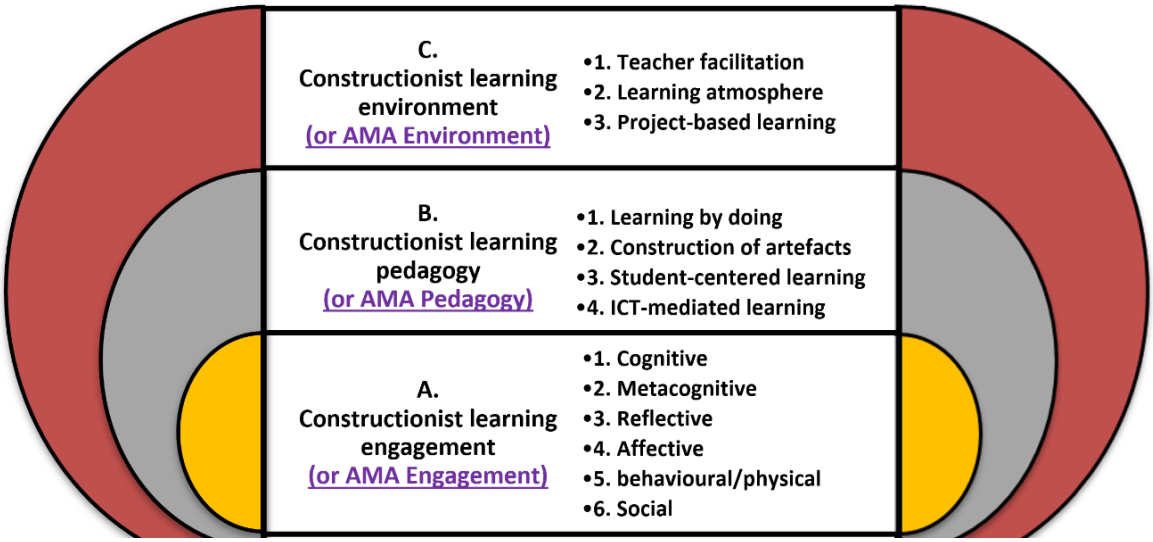


Figure 3.5. Conceptual Framework for this Study

The conceptual framework derives its theoretical legitimacy from the pertinent literature and from published studies on SGP. In addition to its theoretical validity, it underwent face validation by experts, including the supervision committee. Conducting this research study and creating the outcome model emerging from this framework can be considered an applied form of validation (i.e., a testable validity) for the viability of this framework for exploring AMA-based learning.

3.7 Chapter Summary

This chapter provided a useful theoretical and empirical basis for understanding AMA from the perspective of Papertian constructionism. Constructionism proposes a holistic view of learning design, constructivist at heart, progressivist in disposition, and experientialist in application, particularly in relation to the design of learning environments, the nature of the learning processes, and the role of teacher facilitation. Other elements that were discussed were specific aspects regarding the role of artefact construction (to represent learning in the head), the nature

of learning processes and activities (as an open-ended process of tinkering, experimentation, exploration), the role of learners (as self-directed agents), the role of the learning environment (creating the conditions to support the development of thought), the role of learning tools (ICTs as tools to mediate thinking, working, learning and expression), and the role of educators (providing support, planting constructive elements). These are all significant for successful implementation of constructionist learning. Then, a reconceptualisation for constructionism was provided for the purposes of 1) providing an operationalised model for this theory, 2) providing a hierarchical model in relation to its constituents and the hierarchy among them, and 3) constructing a conceptual framework to frame and guide this research study.

The next chapter is devoted to the research methodology adopted in this study.

Chapter 4 Research Methodology

4.1 Introduction

This chapter provides a detailed discussion of the research methodology that underpins this study in terms of research paradigm, research design, methods for data collection and analysis, and the theoretical perspectives of the researcher. It is essential to explain the research assumptions and beliefs since they define, frame, and guide the path of investigation.

The research design adopted in this study is a qualitative case study as its aims are to explore IELTE students' and academics' experiences, views, and perspectives regarding their engagement in AMA-based learning, the key pedagogical principles that frame AMA-based learning, as well as the key environment design principles that underpin AMA-based learning. This assumes both different and complementary roles by both students and academics.

The chapter begins by discussing the research design underpinning this study in relation to the paradigmatic considerations and methodological approach. Then, the research instruments are outlined as to their design, the selection strategy of participants, and instrument piloting and administering. The ethical considerations are then addressed, followed by a discussion of the analysis approaches and strategies. The trustworthiness of the study is then established.

4.2 Research Design

This study is mainly a qualitative exploration of AMA-based learning from the perspective of the study's participants in relation to their experiences, views, and perspectives of several key aspects regarding AMA engagement, pedagogy, and environment in the context of IELTE in Oman. The overall aim is therefore to develop an understanding of this approach to learning as derived from participants' subjective accounts and to consequently develop a systematic conceptualisation for this approach that is appropriate to its context. To achieve this, the study adopts a case study design because it helps generate a richer and deeper understanding of the phenomenon under investigation. A deductive-inductive approach to inquiry is adopted to help not only establish an interaction between the data and the theoretical and empirical literature, but also to establish a solid understanding of the data through developing analysis and interpretation schemes that help explain the phenomenon under investigation.

4.2.1 Identifying the Paradigm

From a philosophical view, a paradigm refers to "a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the 'world', the individual's place in it, and the range of possible relationships to that world and its parts" (Guba & Lincoln, 1994, p. 107). For Troudi (2011), the research paradigm is a "research approach that informs the researcher's choices of methodology based on one's understanding of the nature of knowledge, epistemology, and the nature of social reality known as ontology" (pp. 211–212).

Epistemological framings relate to the nature of knowledge and its development (Richards, 2003), and the possibility of getting to know the world and make sense of it (Crotty, 1998). They address how credible and acceptable knowledge is generated, understood, and used (Bryman, 2008). The assumptions and beliefs about the nature of reality influence how we perceive it. This, in turn, has implications on how we view the nature of knowledge (i.e., epistemology); whether it is objective and resides outside human perceptions, intellects, and intervention (i.e., objectivism); or whether it is constructed, shaped, and informed by social actors and their socio-cultural schemas (i.e., subjectivism). Ontological framings, by contrast, concern the assumptions about the nature of existence and reality and what is possible to know about the world (Crotty, 1998; Richards, 2003). At one end, reality is viewed as residing outside of and independent from social actors and human consciousness, and therefore it is not mediated by the human senses as it is independent of human intervention. This view subscribes to the ontological position of the positivist paradigm. By contrast, the interpretivist ontology views reality as a product of human consciousness, understanding, construction, co-construction, and interpretation. This mediation by human senses and interpretations renders reality subjective, multiple, and dynamic (Guba & Lincoln, 2005). Social ontology pertains to the nature of social entities and the extent to which they are socially as well as individually constructed and mediated (Bryman, 2008).

The choice of a paradigm is determined by the type of issues the research raises as well as by the researcher's personal disposition (Richards, 2003). Since this study aims to develop an in-depth understanding of AMA-based learning from the perspectives of students and academics in relation to their contextual realities, it falls within the aims of the interpretivist paradigm and qualitative research (Cohen et al., 2000). The aim is to gain access to the personal meanings that participants attribute to AMA-based learning and the contextual factors that influence their personal views (Maxwell, 2008). It is essential, therefore, that the social world is understood from people's perspectives since it is mediated by their subjective meanings and actions.

4.2.2 Research Methodology in Interpretivism: The Case Study Design

Research methodology refers to the domain or logical structure of inquiry within a particular paradigm (Wahyuni, 2012). The purpose of methodology in the interpretivist paradigm is to guide and systematise the exploration (rather than discovery) of the social reality, using an inductive approach to represent the potential range of human understandings, meanings, and interpretations. One of the intellectual goals of interpretive research is to understand not only the physical behaviour of the phenomena but also what sense people make of them and how this, in turn, influences their behaviour (Maxwell, 2008). Based on this, the choice of methodology is indicative of the philosophical underpinnings that underlie the assumptions and beliefs guiding the researcher's choice of research methods (instruments), data collection procedures (techniques) and analysis of collected data (Crotty, 2003). This type of research requires a broader and less restrictive design concept than that required by positivist research (Maxwell, 2008).

For the present study, the choice of case study was determined primarily by the nature of case study design which helps explore a complex phenomenon within its context from a number of perspectives, using various sources of data (Yin, 2003). Robson (1993) defines case study design as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence" (p. 146). The definition suggests that case studies facilitate the exploration of a phenomenon (whether individuals, organisations, relationships, programmes, events, or interventions) and this phenomenon is characterised by complexity because it is woven into many social, economic, political, and cultural layers of relationships. The context of investigation therefore becomes important and relevant to the study (Yin, 2003). This suggests the need for an in-depth exploration of these relationships and their bearing on the phenomenon under investigation.

The literature identifies various types of case studies, such as descriptive, explanatory, and exploratory (Yin, 2003); the choice of which being determined by the overall study purpose and whether the researcher aims to describe, explore, or compare between cases. There are several considerations in case study design, including the use of viable methods, justifying their appropriateness to answering the research questions, following proper procedures of application, following scientific conventions, providing a chain of evidence to ensure systematisation, and linking the case to the theoretical framework (Zainal, 2007). Another important consideration concerns the use of multiple sources of data to enable the level of depth necessary to aid understanding of the complexity of the case and uncover the relationships and layers of meaning woven into the case being studied. This is why case studies are considered valuable for such purposes as evaluation, developing interventions, and developing theory (Baxter & Jack, 2008).

Case studies offer several strengths that cannot be afforded by positivist methodologies. One strength concerns their ability to capture the humanistic and implicit aspects of social interaction in terms of attitudes, feelings, physical reactions, and even the meanings loaded in the conversational tones (Willis, 2008). They also afford access to intangible, tacit, and intricate aspects of human feeling, behaviour and expression which are otherwise inaccessible to observation, measurement, and quantification (Merriam, 1998). Nevertheless, case study methodologies have been criticised for their rigour (Zainal, 2007); application of quality criteria such as reliability and internal validity (Poortman & Schildkamp, 2012); giving rise to researcher bias, as in the choice of questions, methods, and participants (Maxwell, 2008); and being time-consuming to conduct (Baxter & Jack, 2008). To address these shortcomings, Creswell (2012) suggests allowing for an unrestrictive flow of information and data, which can render the inquiry free from the limitations of close-ended instruments and the predispositions and biases of the researcher.

4.2.3 Rationale for the Case Study Methodology

The rationale for adopting a case study design was to facilitate an in-depth understanding of AMA-based learning, particularly SGP, in relation to AMA engagement, AMA pedagogy, and the AMA environment in the IELTE context in Oman. This is because little is known about the phenomenon under study (Dörnyei, 2007), particularly in this context, and because the phenomenon has no clear outcomes (Yin, 2003). The aims were to develop a comprehensive understanding of the AMA case and ultimately propose a contextually-relevant framework for pedagogical design and implementation. These objectives fit within the educational reform initiatives which aim to increase the uptake of constructivist pedagogies in Oman (Education Council, 2016, 2017).

According to Yin (2003), the case study design is suitable when the intent is to answer 'why' and 'how' questions, when the researcher has no control over participants, and when the contextual conditions are of interest given their relevance to the phenomenon being studied. In this study, the overall intent of this study is to explore '**How do students and academics evaluate authoring multimedia artefacts (AMA) as an approach to learning in the context of IELTE in Oman?'**. As has been established, little is known about AMA-based learning, particularly SGP, in the IELTE context in Oman, and therefore there is a need to explore this in more detail in order to develop an informed understanding of the phenomenon within the context or natural setting of the research, with attention to uncovering the complexity endowed by the cultural, social, political, and economic variables surrounding the phenomenon. Considering this as a 'how' question fulfils one requirement for the suitability of case study design (Yin, 2003).

Secondly, the case study design is suitable when the researcher has no control over the behaviour of those involved in the study (Yin, 2003). Given that this study aimed to elicit personal and subjective views from individual participants regarding the implications of AMA-based learning for HE, there was no perceived control by the researcher over the personal beliefs, meanings, and attitudes of participants. Although the researcher is an employee of the HEI, the researcher remains an outsider to those being researched and, therefore, had no influence on how they perceive and view the phenomenon. The meanings they ascribed to AMA-based learning were rather shaped by their social (both professional and personal) realities, which resulted in different interpretations, based on the contextual factors that shaped these meanings (Maxwell, 2008).

Thirdly, the case study design is suitable when the boundaries between the phenomenon being studied and the context are not always clearly evident (Yin, 2003), which implies that the phenomenon under study is contemporary and it is not well understood, nor sufficiently grounded. Stake (1995) holds that the personal, social, political, and historical contexts are important to bring to bear when studying cases in order to gain access to the contextual influences on human actions, interpretations, and behaviour (Maxwell, 2008). Similarly, McKay (2009) notes that a case study is suitable when contextual features are relevant to the research questions. Case studies therefore require exploration of the phenomenon in relation to its contextual features since they are of importance (and interest) to the research. As such, the case study methodology requires a detailed description of the setting and participants (Creswell, 2009) (see Appendixes A for additional details on the study context).

Case studies allow for the use of multiple data sources (i.e., data triangulation), quantitative and qualitative data-collection methods (i.e., methodological triangulation), as well as a combination of inductive and deductive approaches to analysis (i.e., analytical triangulation) (see Yin, 2009). This enables intensive involvement by the researcher in the phenomenon, which enables the testing of hypotheses and the uncovering of various perspectives. This helps generate varied, rich, and in-depth data and provides a thorough account of the phenomenon (Maxwell, 2008).

4.2.4 Delimitations of the Case Study

Stake (1995) and Yin (2003) emphasise the need to scope and bind the case study to overcome unreasonable breadth and convolution of objectives. Placing a boundary on the case can be done, for instance, by identifying the type of case or unit and the unit of analysis (Yin, 1993), specifying the context (Miles & Huberman, 1994), specifying the research activity (Stake, 1995), specifying a time-frame (Stake, 1995), specifying the constructs (Yin, 2003), as well as providing a conceptual framework (Miles & Huberman, 1994). These are substantiated below.

Determining the Type of Case Study and Unit of Analysis

Stake (1995) and Yin (1993) note the difficulty and confusion many researchers encounter when defining their cases and both suggest that a case can be many things: an individual, a group, an organisation, an activity, or an intervention. According to Appleton (2002), "the literature appears to suggest that in fact anything can be considered a case as long as the researcher depicts it clearly. Quite clearly it is the phenomenon of interest and context that constitute the case… what seems to be important is not purely describing its substance but clarifying how the case will inform data collection and lead to an understanding of the phenomena of interest" (pp. 85-86).

In this study, a single case study approach was adopted in order to understand the phenomenon in greater detail and reveal features of the case and the relationships among these features (Cohen et al., 2007). The phenomenon under investigation (i.e., AMA-based learning, as represented by SGP) establishes the case. As emphasised in the guiding research questions, the main motivation for this research was to understand this phenomenon in relation to three main areas of inquiry: AMA engagement, AMA pedagogy, and AMA environment design principles. Considering this area is under-researched in this context, understanding AMA-based learning makes a primary objective and meets the aims to fill knowledge gaps in this area. The study is therefore exploratory in nature because the aims are to understand AMA-based learning (i.e., phenomenon or case) in relation to the sample population, context, and learning situation through the participants' own lenses (Unluer, 2012).

Determining the Context, Study Sample, and Data to be Collected

The aim of sampling strategies in interpretivist research is to represent a wide range of perspectives and experiences (Creswell, 2009), and therefore involve decisions as to where and with whom the research will take place (Creswell, 2009; Maxwell, 1998). There are no rules regarding sample size in qualitative research, but it depends on the purpose of the inquiry and the point at which data reaches saturation (Miles & Huberman, 1994).

This study was conducted in a pre-service English teacher education programme at a public HEI in Oman. The reason behind this selection was twofold. First, this is the only IELTE programme known to have AMA as a major programme requirement. The second reason is practical, chiefly concerning ease of access to the site and participants, familiarity with the context, and the likelihood of approaching participants for further clarifications and data.

The sample participants in the present study were intentionally selected by way of 'purposive sampling' or 'purposeful selection' because they could teach us much about the issues being investigated (Boeije, 2010). The criteria for participant selection was based chiefly on relevant

prior experience with SGP to provide rich insights into the phenomenon under investigation. All participants were either involved in teaching or studying the EduTech module in the IELTE programme. The sample included male and female students and academics.

Considering the case study designs allow drawing from both qualitative and quantitative data to help build a thorough understanding of the case (Stake, 1995) both qualitative and quantitative methods were utilised in this study, which included questionnaires, semi-structured interviews, document analysis, and a two-step data validation consisting of one-to-one interviews and a focus group discussion. As such, data collection went into various phases, starting with questionnaires as a fact-finding stage and to allow for comparing data against the literature; then semi-structured interviews to gain more depth into the participants' views, experiences, and perspectives regarding AMA-based learning; followed by the analysis of reflective journals from students based on their AMA-experiences; and finally one-to-one interviews and a focus group to validate the research outcomes. The rationale for these methods is discussed later in section 4.3.

The student sample size differed for each data collection method, as outlined in Table 4.1. Regarding teacher participants, only three were found to meet the criteria of having relevant AMA-based teaching experience, and they participated in both questionnaires and interviews. They come from different backgrounds, hold master's degrees, and have a range of teaching experience (Table 4.2).

Table 4.1. Student Profiles According to Study Methods

Method	Number of participants	Gender	Age group	Nationality
Questionnaires	53	35 females 18 males	20-24	Omani
Semi-structured interviews	19	12 females 7 males		
Reflective journals	39	11 females 28 males		
Two-part data validation of one-to-one interviews and focus group discussion	2	2 females		

Table 4.2. Teacher Profiles

Method	Participant	Gender	Nationality	Qualification	Teaching experience
Questionnaires & Semi-structured interviews	T.1	M	Omani	MA in TESOL	5- 10 years
	T.2	F	Polish		More than 15 years
	T.3	F	Philippino		

Two-part data validation of one-to-one interviews and focus group discussion	T.1	M	Omani		5- 10 years

Determining the Constructs

Use of specific constructs (or propositions) also helps to place limits on the scope of the study and enhance the feasibility of the project (Baxter & Jack, 2008). Propositions can be informed by the literature, theories, and professional or personal experience and can guide data collection and the discussion of results, but they must relate to the focus and purpose of the study (Baxter & Jack, 2008). Yin (2003) maintains that constructs help ensure the analysis is both contained in scope and retains structural integrity for the final report. “Each proposition serves to focus the data collection, determine direction and scope of the study and together the propositions form the foundation for a conceptual structure/framework” (Baxter & Jack, 2008, p. 551). In this study, the specific constructs were developed from theory and the relevant literature and they were represented in the conceptual framework. Along with construct categories, several subcategories were identified, and these were incorporated into the data collection instruments, data analysis, and discussion of results.

Determining the Conceptual Framework

In this study, providing a conceptual framework helped establish a boundary and the scope of the investigation. It helped (a) identify major constructs, (b) establish relationships among these constructs, and (c) identify study participants, (Miles & Huberman, 1994). Baxter and Jack (2008) note that a conceptual framework provides an anchor for the study. This became especially useful at the data collection stage as it defined the direction of the investigation and framed its scope, and later framed the data analysis and interpretation (Miles & Huberman, 1994; Stake, 1995). Chapter Three discussed the conceptual framework underpinning this study.

Determining the Generalisability of Case Study Research

Qualitative research, including case study research, is not intended to make generalisability claims about the data to other contexts or populations, unlike quantitative research which utilises random sampling to make such claims. This is because qualitative research uses small samples which are purposefully selected to teach us the most about the phenomenon. This could be the single most valuable attribute of qualitative studies (Maxwell, 2008) since they may be illuminating as extreme cases. It can therefore be claimed that a major limitation of the case study approach is its inability to make generalisable claims about findings. What qualitative studies can make, instead, is analytical generalisations to similar contexts by way of providing rich

descriptions of processes, contexts, and phenomena. This is further substantiated in section 4.6.1.3.

4.3 Research Instruments

The research methods concern the practical applications of conducting research and they consist of a set of procedures, tools, and data collection and analysis techniques (Wahyuni, 2012). Maxwell (2008) identifies four key components of qualitative methods that influence the design decisions: 1) establishing a research relationship with those being researched, 2) the sampling (in terms of setting, participants, time, and sources of info), 3) data collection, and 4) data analysis. The choice of data collection methods depends largely on the situation surrounding the research and which methods work best to generate optimal data (Maxwell, 2008).

This study draws mainly from four phases of data obtained from participants, using both quantitative (questionnaires) and qualitative methods (semi-structured interviews, reflective journals, and a two-part data validation consisting of one-to-one interviews and a follow-up focus group) (mapped out in Table 4.3). The matrix is a recommended method for linking the research questions with the methods of data collection to illustrate how methods contribute to answering the research questions (Maxwell, 2008). The questionnaires in phase one served 1) as a fact-finding stage to test relevant findings from theoretical and empirical literature against the data emerging from this context, 2) to establish a basis for in-depth inquiry from study participants, and 3) to compare and reinforce qualitative findings. The semi-structured interviews in phase two sought 1) to provide richer data from a small, yet purposive, sample of the population regarding their own experiences and perspectives of AMA-based learning, and 2) to reinforce as well as expand the insights gained from the quantitative findings. For phase three, students' podcasting reflections were analysed 1) to gain more insights into the learning and challenges throughout the phases of production, and 2) to reinforce previous findings from questionnaires and interviews. For phase four, the two-part data validation phase was conducted 1) to take findings back to participants to verify the accuracy and member-check the outcomes, and 2) to consult them on the outcomes and allow them to refine, make changes or challenge the researcher's interpretations.

Utilising multiple data sources is characteristic of case study research (Tellis, 1997). This can occur at varying levels, including theories, sources of data, researchers, and methods (Tellis, 1997). This research study used a combination of methods (i.e., questionnaires, interviews, document analysis, focus group) and data sources (i.e., students and academics), which had the following advantages: (a) corroborating findings and enabling a better understanding of the phenomenon

(Baxter & Jack, 2008); (b) enhancing the validity of data by reducing the risk of researcher biases or limitations of particular methods (Maxwell, 1998); and (c) understanding the richness and complexity of human behaviour (Cohen & Manion, 1994). The need for using multiple data sources is often also required to satisfy some ethical requirements of research, particularly concerning enhancing the validity of results and reaching well-informed conclusions.

The reason for not considering other primary sources (e.g., observation) is that AMAs in this context take place beyond classroom meetings (i.e., at home), which makes it inaccessible to observation. Also, pair and group interviews were piloted, but results showed that students tended to rely on each other to complete their answers, repeated similar ideas expressed by others, or interrupted and spoke over one another. Individual interviews, by contrast, generated better ideas, allowed participants time to think and articulate, and enabled a more comfortable exchange between the interviewer and interviewees.

Table 4.3. Data Collection Type and Tools Matched Against the Research Questions.

Research questions	**Type of data used in this study**			
	Primary	**Primary**	**Secondary**	**Primary**
Main Research questions: How do students and academics evaluate authoring multimedia artefacts (AMA) as an approach to learning in the context of Initial English Language Teacher Education (IELTE) in Oman?	**Phase 1: Questionnaires**	**Phase 2: Interviews**	**Phase 3: Reflective journals***	**Phase 4: A two-part data validation of one-to-one interviews and Focus group**
RQ.1. How do students and academics evaluate learner engagement in AMA-based learning?	X	X	X*	X
RQ.1.1. What challenges do students and academics associate with AMA-based learning?		X	X*	X
RQ. 1.2: What suggestions do students and academics propose to overcome these challenges of AMA-based learning?		X	X*	X
RQ.2. How do students and academics evaluate the pedagogical approach of AMA-based learning?	X	X	X*	X
RQ.3. How do students and academics evaluate the learning environment of AMA-based learning?	X	X		X

* Only students were considered, not academics.

4.3.1 Phase 1: Questionnaires

The questionnaire is a quantitative method widely used in social science research to collect quantifiable data from a representative sample of the research population (Cohen et al., 2007). It

can be administered without the presence of the researcher and is relatively straightforward to analyse (Cohen et al., 2007). Questionnaires place less emphasis on prompt responses, can achieve respondent anonymity, and protect privacy by assigning numerical codes. Nonetheless, these advantages should be viewed as relative to the time requirements that go into developing, piloting, and administering questionnaires appropriate for the research purposes. Moreover, this method raises several issues in relation to low response rate, lack of control over respondents in relation to obtaining candid answers, and the possibility of varied interpretations of questions (Sapford & Jupp, 1996). No researcher explains and elaborates on the questions and because of this they are not interactive (Cohen et al., 2007).

In this study, Questionnaires were used to (1) test reported findings from the literature on AMA-based learning against the experiences, views, and perspectives of participants; (2) establish a basis for in-depth inquiry from study participants; and (3) compare and corroborate evidence obtained from semi-structured interviews. Questionnaires were helpful for collecting a larger amount of data from a large sample of the population while saving time and effort because they are relatively quick to administer and analyse (Cohen et al., 2007).

To minimise their shortcomings, care was taken as to the quality of questions to ensure they were interpreted correctly as intended by the researcher. First, the questions were broken into sets of options and simply-phrased statements. Structured questionnaires were found more suitable for this purpose. Second, having piloted the instrument with a small sample of students and teachers from the intended population, feedback was used to improve the instrument in terms of wording, clarity, and organisation. Student questionnaires were delivered in person and conducted in formal classroom sessions to enhance the response rate and attend to potential inquiries arising from participants. This is what is known as researcher-administered questionnaires (Miles & Huberman, 1994). Subsequently, data from questionnaires were converged, compared, and contrasted with data obtained from other participants and methods.

4.3.1.1 Design of Questionnaires

The statements in the questionnaires were developed based on the constructs in the conceptual framework. The thematic categories explored included aspects relating to AMA engagement, AMA pedagogy, and AMA environment. They were developed based on a review of the relevant literature, as outlined below:

- Part 1. AMA engagement (n=20 statements): literature on Papertian constructionism (Beynon, 2017; Papert, 1980, 1993, 1999; Stager, 2005) and ICT-mediated learning (Forbes, 2015; Frydenberg, 2008; Huann & Thong, 2006; Lazzari, 2008; McLoughlin et al., 2006a; Nie et al,

2008) informed the focus of questionnaire items. All these areas are similarly emphasised in the engagement learning discourse (Connell, 1990; Finn & Zimmer, 2012; Fredricks et al., 2004; Winne & Hadwin, 1998; Zimmerman, 2000, 2002, 2008).

- Part 2. AMA pedagogy (n=23 statements): the four areas of learning by doing, artefact construction, student-centred learning and ICT-mediated learning were derived from pertinent literature (in Chapter Three): (a) learning by doing was informed by Kolb's (1984) and Lewin's experiential learning accounts; (b) student-centred learning was informed by the accounts of Hase and Kenyon (2000, 2007), Knowles (1980, 1984) and Papert (1980, 1999); (c) ICT-mediated learning was informed by McLoughlin et al. (2006a), Papert (1980) and Stager (2007, 2008); and (d) artefact construction was informed by Paavola and Hakkarainen (2005), Papert (1980, 1993, 1999) and Stager (2001).
- Part 3. AMA environment (n=12 statements): the three areas of investigation were also informed by literature: (a) learning atmosphere was informed by Papert (1980, 1993) and Knowles (1980); (b) the role of the teacher was informed by Kafai (2006), Papert (1980, 1993) and Knowles (1980); and (c) nature of learning activities was informed by Papert (1980, 1993, 1999) and Stager (2001).

Questionnaire statements were designed to provide straightforward answers. For this, a structured, close-ended format was utilised. The questionnaires (in Appendix K) were designed using Google Forms and utilised a five-point Likert scale (i.e., 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree). Likert scales are commended for their commonality and practicality as a measure (Verma & Mallick, 1999). Also, Likert scales that use theoretically equal interval measures (e.g., 'strongly disagree' to 'strongly agree') are commonly used as a rating as well as an ordinal scale (Creswell, 2012).

The procedure of building the questionnaires went into several steps:

a) having identified the thematic constructs, categories and subcategories, relevant questions were brainstormed to ensure they were representative and covered the intended themes and their subsumed categories;
b) the literature was consulted for specific measures of some constructs, particularly in relation to engagement;
c) feedback on the questionnaire items was obtained from colleagues and experts in the field;
d) changes and modifications were made in accordance with the feedback.
e) the student instrument was translated into Arabic and feedback was obtained from both colleagues and students.

f) both versions of the instruments were piloted with a representative sample.

g) feedback from the piloting was used for further refinement of instruments.

4.3.1.2 Selection Strategy for Questionnaires

Questionnaires were administered to both students and academics. The intended student population included those enrolled in the Educational Technology Module in Fall 2018 and Spring 2019, including both male and female students. Unfortunately, this module is offered once every academic year, and sometimes twice. The intake of students per semester does not often exceed 50 students, and at times falls below 30. This was one reason that so few students could be recruited for the study. Also, many students chose not to participate in the study, which meant fewer potential candidates. Others also took copies of the questionnaires but did not return them. Because that coincided with the end of the semester, it was not possible to track them, despite extending the deadline. The module teachers cooperated with the researcher by sending reminder emails, but that only helped to only a limited extent.

The student participants were recruited through teacher recommendations, sending emails to those enrolled in the module, and in-person classroom visits. In the case of academics, only those with relevant prior experience using the AMA approach were recruited, which left only three.

4.3.1.3 Piloting Questionnaires

After developing the questionnaires for the students and teachers, they were piloted to enhance their reliability and validity. In addition to expert feedback, the questionnaires were piloted with a sample of the target population to ensure correct interpretations were made. The feedback so obtained was used to refine the final instruments. See Appendix G for details on the piloting phase.

4.3.1.4 Administering Questionnaires

For student questionnaires, arrangements were made with several module teachers who agreed to allocate the last twenty minutes of their classes to administering the instrument. Student participants were recruited by way of visiting the scheduled classes in person and asking for potential volunteers to complete the survey in the allocated class time. Prior to conducting the questionnaires, clear instructions were provided to respondents as to the aims and purposes of the study, their participation rights, and their privacy and anonymity considerations. To help relieve students of the obligation incurred by teacher presence, the class teachers were asked to make themselves unavailable during the time they filled in the questionnaires. The researcher was present when the instrument was administered (Miles & Huberman, 1994), which offered

many advantages, particularly in relation to gaining access to a larger sample as well as providing necessary clarifications in case of confusion and misinterpretation of items or questions. Only fifty-three students returned the questionnaires.

As for the academics, they filled out the online questionnaires, which were emailed to them. Only three teachers were found to fit the criteria.

4.3.2 Phase 2: Semi-Structured Interviews

The interview is considered a key data collection method, defined by a face-to-face and personal interaction with intended interviewees to address a specific agenda (Kvale, 1996). The advantage of this tool lies in the flexibility it affords both the interviewer and interviewees in relation to the flow of ideas and scope of interaction, and it enables the researcher to introduce questions that emerge from this social exchange (Cohen et al., 2007). It is also commended for its flexibility in respect to scheduling, the higher tendency for people to share through talking compared to writing, and the ease of obtaining people's insights through face-to-face conversations compared to written means (Creswell, 2012). For the purposes of this study, interviews helped provide a less-structured, in-depth exploration of the phenomenon under study.

Amongst the widely recognised types of interviews are structured, semi-structured and unstructured interviews (see Cohen et al., 2007 for additional classifications). This study adopted semi-structured interviews because there was a set of priori themes to explore. Further, semi-structured interviews allow for a flexible approach to elicit information and they afford participants room for free expression. Participants are therefore able to share their views but are unconstrained by the researcher's perspective (Creswell, 2012).

4.3.2.1 Design of Semi-Structured Interviews

The semi-structured interviews were tailored to suit each type of informant: students and teachers. The overall aim was to elicit a better understanding of AMA-based learning from these stakeholders in the context of Omani HE.

Students semi-structured interviews were helpful in gaining access to their personal views, tapping into their experiences to generate an in-depth understanding of the phenomenon, and facilitating a more natural flow between the researcher and participants. Because students authored the artefacts outside classroom time, i.e., at home, observation was not possible. The instrument was divided into four parts (see Appendix J):

- Part 1. AMA Engagement: aimed to elicit students' experiences and views regarding the different dimensions of engagement in the different phases of AMA production.
- Part 2. Challenges and suggestions to AMA engagement: aimed to elicit students' experiences and views on the challenges and difficulties they experienced, and the coping strategies employed to overcome these challenges.
- Part 3. AMA pedagogy: aimed to elicit students' experiences and views regarding key design principles of AMA pedagogy (i.e., learning-by-doing, student-centred learning, ICT-mediated learning, and artefact construction).
- Part 4. AMA Environment: aimed to elicit students' experiences and views regarding key design principles of AMA environment (i.e., teacher facilitation, learning atmosphere, and PBL).

Teacher interviews revealed in-depth personal accounts and facilitated drawing on their personal classroom practice, their tacit knowledge about the enactment of this pedagogical approach, and the difficulties or struggles associated with AMA experiences. Semi-structured interviews were practical in relation to scheduling and affording depth of insights. The teacher instrument was similar to the student instrument, but it was more geared towards teachers than students. It was also divided into four parts (see Appendix J):

- Part 1. AMA Engagement: aimed to elicit teachers' experiences and views regarding facilitating AMA engagement.
- Part 2. Challenges to AMA engagement: aimed to elicit teachers' views regarding the challenges and difficulties they or their students experienced, and the coping strategies employed to overcome these challenges.
- Part 3. AMA pedagogy: aimed to elicit teachers' experiences and views regarding key design principles of AMA pedagogy (i.e., learning by doing, artefact authoring, student-centred learning, and ICT-mediated learning).
- Part 4. AMA Environment: aimed to elicit teachers' experiences and views regarding key design principles of AMA environment (i.e., teacher facilitation, learning atmosphere, and PBL).

4.3.2.2 Selection Strategy for Semi-Structured Interviews

Student participants in the semi-structured interviews included those enrolled in the Educational Technology module in Fall 2018 and Spring 2019. The sampling criteria for recruiting students was based on teacher nomination, willingness to participate, and reaching data saturation. A sample of both male and female students (n=19) was obtained (Patton, 1990) to achieve a fair

representation of perspectives. A major goal was to recruit those who could help us learn about and develop a detailed understanding of the phenomenon (Creswell, 2012). While the study would have benefited from a larger sample, it was difficult to recruit more participants. Students noted that as they were busy with their studies, the majority were not willing to participate, and a few never showed up as scheduled. In addition, student interviews showed evidence of data saturation (Miles & Huberman, 1994) since ideas tended to repeat. This is because most of their prior experiences were mutual or shared, either in prior modules or as part of group projects.

The semi-structured interviews were also conducted with a sample of teachers who have had prior experience in teaching through AMA. However, only three teachers matched the criteria in the context of this investigation. Even so, some unique differences exist among this sample in terms of their length of experience using this approach, which afforded variance to their perspectives as shaped by practice. A copy of the participant information sheet (see Appendix F) was communicated to the intended sample.

4.3.2.3 Piloting Semi-Structured Interviews

Piloting in interpretive research is aimed to develop and enhance the research instruments, which can reflect positively on the clarification of the research design and can strengthen the validity of the instruments (Pervan & Maimbo, 2005). Both versions of the interview instruments were piloted with a panel of experts and with a sample of the target population to obtain feedback on wording, measurements, and overall presentation (Pervan & Maimbo, 2005). The feedback so obtained was used to refine the instruments (see Appendix G for piloting details).

4.3.2.4 Administering Semi-Structured Interviews

Similar procedures were followed when administering the interviews. Each participant (i.e., students and teachers) was interviewed individually, using the corresponding interview forms in Appendix J. At the initial phase of interviewing, the following protocols were followed:

a) participants were informed about the aims and purposes of the study,
b) their consent to participation and being audio-recorded was obtained on a separate form prepared for the purpose and signed by each participant (see Appendix I),
c) matters of confidentiality and maintaining anonymity were communicated,
d) the possibility of reaching them in future for further clarifications was established.

During the research process, the researcher took notes of keywords and ideas. This procedure was useful for follow up and for eliciting more details when needed. The aim was to ensure

comprehensive and detailed coverage of the topic. Moreover, probing was used to facilitate the flow of the interviews and seek clarifications and additional information as required. Also, summary and paraphrasing were used to validate participants' views as often as needed to ensure that they were clearly understood (Cohen et al., 2007). At the end of the interviews, participants were thanked for their contribution to this research.

In all, 19 student interviews and 3 teacher interviews were conducted (n=22). Student interviews lasted between 00:50 to 01:49 hr/min, with an average of 01:20 hr/min. Teacher interviews lasted between 01:45 hr/min to 02:02 hr/min, with an average of 01:54 hr/min.

4.3.3 Phase 3: Reflective Journals

To help triangulate data and analysis, the study benefited from analysing student reflective journal entries following their podcasting experiences. According to Giraud (1999), participant journals are written accounts provided by participants based on their experiences of particular situations and are recognised as an unbiased data source in qualitative research. Giraud holds that journals have several advantages over interviews, including the lack of interviewer influence, they can be solicited with comparatively minimum researcher effort, they provide a contemporary account of participant experiences, and when acquired in a typed format they can be easily manipulated using data analysis software. Learning journals are also effective for obtaining information about a person's feelings (Cohen et al., 2007).

As per the requirements of the module, students write reflective entries on several AMA projects throughout the module. This study only analysed students' reflective entries on their podcasting experiences. These helped provide access to learners' experiences, views, thought processes, and agentic and metacognitive behaviours.

4.3.3.1 Selection Strategy for Participant Journals

The study made use of existing records written by students as part of the EduTech module requirement in which they write reflections on their AMA experiences, including SGP. With the permission of the module instructor, the researcher had access to the podcasting reflection entries (n=39) for two groups enrolled during Spring 2021. Due to time limitations, it was not possible to access the records of former cohorts. The instructor was requested to anonymise the documents before sharing them to ensure participant anonymity.

4.3.4 Phase 4: A Two-Part Data Validation Phase

The two-part data validation phase consisted of one-to-one interviews with a small sample of participants regarding the validation of the researcher's analysis and interpretations of their former data, while the focus group discussion aimed to encourage the same sample of participants to verify the accuracy of the research report and challenge it by offering alternate accounts. While one-to-one interviews make a flexible approach to eliciting information from participants in an unconstrained manner (Creswell, 2012), focus-group discussions are efficient data collection techniques in which group interaction is used as a basis for the generation and co-construction of insights, views, and opinions (Birt et al., 2016). Focus groups "…are a recognised way of exploring the opinions, beliefs, and attitudes of a group of people and of enabling people to respond and interact together" (p. 1805). They save time by collecting data from one group at a time and ensure minimal researcher intervention to facilitate less biased interpretations. As is the case with interviews, among the many uses for focus groups is as a member-checking tool. In their article on member-checking, Birt et al. (2016) discuss how focus groups can be used both for research validation and for enhancing research trustworthiness in which data are returned to participants to validate its accuracy. Following Birt et al., a focus group discussion, in addition to one-to-one interviews, was conducted with the aim of consulting stakeholders regarding the outcomes.

The overall aim of this data validation phase was to take the research outcomes back to participants and have them verify the accuracy of the report (Creswell, 2009). This aligns with Maxwell's (2008) vindication of respondent validation as "the single most important way of ruling out the possibility of misinterpreting the meaning of what participants say and do and the perspective they have on what is going on, as well as being an important way of identifying your own biases and misunderstandings of what you observed. However, participants' feedback is no more inherently valid than their interview responses; both should be taken simply as evidence regarding the validity of your account" (p. 244).

This phase served two chief objectives. The first was to check if the conclusions from the analysis depict an "accurate portrayal of participant voices by allowing participants to confirm or deny the accuracy and interpretations of data" (Candela, 2019, p. 620). The intention was to check for the degree of accuracy in capturing, representing, describing, and interpreting participant views, perspectives, and experiences. The second objective was to encourage refined, and possibly alternate, interpretations (Candela, 2019; Stake, 1995).

4.3.4.1 Design of the Two-Part Data Validation Phase

Drawing on the two chief objectives informing this phase, Appendix J shows the guiding questions and sub-questions corresponding to the two main objectives above. As such, the aims were:

- Part 1: to check if the analysis made for qualitative data matches participants' views, really captures their opinions, and truly represents their ideas, and also to check if participants' views, opinions, and perspectives of AMA-based learning have persisted over time, and/or whether they want to add to or modify their views.
- Part 2: to validate the representation of outcomes and conclusions by validating the thematic mind-map and its constituents, judging how well the mind-map and code system accurately represent the conclusions, and/or challenging the researcher's interpretations by offering alternate accounts.

In addition to the supervising committee, the instrument was piloted with two PhD holders, who provided direction, feedback, and suggestions to improve the quality of questions and the areas of emphasis.

4.3.4.2 Selection Strategy for the Two-Part Data Validation Phase

A sample of participants (n=3) was recruited to participate in a two-part data validation phase consisting of (1) one-to-one interviews (to examine the accuracy of the data analysis, interpretation, and representation and to check whether they needed to modify and/or add additional information overlooked earlier) and (2) a follow-up focus-group discussion (to validate the accuracy of the research outcomes and possibly challenge them by offering other accounts).

While the researcher attempted to recruit more participants for interviews, most students had graduated while the two teacher participants moved out. Then COVID-19 restrictions prohibited reaching out and recruiting more candidates. As a result, only two students and one teacher were recruited for data validation purposes.

All these participants were contacted by email, and all three expressed willingness to participate. Following the receipt of their approval, participants were provided with the following documents: (1) participant information sheets, (2) consent forms, (3) copies of their full interview transcripts; (4) copies of coded segments from their transcripts, supplied with highlighted codes and the treeline of these codes; (5) the coding scheme, (6) a detailed thematic mind-map built to systematically and hierarchically illustrate the thematic scheme generated from the analysis of interviews and reflective journals, and (7) the two-part data validation instrument (see Appendixes H, I, J, N).

4.3.4.3 Administering the Two-Part Data Validation Phase

The instrument was virtually administered by the researcher using Google Meet. The one-to-one interviews lasted a half-hour on average, while the focus group lasted about an hour. Both one-to-one interviews and the focus group discussion were audio/video recorded using Google Meet and then transcribed. The protocol followed here resembles that of semi-structured interviews, which included emphasising the purpose of this phase, obtaining consent to participation and recording, and discussing confidentiality matters.

To facilitate the two-part data validation phase, the researcher, in addition to emailing the documents beforehand, displayed all the documents on the screen and briefed the participants about how the documents were to be utilised and what roles they needed to play. For the focus group, the researcher mainly acted as a moderator and intervened only when requested, to ask questions, and to confirm ideas.

For the first part, participants were interviewed individually to elicit their views concerning the initial part of the data validation phase. The coded segments, thematic map, and code system were used as a basis for discussion in which participants explored, validated the themes, codes, and sub-codes, and how they corresponded to their views in the scripts. Additionally, participants were given prompts regarding the accuracy of interpretation of their data, regarding how persistent their views had been, and whether they could refine them. In the second part, all three participants were convened for a focus group discussion concerning the second part of data validation. The thematic map and code system were used as a basis for discussion, in which the participants engaged in a discussion regarding the accuracy of each part of the research report and the possibility of challenging them by offering alternate accounts. This led to a step-by-step validation process of all the categories and sub-categories of the thematic scheme.

To minimise researcher bias, participants were questioned and asked to elaborate on their views. This enabled them to share their views, and to add to, refine, and/or challenge the research outcomes.

4.4 Ethical Considerations

Ethical issues concern the rules of conduct that characterise the research investigation every step of the way (Singleton & Straits, 2005), and have implications on obtaining permissions and making appropriate choices and informed decisions. Ethical issues concern such considerations as access to the site and choices around the design, methods, and analysis of data (LeCompte, 2015). They also concern potential issues that can be raised by the study including maintaining privacy,

anonymity, and confidentiality (Polonsky & Waller, 2014). There are also other ethical considerations that concern the rights of participants to be fully informed about the research purposes, their right to withdraw (Bryman, 2012), and their right to have their privacy protected, their opinions respected, and their confidentiality maintained (Bryman, 2012). Based on these criteria, there is a need for a balance between seeking contextual truths and protecting people's safety against potential harm, which is often a major ethical dilemma (Cohen et al., 2007). In this study, appropriate measures were taken to maintain rigorous ethical procedures.

4.4.1 Ethical Procedures

This research observed the ethical procedures of qualitative study. At the initial phase, the ethical approvals (Appendix D) were obtained from the concerned ethics committee (Bryman, 2012), namely the Ethics and Research Governance Online (ERGO) system at the University of Southampton. Then, a cover letter (Appendix E) was emailed to the Directorate General of the Colleges of Applied Sciences (DGCAS) at the Ministry of Higher Education in which permission was sought to access the site and interview students and academics. The letter detailed the researcher's role, the research purposes, the role of participants, and ethical implications. The gatekeeper approvals were granted (Appendix F).

Prior to data collection, the researcher ensured that the aims, purposes, procedures, regulations, and consent were discussed and communicated to the research participants. Assurances were given with regard to doing everything necessary to protect their privacy and maintain their anonymity and confidentiality. They were also asked whether they had questions about this study, and answers were provided.

For the questionnaires, students were informed about their purpose, were given the choice to fill out the questionnaire, and were informed about their right to withdraw. For the interviews and focus group, participants were required to sign a consent form (in Appendix I) prepared for the purpose. This detailed all necessary information, including the consent to be audio/video recorded. While administering the interviews, participants were given the opportunity to speak freely and share their opinions without restriction and without the researcher imposing any opinion on them.

Having collected data, it became the researcher's responsibility to safeguard that data from unwanted access to protect the participants' confidentiality and anonymity (Bryman, 2012). Confidentiality considerations address agreements with an individual or institution concerning how data will be used and how they will be protected from harm (Miles & Huberman, 1994). In this study, assurances were given to protect the participants' privacy. They were also given the

choice to withdraw if they felt the research could in any way harm them. Furthermore, the names of participants were anonymised and saved into a private, password-protected storage facility (Dey, 1993). Their data were handled in line with the ethical protocols from the University of Southampton.

During analysis, participants' answers and views were tackled in a respectful and truthful manner.

4.4.2 Researcher Positionality

There are ethical considerations that pertain to the researcher's positionality in relation to the research participants and context, which is an essential consideration in qualitative research. The researcher's values, beliefs, biases, predispositions, among other factors, could influence the framing, investigation, and the generation and interpretation of data (Bryman, 2012). In literature, this is viewed from an insider-outsider (i.e., subjective-objective) spectrum (Hellawell, 2006). The 'insider' refers to "an individual who possesses a priori intimate knowledge of the community and its members. The word community is a much wider concept than just an organisation and possessing intimate knowledge of it does not necessarily mean being a member of it yourself" (Hellawell, 2006, p. 484). The 'outsider', on the other hand, is where the researcher is not familiar with the setting and people one is researching. The positionality spectrum has implications on the strength and weakness of the research project, and how the researcher identifies oneself in relation to 'the other' and 'the context' being investigated (Hellawell, 2006).

Against this spectrum, my position and role as a researcher had both elements of insiderism and outsiderism. As an insider, being an employee of this institution helped facilitate access to the research site, people, and social culture and placed less rigid reciprocal obligations on me. It also helped minimise the chances of being rejected and I was welcome to approach participants for additional follow-up. Moreover, having relevant experience in teaching this module and using the AMA-based approach enabled me to understand the references participants were making. That would not have been possible to understand otherwise. Furthermore, I hold an intimate knowledge of the sociocultural context, which afforded me an affinity with the target population and the context of Omani HE, and a better understanding of the local culture (e.g., in terms of values, knowledge, taboos, etc.) and the social power structure (e.g., social hierarchy, formal and informal protocols). Since I share the same cultural background as the students, administering the interviews in Arabic eased the interaction, lent an air of spontaneity to the exchange, and facilitated better interpretation of the meanings they intended.

Despite this insider knowledge, however, my capacity as a researcher helped shield me from potential influences of the context or familiarity with participants. I took measures to pilot and

member-check the research instruments to minimise their weaknesses. Additionally, I undertook this research with an air of formality, used probing and follow-up questions to dig for clarification and additional information, and used paraphrasing and summaries to seek participant validation (Cohen e al., 2007). I also exercised reflexivity in reporting detailed research steps and findings, voicing my thoughts as a researcher and interactions with the context and participants, and voicing potential insecurities and uncertainties that could have arisen as a result of the data collection.

In the present study, I tried to balance my insider-outside positionality by keeping my role as a researcher at the forefront. A number of measures were applied to increase objectivity and minimise biases, including seeing things from the participants' perspectives, giving participants opportunities to reflect on their perspectives to help overcome priori assumptions, using a combination of quantitative and qualitative data from multiple participants, and providing a detailed description of the research participants and setting to maximise the rigour (Unluer, 2012). Also, the two-step validation measure helped confirm my analysis, interpretation, and representation of data and ensured that my insiderism has not blindsided me.

4.4.3 Researcher Reflexivity

Because the researcher was the main instrument for data collection and analysis, it was essential to become reflexive through the process in order to enhance the research rigour and trustworthiness of outcomes. For Creswell (2009), reflexivity means that "researchers reflect about how their biases, values, and personal backgrounds, such as gender, history, culture, and socioeconomic status, shape their interpretations formed during a study" (p. 233). This suggests reflexivity is a critical approach that require researchers to examine their assumptions, beliefs, and ideologies and become transparent in terms of the choices that guided the whole investigation from start to finish lest these influence data interpretations and fail to generate trustworthy conclusions. Examining the self in relation to the subject being researched enhances research trustworthiness, encourages more rigorous research, and produces quality outcomes.

Measures were taken to provide an audit trail for each step of the research, as outlined in the different sections of this chapter and the list of appendixes. These measures helped raise the researcher's awareness of maintaining rigour throughout the different phases of research. They included choices of the setting and participants, design of appropriate research methods, as well as decisions regarding data collection and data interpretation. This was also clear when making analytical choices, which culminated in the development of an analytical framework as part of a systematic approach to analysis (elaborated in section 4.5.2).

4.5 Data Analysis Procedures

4.5.1 Quantitative Data Analysis

As indicated, the main aim of the quantitative data was to (1) measure reported findings from the literature on AMA-based learning against the experiences, views, and perspectives of the study participants in this context; (2) use these results as a basis for collecting in-depth data from study participants; and (3) converge findings from both datasets by way of comparison and contrast to corroborate existing outcomes and establish new contributions.

Questionnaire items were developed to test students and teachers' personal experiences, views, and perspectives of AMA-based learning and, in so doing, establish a thorough understanding of different key aspects relating to AMA engagement, AMA pedagogy, and AMA environment.

Based on the design of questionnaires, the questions for part one 'Engagement in AMA' were classified into six major categories: cognitive engagement, metacognitive engagement, reflective engagement, affective engagement, behavioural engagement, and social engagement. For part two 'AMA pedagogy', questions were clustered into four major categories: learning by doing, artefact construction, student-centred learning, and ICT-mediated learning. Finally, questions for part three 'AMA environment' were clustered into three categories: teacher-facilitation, learning atmosphere, and PBL. Based on this, the Questionnaire analysis was rather straightforward as this classification ensured smooth data handling and management.

Quantitative data analysis was done using the Statistical Packages for Social Sciences (SPSS) software version 23. Having assigned students with code numbers, SPSS was used to generate descriptive analyses (e.g., means, standard deviations, frequencies, percentages) for the purposes of complementing qualitative data and for drawing analytical generalisations to enhance and possibly extend theory (Wahyuni, 2012). Generated frequencies and visual representations helped provide a useful basis for cross-case comparisons. Table 4.4 details the analysis procedure.

Table 4.4. Analysis Protocol for Quantitative Data.

No.	Type of analysis	Instrument	Source	Analysis procedures
1	Within-case	Questionnaires	1. Student questionnaires; 2. Teacher questionnaires	• First, performing a descriptive statistical procedure and ensuring responses are coded into appropriate thematic categories. • Second, performing within-case analysis: o providing a rich description of the datasets (Braun & Clarke, 2006). o Providing a case summary report (Appendix N)

2	Cross-case			• Third, performing cross-case analysis for comparison purposes (Chapter Five).

4.5.2 Qualitative Data Analysis

The aim of the qualitative data was to generate deeper insights into the study participants' experiences, views, and perspectives to establish a stronger basis for their beliefs, motivations, perceptions as well as apprehensions regarding AMA engagement, pedagogy, and environment. These in-depth insights served as a critical appraisal of the phenomenon under investigation and generated relevant interpretations that could be situated within relevant literature and theory.

In analysing qualitative data, Creswell (2009) identifies three analysis strategies to underpin qualitative data analysis methods: preparing and organising data, coding, and visually presenting data (e.g., tables, figures). Miles and Huberman (1994) propose three concurrent processes: data reduction, data display, and conclusion drawing verification. Data reduction mainly concerns the handling of data where it is condensed to seek meaning as the study progresses. It is therefore an ongoing process of theorising, aggregating, ordering, and contrasting data, as well as building and testing theories as per the attempt to derive meanings based on observing patterns, links, and relationships among large amounts of raw data. In the present study, the following procedures were applied to the analysis of interviews, participant reflective journals, and the two-part data validation phase of one-to-one interviews and a focus group discussion.

4.5.2.1 Data Handling

Data handling was conducted according to the following steps:

a) The interviews and focus group discussion were audio/video recorded and saved onto a computer to protect data confidentiality. The reflective journals were obtained anonymised from the course instructor.
b) The interviews and focus group discussion were transcribed (Dey, 1993). All transcription was done by the researcher, with the assistance of two transcription artificial intelligence (AI)-based services, namely Sonix (www.sonix.ai) and Otter (www.otter.ai). Both were transcribed verbatim (except in cases of repetitions, unclear utterances in cases of overlap between speakers). Using AI-based transcription platforms helped provide accurate and unbiased information. All transcripts were double-checked for wording and verified (see Appendix K for sample transcripts).
c) All transcripts were emailed to the participants to verify their wording and responses, but only sixteen out of a total of twenty-two interviewees responded, and in the data validation phase only one out of three responded. This satisfied member-checking

requirements as a strategy to enhance credibility (Lincoln & Guba, 1985). Since the student interviews were conducted in Arabic, responses were transcribed in Arabic and English translation was only provided for citation purposes in Chapter Five. Translation requires not only a proficient understanding of the language but also an intimate relationship with the culture in which meanings are embedded (Crane et al., 2009). Therefore, being bilingual, a language educator, and an insider of the context of investigation afforded me as a researcher a deep understanding of the context, sociocultural meanings, and the contextual realities the participants were referring to. Having personally conducted the translation was also helpful. It avoided any potential loss of meaning or misinterpretation that might have resulted from the lack of immersion in the interviewing phase. Also, personal facilitation of the interviews and focus group, coupled with the probing questions, afforded the researcher better closeness to the data and a better understanding of the meanings and references used. There are also ethical implications regarding the use of sensitive data likely to reveal participant identities if the data were handled by someone other than the researcher. Since this study is underpinned by an interpretivist paradigm, attention was given to eliciting the meanings expressed by participants, while retaining the structures they used in order to enhance the integrity of the analysis and increase its objectivity. In this case, meanings are not discovered but constructed by participants.

4.5.2.2 Phases of Thematic Analysis

In line with Braun and Clarke (2006), this study used a combination of deductive and inductive approaches to thematic analysis. The initial themes were derived and informed by the theoretical framework (i.e., theoretical, or deductive) and were also framed in the research questions. These mainly provided a systematic approach to the specific areas of inquiry and, at the initial phase of analysis, helped cluster themes within each area of inquiry. The analysis also followed an inductive (or bottom-up) approach. This meant keeping an open mind to emerging themes that did not seem to readily fit into specific questions, or ones whose link to the theoretical framework could not be easily established (Braun & Clarke, 2006), especially at the initial phases of coding.

For this reason, a thematic tabulation was developed to assist with the thematic coding and to ensure consistency in interpretation and comparability across cases and methods. For Miles and Huberman (1994), data display is a critical aspect of analysis, which includes creating categories of data, coding data, and revising codes. The coding scheme, therefore, was continually revisited and refined as the study progressed as per the attempt to uncover potential themes possibly overlooked in the literature review. A main purpose was to develop a rich thematic description of

the data because little is known about AMA-based learning in Oman and because participants' views on the topic are not known (Braun & Clarke, 2006).

Braun and Clarke (2006) suggest six phases of thematic analysis: familiarising with data, generating initial codes, searching for themes, reviewing themes, defining, and naming themes, and producing a report. These phases helped frame the thematic analysis in this study, which consisted of seven phases: (a) familiarising with data, (b) generating initial codes, (c) searching for, deriving, and reviewing final themes, (d) developing an analytical framework, (e) defining themes, (f) validating the analytical framework, and finally (g) producing the reports, as outlined below.

a. Familiarising with Data

At the initial stage of analysis, interview and focus group transcripts were first reviewed several times, along with the audio/video recordings, to become familiar with the content, become immersed in the data, and authenticate the transcription. Having personally conducted the transcription helped me gain a deeper understanding of the views and ideas participants were referring to. As to participant journals, the researcher read over them several times to formulate a comprehensive understanding of the themes and ideas they contained.

b. Generating Initial Codes

Initial codes were generated using the computer software 'MAXQDA 2018' to help systematically manage and organise the whole coding process. Coding is significant for category identification and to organise data into different levels of abstraction. For Miles and Huberman (1994),

> … codes are tags or labels for assigning units of analysis to the descriptive or inferential information compiled during a study. Codes are attached to "chunks" of varying size – words, phrases, sentences, or whole paragraphs, connected or unconnected to a specific setting. (p. 56)

Interviews were first coded, and the process was then applied to the reflective journals. The initial coding process attempted to identify specific themes particular to the three areas of inquiry (in Figure 4.1). Due to the comprehensive and iterative process of analysis and the broad scope of inquiry, the codes generated from the analysis were numerous. Figure 4.2 illustrates how coding was applied to a sample transcript.

Once analysed, the three phases of production instigated a different form of hierarchy to explain the different roles performed by students and teachers. Figures 4.3 and 4.4 illustrate a sample of coded segments in interview transcripts, with 227 segments coded for the pre-production phase by students and 97 segments coded for the teacher initiation phase. This demonstrates that

detailed coding was applied to the transcripts, which generated a large number of codes. Figure 4.5 illustrates the total number of codes generated from participant interview transcripts and reflective journals.

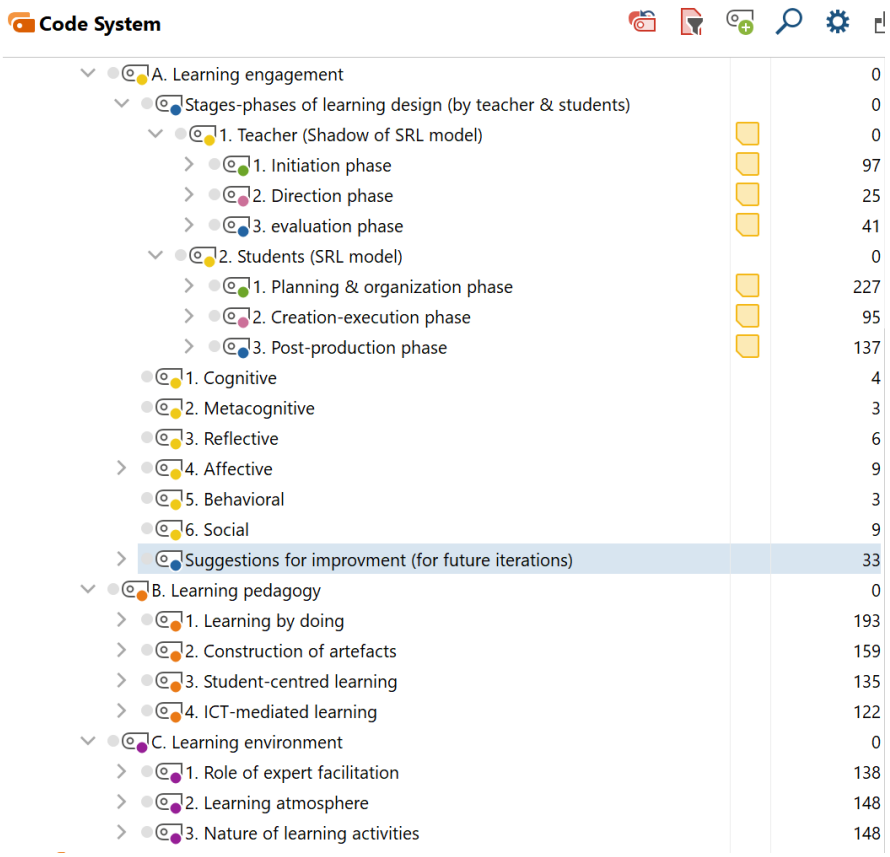


Figure 4.1. Initial Themes Clustered according to Deductive Themes.

Figure 4.2. Applying Codes to Interview Transcripts.

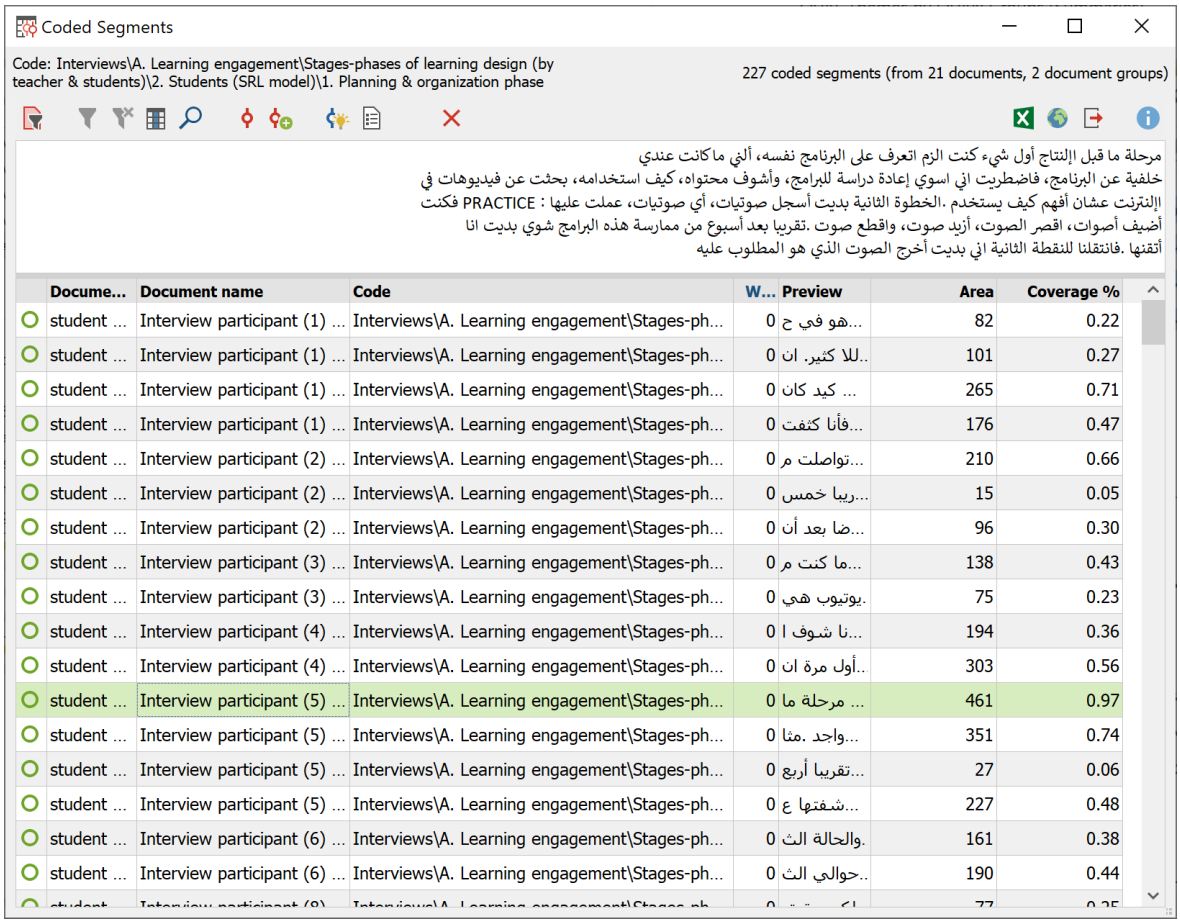


Figure 4.3. Excerpt from Segments Coded for Learner Pre-Production Phase.

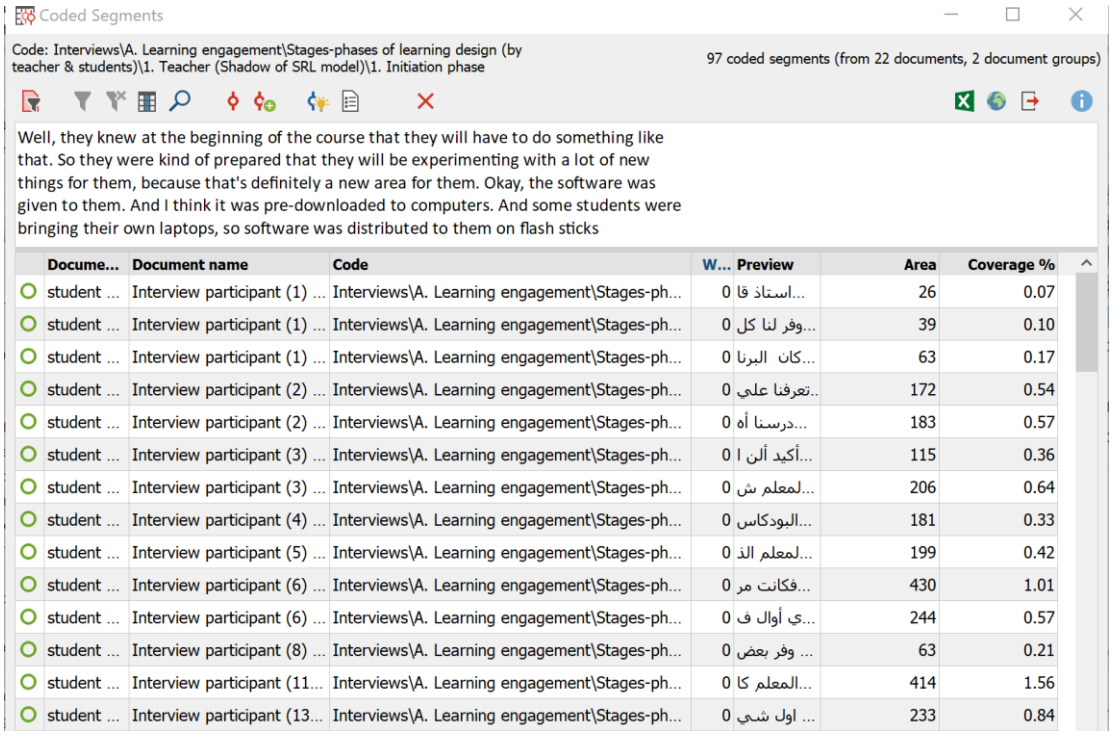


Figure 4.4. Excerpts from Segments Coded for Teacher Initiation Phase.

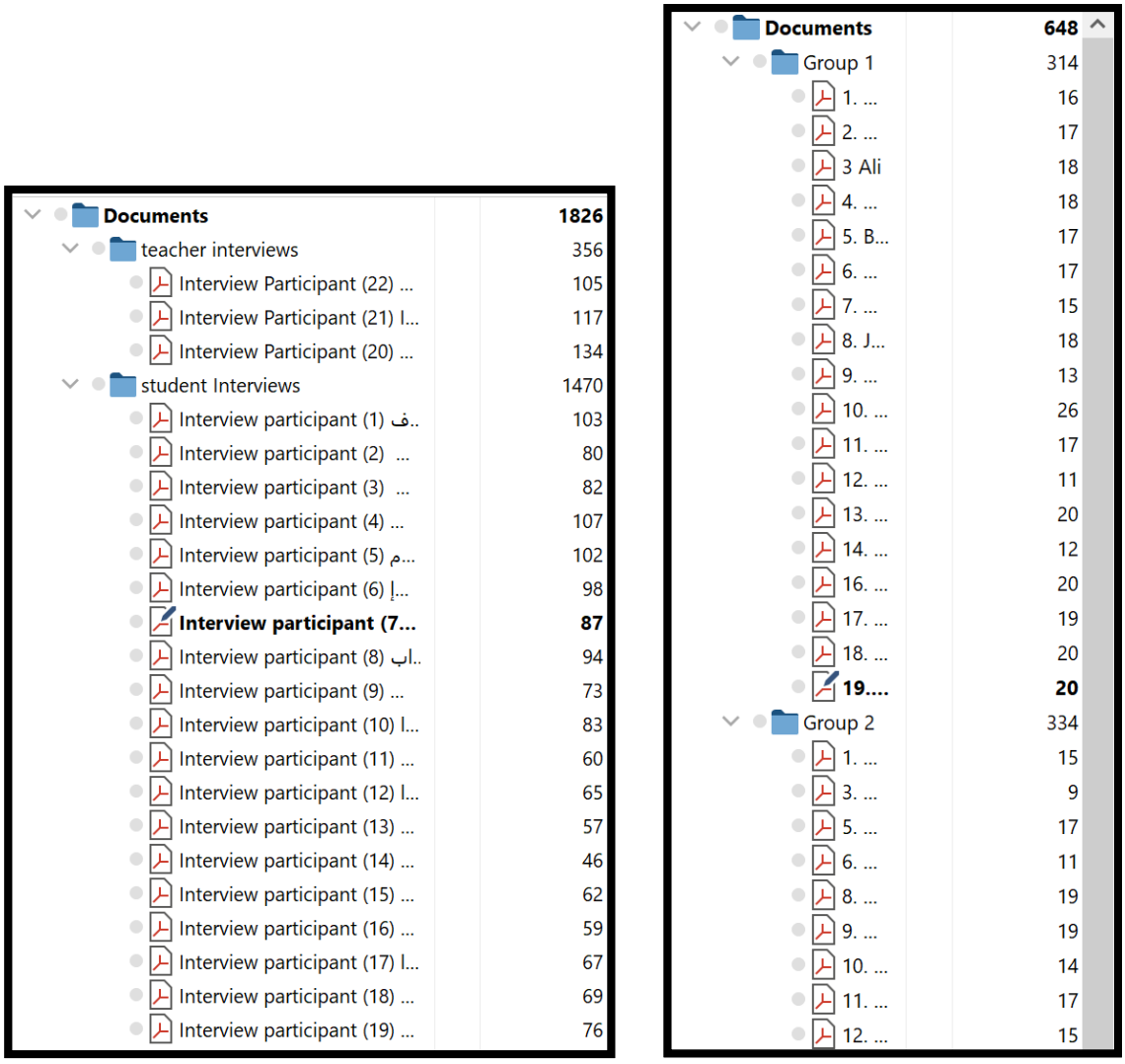
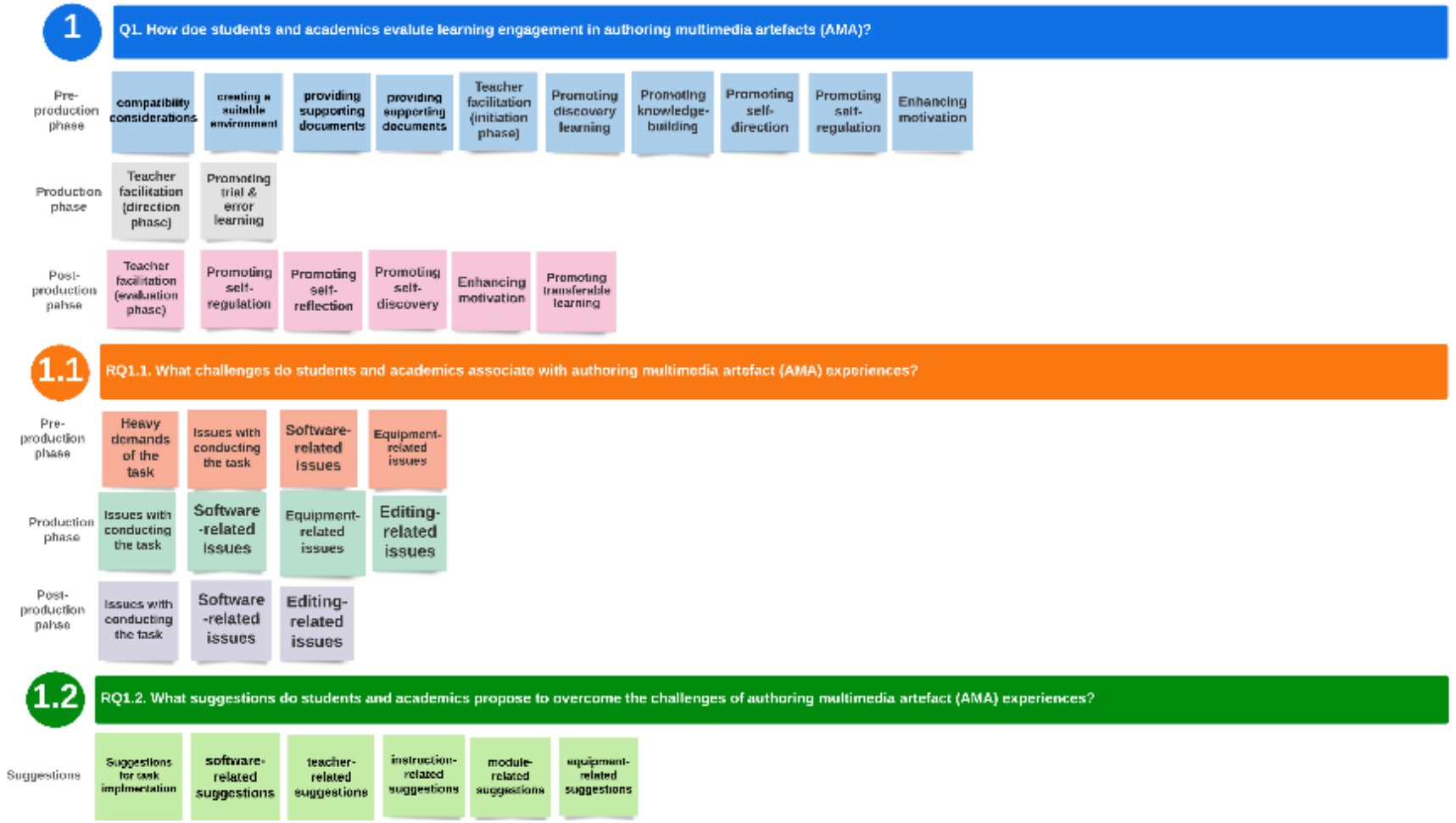


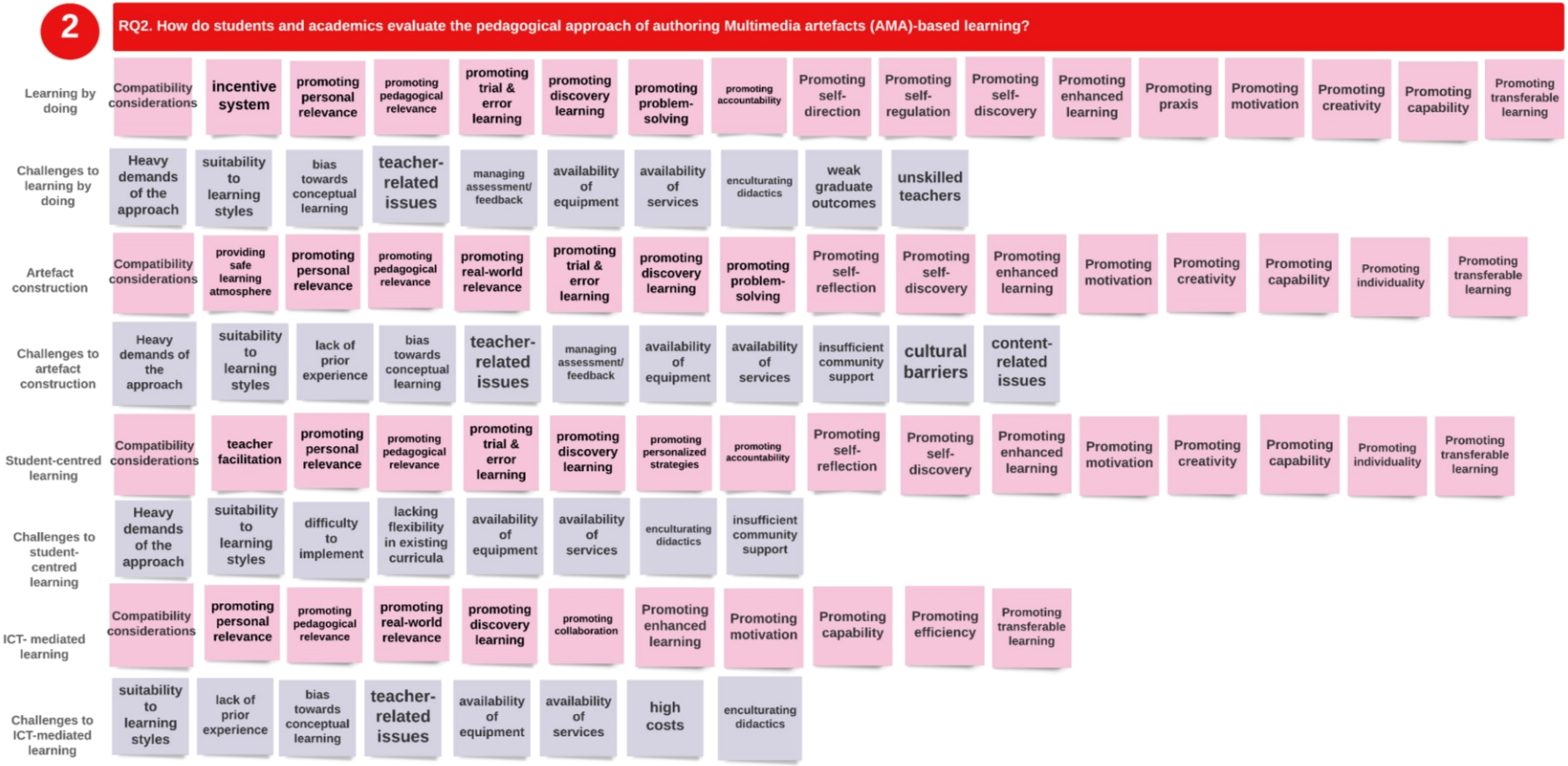
Figure 4.5. Total Number of Codes Generated from Interviews and Reflective Journals.

c. Searching for, Deriving, and Reviewing Final Themes

Since the in-depth analysis was adopted, the aim was to highlight all possible themes emerging from the data. The next process included searching for themes, where codes were collated into potential themes (Braun & Clarke, 2006). This included ongoing review and refinement of themes. In summary, the development of the thematic scheme went into three major iterations.

The first phase relied mainly on analysing data in their separate category-sets, following the same order of the research questions and the conceptual framework. While each category was analysed separately, emphasis was given to noting patterns and links among the different codes. The codes were further reduced and collapsed to allow for converging relevant codes and merging similar thematic categories (Figure 4.6). At later stages, higher levels of abstraction were developed within each category set. A major difficulty was in deciding on the number of thematic categories, appropriate levels of abstractions, and deciding on overlapping codes in relation to their suitable thematic category sets.


1
Q1. How doe students and academics evalute learning engagement in authoring multimedia artefacts (AMA)?
Pre-production phase
compatibility considerations
creating a suitable environment
providing supporting documents
providing supporting documents
Teacher facilitation (initiation phase)
Promoting discovery learning
Promoting knowledge-building
Promoting self-direction
Promoting self-regulation
Enhancing motivation
Production phase
Teacher facilitation (direction phase)
Promoting trial & error learning
Post-production pahse
Teacher facilitation (evaluation phase)
Promoting self-regulation
Promoting self-reflection
Promoting self-discovery
Enhancing motivation
Promoting transferable learning
1.1
RQ1.1. What challenges do students and academics associate with authoring multimedia artefact (AMA) experiences?
Pre-production phase
Heavy demands of the task
Issues with conducting the task
Software-related issues
Equipment-related issues
Production phase
Issues with conducting the task
Software-related issues
Equipment-related issues
Editing-related issues
Post-production pahse
Issues with conducting the task
Software-related issues
Editing-related issues
1.2
RQ1.2. What suggestions do students and academics propose to overcome the challenges of authoring multimedia artefact (AMA) experiences?
Suggestions
Suggestions for task implementation
software-related suggestions
teacher-related suggestions
instruction-related suggestions
module-related suggestions
equipment-related suggestions


2
RQ2. How do students and academics evaluate the pedagogical approach of authoring Multimedia artefacts (AMA)-based learning?
Learning by doing
Compatibility considerations
incentive system
promoting personal relevance
promoting pedagogical relevance
promoting trial & error learning
promoting discovery learning
promoting problem-solving
promoting accountability
Promoting self-direction
Promoting self-regulation
Promoting self-discovery
Promoting enhanced learning
Promoting praxis
Promoting motivation
Promoting creativity
Promoting capability
Promoting transferable learning
Challenges to learning by doing
Heavy demands of the approach
suitability to learning styles
bias towards conceptual learning
teacher-related issues
managing assessment/ feedback
availability of equipment
availability of services
enculturating didactics
weak graduate outcomes
unskilled teachers
Artefact construction
Compatibility considerations
providing safe learning atmosphere
promoting personal relevance
promoting pedagogical relevance
promoting real-world relevance
promoting trial & error learning
promoting discovery learning
promoting problem-solving
Promoting self-reflection
Promoting self-discovery
Promoting enhanced learning
Promoting motivation
Promoting creativity
Promoting capability
Promoting individuality
Promoting transferable learning
Challenges to artefact construction
Heavy demands of the approach
suitability to learning styles
lack of prior experience
bias towards conceptual learning
teacher-related issues
managing assessment/ feedback
availability of equipment
availability of services
insufficient community support
cultural barriers
content-related issues
Student-centred learning
Compatibility considerations
teacher facilitation
promoting personal relevance
promoting pedagogical relevance
promoting trial & error learning
promoting discovery learning
promoting personalized strategies
promoting accountability
Promoting self-reflection
Promoting self-discovery
Promoting enhanced learning
Promoting motivation
Promoting creativity
Promoting capability
Promoting individuality
Promoting transferable learning
Challenges to student-centred learning
Heavy demands of the approach
suitability to learning styles
difficulty to implement
lacking flexibility in existing curricula
availability of equipment
availability of services
enculturating didactics
insufficient community support
ICT- mediated learning
Compatibility considerations
promoting personal relevance
promoting pedagogical relevance
promoting real-world relevance
promoting discovery learning
promoting collaboration
Promoting enhanced learning
Promoting motivation
Promoting capability
Promoting efficiency
Promoting transferable learning
Challenges to ICT-mediated learning
suitability to learning styles
lack of prior experience
bias towards conceptual learning
teacher-related issues
availability of equipment
availability of services
high costs
enculturating didactics

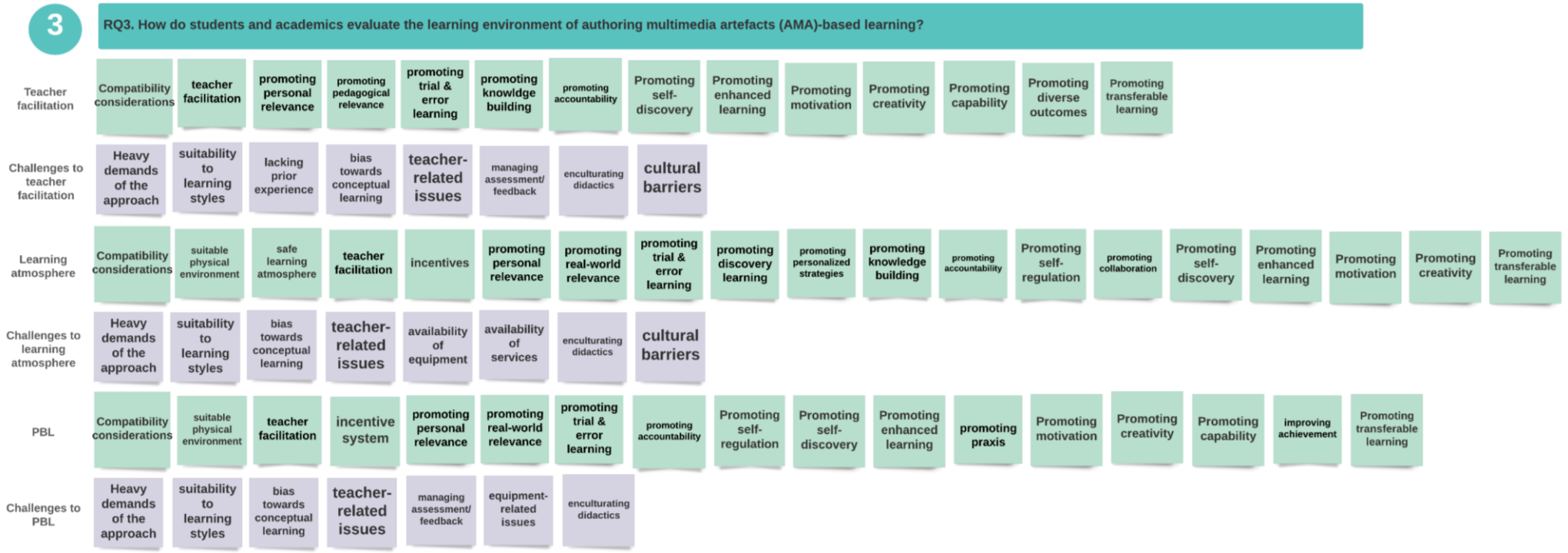


Figure 4.6. Outlining Research Questions with the Initial Themes per Area of Inquiry

The second phase consisted of identifying broad pattern matching, especially across category sets and across instruments. As the coding map developed and became more complex, there was a need to develop more overarching descriptive codes to represent and combine similar codes. This meant relying more on inductive, data-driven themes, which also helped relieve the analysis from the imposition of analytical preconceptions. This allowed for keeping a flexible approach to analysis and representing all possible themes emerging from the data. More attention was given to establishing connections and links among codes as well as themes, and therefore higher levels of abstraction were created to aggregate similar themes. The outcome was discussed with the supervising committee, who suggested further clustering and the elimination of redundancies.

The third phase included verifying the consistency of themes and codes across datasets and across instruments, ensuring further reduction and clustering of codes, and refinement of themes. One aim of the analysis was to generate a thematic reference scheme that could account for findings from the academics' data and students' data within and across instruments. Each dataset was found to provide more depth in certain areas than others, yet both were found complementary in providing a thorough account of AMA-based learning and they therefore helped answer the research questions. This led to developing an analytical framework, as outlined below.

d. **Developing an Analytical Framework**

Several conclusions were drawn from the earlier phases of analysis. It was found that the themes mainly revolved around several key thematic areas: 1) themes denoting the role and nature of learner participation, 2) themes denoting the role and nature of learning processes, 3) themes denoting characteristics of learning, 4) themes denoting the role and nature of effective learning outcomes, 5) themes denoting learning design considerations, and 6) themes denoting perceived challenges. Descriptive labels were then developed to designate overarching thematic categories, which helped define thematic category groups and distinguish them from others. These are outlined in Table 4.5.

Table 4.5. Charting Themes with Areas of Emphasis and Forming Overarching Descriptive Themes

	Emerging themes from data analysis	Thematic areas they emphasise	Descriptive labels denoting overarching themes
1	Promoting responsibility/ownership Promoting self-direction Promoting self-regulation Promoting self-reflection	Themes denoting nature of learner participation	Enabling active & independent learning

2	Promoting learning through trial & error Promoting discovery learning Promoting problem-solving Promoting critical thinking Promoting discovery learning Promoting flexible & personalised approaches & strategies Promoting knowledge-building	Themes denoting learning process	Enabling flexible & iterative learning
3	Promoting relevant learning Promoting transferable learning	Themes denoting characteristics of learning	Enabling relevant learning Enabling transferable learning
4	Promoting self-discovery Promoting enhanced learning Promoting praxis Enhancing motivation Promoting creativity Building capability Promoting diverse outcomes Nurturing individuality Enhancing efficiency Improving achievement	Themes denoting effective outcomes	Enabling effective learning
5	Compatibility considerations Creating a suitable physical environment Providing a safe learning atmosphere Providing supporting documents Teacher facilitation Incentive system	Themes denoting design considerations	Creating the conditions for learning
6	Heavy demands of the task Issues with conducting the task Suitability to learning styles Lack of prior experience Software-related issues Equipment-related issues Editing-related issues Difficulty to implement Lacking flexibility in existing curricula Bias towards conceptual learning Teacher-related issues Managing assessment/feedback Availability of Equipment Availability of services High costs of technology Enculturating didactics Weak graduate outcomes Unskilled teachers Insufficient community support Cultural barriers Content related issues	Themes denoting challenges	Personal challenges Technical challenges Pedagogical challenges Infrastructural challenges Educational challenges Sociocultural challenges

Identifying patterns and clustering similar themes were significant steps for developing a thematic scheme that transcends the analysis of each research question (i.e., AMA engagement, AMA pedagogy, AMA environment) to provide a comparative ground for analysis within and across methods. For this, there was a need to adopt a higher level of abstraction which held across category sets, as indicated by the descriptive overarching themes in Table 4.5 and Figure 4.7.

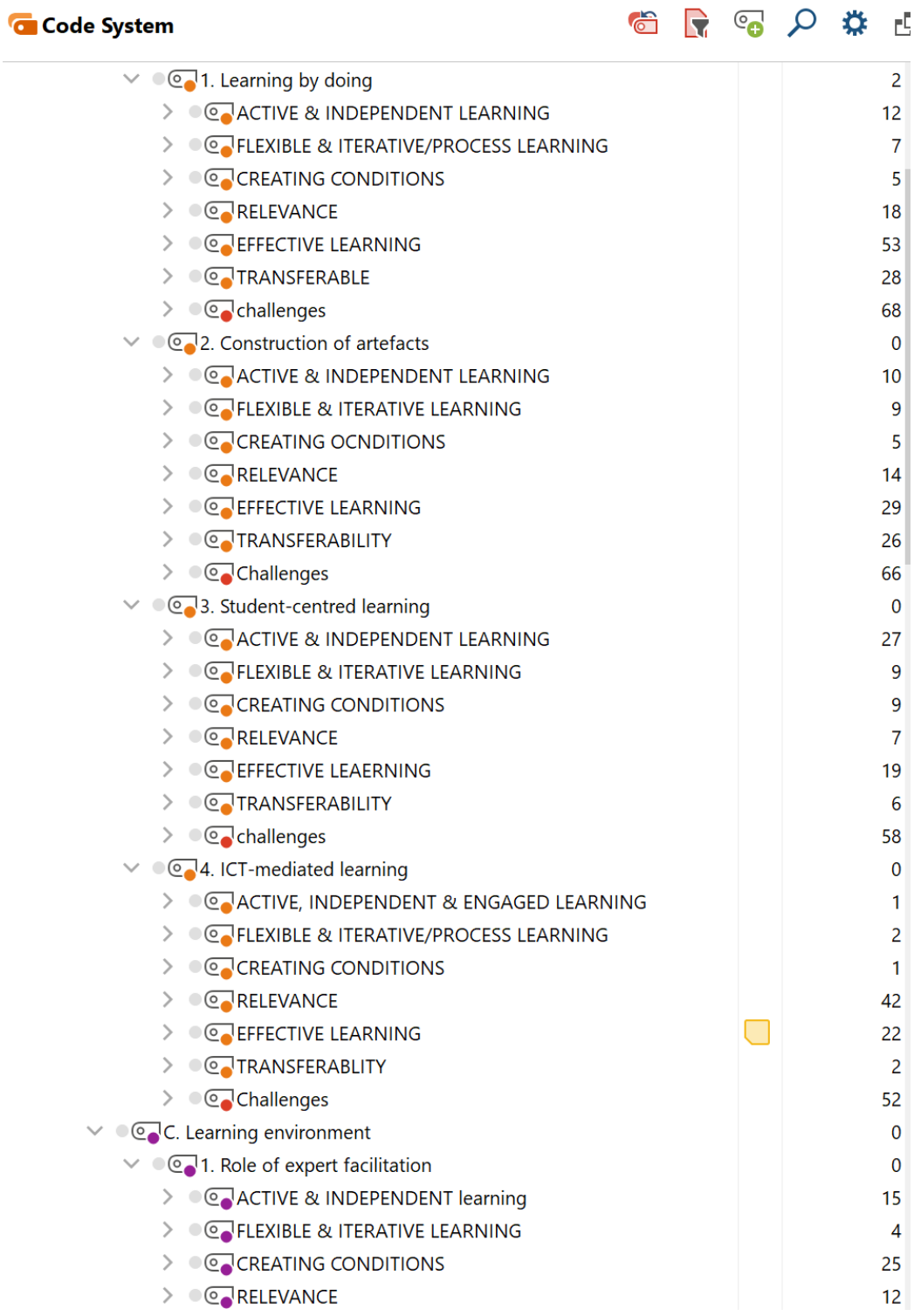


Figure 4.7 Applying the Overarching Thematic Categories across Deductive Categories

This ultimately led to the development of overarching categories that established the basis of a working analytical framework (in Figure 4.8). The analytical framework was found to hold across the analysis of the different datasets and different research questions, and consequently provided a reliable framework for data reporting, data analysis, and discussion of findings. The framework analysis is a common method in the research literature for managing and analysing qualitative data. In their article on the framework method, Gale et al. (2013) discuss how the framework method is a systematic method commonly used for the thematic analysis of qualitative data in health research. They also emphasise the need for making the analytical choices and analytical strategies both auditable and visible, as well as the need to ensure reflexivity, rigour, and transparency in the research process. Gale et al.'s study, however, applies the framework method to a multi-researcher project, while this study adapts it to a single researcher project while simultaneously utilising expert member-checking to ensure the trustworthiness of findings.

As part of member-checking, therefore, the analytical framework was discussed with a panel consisting of four PhD experts, including the supervisory committee. This yielded slightly varying thematic descriptions, except for the challenges which revealed a high consensus among the member-checking team. For instance, the overarching category 'Creating the conditions for learning' was named 'Learning environment', 'Teaching approach', and 'Creating/Designing the curriculum'. However, the first label provided by member-checking was considered too specific considering that it ignores other factors, including curricula alignment, while the second label was more appropriate but fails to capture the whole dynamism denoted by the label adopted in this study. Also, the overarching theme 'Flexible & iterative learning' was referred to as 'Self-directed learning', and 'Planning'; 'Transferable learning' was termed 'Employability or lifelong learning skills' and 'Transferable skills'; and 'Effective learning' was termed 'Motivation', 'Skill-based learning', 'Affordances', and 'Meaningful learning', among other designations. Upon further discussion with the member-checking team, these discrepancies were resolved. The member-checking team was especially convinced of the descriptive nature of the labels adopted in the analytical framework.

The analytical framework in Figure 4.8 represents the final iteration of an inductive-deductive process of thematic coding and analysis (see Appendix M for detailed entries).

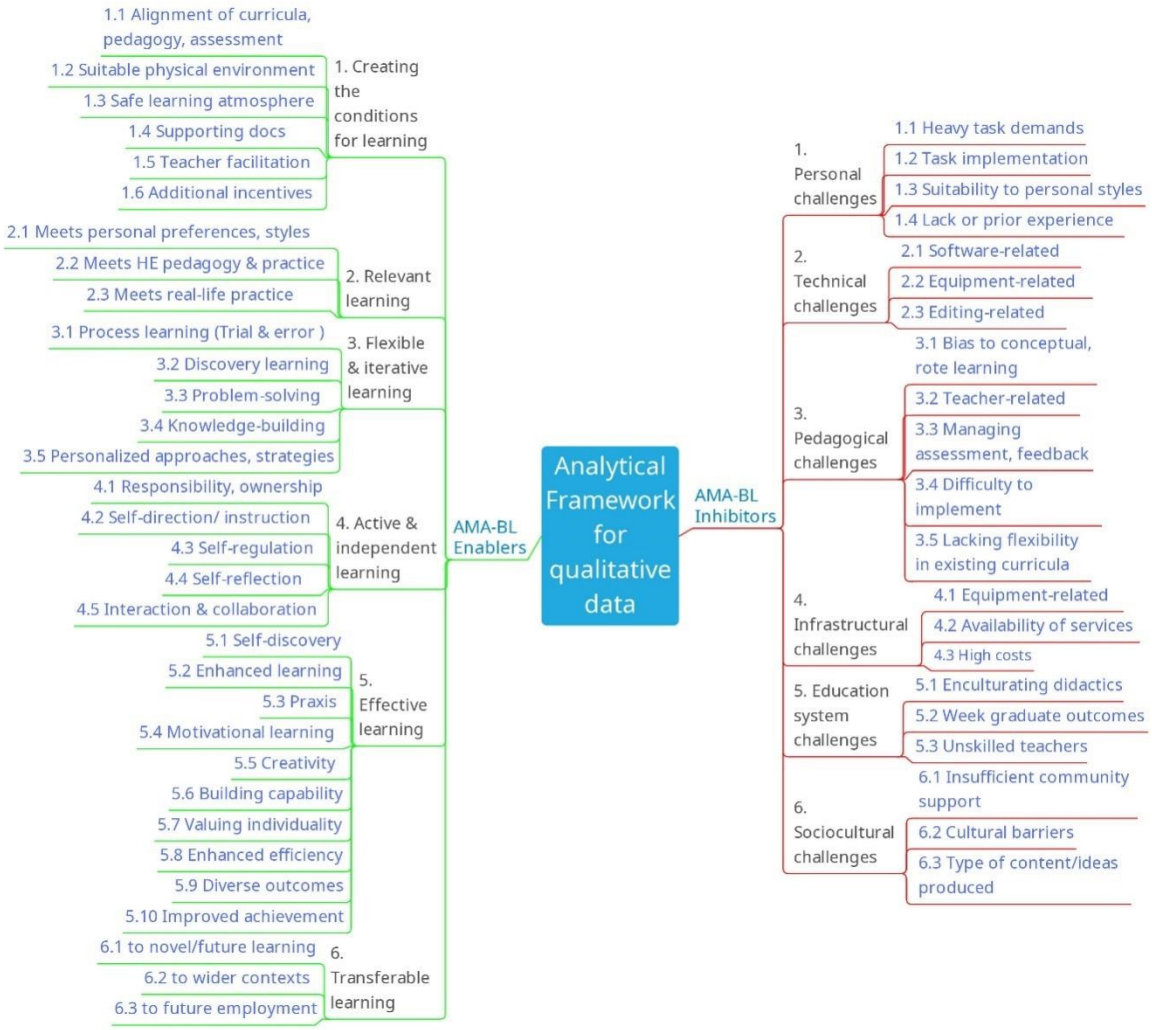


Figure 4.8 Analytical Framework for Qualitative Data

e. Defining Themes

The next phase included defining themes in order to capture the different aspects of the data they denote (Braun & Clarke, 2006). The descriptive names for themes were continually revisited to ensure they subsumed the subthemes. Each of the descriptive overarching themes in Figure 4.8 represents a distinct area of emphasis. Here follows a brief definition for each:

1) **Creating the conditions for learning** describes the supporting design principles that facilitate constructionist learning, particularly concerning alignment consideration, physical environment, safe atmosphere, supporting document, teacher facilitation, and incentive systems. All these sub-themes were found to play a role in determining and defining the nature of learning processes and learner agency.
2) **Relevant learning** describes aspects of the learning experience in relation to their personal, pedagogical, or contextual relevance.

3) **Flexible and iterative learning** describes the nature of learning processes or activities and the qualities of the task, with emphasis on trial-and-error learning, discovery learning, problem-solving, critical thinking, flexible and personalised approaches, and knowledge building. Reference to 'flexibility' and 'iteration' represents the nature of process learning, often marked by lack of rigidity, open-endedness, and discovery, which are triggered by cycles of iterations, trial and error and exploration. It also reflects the flexibility in the approaches and strategies that characterise forms of learning and learner engagement.
4) **Active and independent learning** describes the nature of learner participation in learning, with emphasis on responsibility, self-direction, self-regulation, self-reflection, and collaboration.
5) **Enabling effective learning** describes the different outcomes of the learning experience, with emphasis on self-discovery, enhanced learning, promoting praxis, enhancing motivation, enhancing creativity, building capability, promoting diverse outcomes, nurturing individuality, enhancing efficiency, and improving achievement.
6) **Learning transferability** describes the ways the experience extends or transfers to future experiences, wider contexts, or future employment.

Challenges and suggestions to overcome them are defined as follows:

1) **Personal challenges** refer to the challenges interviewees identified as having a negative influence on their performance, including the heavy demands of the task, its suitability to their learning styles, obstacles associated with conducting the task, and lack of the prior experience necessary to prepare them for the task. In addition, many suggestions regarding conducting the task were proposed to improve AMA-based learning.
2) **Technical challenges** refer to the sort of challenges associated with the technical aspects of the experience, principally regarding software, hardware, and editing. Also, some software-related suggestions were proposed to improve the experience.
3) **Pedagogical challenges** address the challenges interviewees raised regarding the pedagogical approaches in place, principally how they nurture conceptual learning, teacher-specific issues, issues related to managing assessment and feedback, issues related to implementation, and the rigidness of existing provision schemes. Also, suggestions were offered in relation to instructors, instructional approach, and modules.
4) **Infrastructural challenges** address challenges associated with infrastructure, such as the enabling tools, services, and the high costs incurred. Some equipment-related suggestions were proposed to improve AMA-based learning.

5) **Education system challenges** relate to the broader issues associated with the education system in Oman, particularly how it enculturates didactics and produces weak graduate outcomes and unskilled teachers.
6) **Sociocultural challenges** address sociocultural influences including lack of community support, cultural barriers, and the type of content and ideas produced in AMA learning.

f. Validating the Analytical Framework

The analytical framework was validated by the two-part data validation phase consisting of one-to-one interviews and focus group discussion, in which participants validated and reviewed the codes and sub-codes, themes, and thematic categories generated from analysis and expressed the extent to which the research outcomes objectively captured and represented their views and opinions and how truthfully and comprehensively these outcomes represent data.

g. Producing the Final Reports

Appendix N lists the report summaries generated from the analysis of qualitative data methods.

4.5.3 Methodological Triangulation: Convergence of Data Sources

Braun and Clark (2006) emphasise the pitfall of analysing data separately in case studies, indicating the necessity of data convergence to enable understanding the overall case. Since this study is of an exploratory case study design that involves multiple methods and multiple stakeholders, there was a need to perform a cross-case analysis or otherwise risk the validity of findings and the possibility of reaching unjustified conclusions.

In line with Yin (2009), the relevant analysis techniques used in this study included pattern matching (i.e., comparison, identification of gaps) and cross-case analysis (i.e., converging data from all sources). Yin emphasises the need to return to theoretical propositions (represented in the study framework) as the most important strategy since they provide focus and structure to the study as well as to the analysis and reporting stages.

The first phase of analysis included a within-case analysis where each dataset from each instrument was handled separately. A report summary was provided for the analysis of each dataset in Appendix N. However, the second stage, which represents the essence of case study, dealt with cross-case analysis and convergence of data from multiple sources (in Chapter Five). The aim was to converge the datasets rather than rely only on within-case analysis to better understand the phenomenon under study (Baxter & Jack, 2008).

4.6 Enhancing Research Rigour

The quality of the research is reflected in the richness of evidence obtained and in offering justifications of credibility (i.e., internal validity, truth value), dependability (i.e., reliability or auditability), transferability (i.e., external validity, generalisability), and confirmability (i.e., objectivity) (Cohen et al., 2007; Lincoln & Guba, 1985; Miles & Huberman, 1994). Probably the biggest criticism of the interpretivist methodology concerns these four areas (Shenton, 2004).

4.6.1 Quality Measures of Research

4.6.1.1 Credibility

Credibility refers to the truth value of the findings and whether they are credible to those under study (Miles & Huberman, 1994). It is the confidence in the truth of the findings. Based on the recommendations of the literature on qualitative research, the present study achieved credibility through providing a rich description of participants and context (Poortman & Schildkamp, 2012). The study also triangulated multiple research methods, including questionnaires, semi-structured interviews, document analysis, and a two-part data validation phase consisting of one-to-one interviews and a focus group. The study also adopted multiple data sources, including students and teachers. Additionally, participants were granted the right to withdraw from the study, which ensured their freedom and willingness to contribute to this research (Shenton, 2004). While administering the qualitative instruments, a good rapport between the researcher and interviewees encouraged a friendly exchange and was used as an opportunity to encourage them to be honest about their answers. The study also utilised peer scrutiny of the data collection instruments. This was done through consulting supervisors, experts, colleagues, and a sample from the intended study population. Furthermore, member checking was utilised by (a) emailing all interview transcripts to participants to check the details they provided, (b) conducting expert member-checking of the thematic analysis, (c) returning a synthesised analysis of the data to participants, and (d) conducting one-to-one interviews and convening a focus group to validate the research outcomes (Lincoln & Guba, 1985).

4.6.1.2 Dependability

Dependability refers to the consistency and stability in the process of research over time and across researchers and methods (Miles & Huberman, 1994), which can help achieve consistency and reliability in the results. To ensure the dependability of the present research, detailed reporting of the research design, data collection, and analysis phases, as well as researcher reflexivity on the research process were provided throughout this chapter. Also, external member

checks were administered to the transcription, thematic analysis, and validation of the research outcomes.

4.6.1.3 Transferability/Generalisability

Talk of transferability or generalisability of results in qualitative research is different from quantitative research (Maxwell, 2008). While quantitative research uses random sampling to promote generalisability of results to other populations and contexts, qualitative research rarely makes generalisability claims. While using a relatively small sample size and relying on a single context may not provide generalisations transferable to other contexts (Maxwell, 2008), Maxwell argues "the value of qualitative study may depend on its lack of generalisability" (p. 45) because the evidence may be illuminating an extreme case. Donmoyer (1990) maintains that case studies provide a richness to inquiry that would not be accessible otherwise because "…they allow us to experience vicariously, unique individuals and unique situations" within a given culture (p. 62). This may allow seeing the phenomenon in a new light.

Yin (1994) refers to this as analytic generalisation because by comparing the case to existing knowledge, theory, experiences, or cases one can make further generalisations (VanWynsberghe & Khan, 2007). Generalisations from case studies can also be determined by several factors, such as the degree of similarity to other contexts or situations, the universality of the phenomenon, and validation reported in other studies (Maxwell, 2008). The present study achieved transferability of findings by way of providing detailed and thick descriptions of the context, research process, and the phenomenon under investigation (Poortman & Schildkamp, 2012). These insights were provided to the reader to determine whether study findings can be applied to their contexts. Also, generalisability can take the form of development of theory which can offer analytical generalisations (Maxwell, 2008), which makes another contribution by this study through providing a reconceptualisation of theory and proposing a framework for AMA-based learning.

4.6.1.4 Confirmability

Confirmability (or objectivity) refers to the neutrality of the research from potential and implicit researcher biases, motivations, and interests (Miles & Huberman, 1994). While quantitative research uses objectivity to enhance the neutrality of research processes and outcomes, qualitative research can never be wholly objective since researchers apply their own unique perspectives to the research (Poortman & Schildkamp, 2012). Therefore, qualitative researchers seek confirmation from others. In the present research study, confirmability was ensured through the use of multiple sources of data, multiple data-collection tools, external member-checks,

researcher reflexivity, and one-to-one interviews and focus group discussion for the validation of research outcomes.

4.6.2 Minimising Researcher Biases

The researcher's biases may influence the framing, investigation, and interpretation of data. Certain assumptions may hinder uncovering truth, which may result in either matters being taken for granted or not being subjected to enough scrutiny. Bourke (2014) and Halls (1990) argue that we can never escape our biases as they are embedded in our line of thinking, in how we make sense of the world, and in how we interpret what we see, read, or hear.

Several measures were taken to minimise the researcher biases. Firstly, providing detailed descriptions of participants, the research setting, and the research processes helped maximise the research rigour (Unluer, 2012). Adopting multiple data collection instruments (e.g., questionnaires, interviews, document analysis, focus group), as well as multiple research participants (students and teachers, both males and females) ensured capturing diverse perspectives, experiences, and views. This helped capture various nuances of the phenomenon from a diverse population and contributed to more comprehensive outcomes. Additionally, participants were informed of the research purposes beforehand, therefore allowing them to speak uninterruptedly and see things from their own perspectives. Probing was also used to seek clarifications and verifications from participants and give them opportunities to reflect on their perspectives. Audio/video recording of interviews and the focus group discussion also provided a rich and dependable material for analysis and the discussion of results and was more reliable than relying on memory alone. It enabled deeper engagement and immersion in participants' accounts. Furthermore, using AI-transcription services allowed all inputs to be captured verbatim. Reading through the scripts to ensure their consistency with the audio/video files enabled deeper researcher immersion and understanding of the accounts from the viewpoint of participants.

Finally, member-checking was used to ensure that participant ideas, intentions, and meanings were captured as intended (Creswell, 2009). Member checking (also known as participant validation) is a technique used to explore the trustworthiness of results by enabling participants to co-construct the interpreted data, often conducted months after their interview (Birt et al., 2016). Member-checking in the present research included several steps, including (1) returning interview transcripts to participants, (2) returning a synthesised analysis of the data, and (3) conducting one-to-one interviews and focus group for data validation purposes. Allowing participants to check their transcripts ensured that their opinions were represented accurately. Also, discussing the findings from data analysis and the coding scheme with a sample of

participants helped validate the accuracy of the thematic analysis and research outcomes and enabled participants to challenge the conclusions and provide alternate interpretations. This method also provided analytical triangulation of outcomes. All these measures helped overcome potential researcher assumptions and biases.

4.6.3 Reliability and Validity of Instruments

4.6.3.1 Reliability and Validity of Questionnaires

Several measures were taken to improve the reliability and validity of the questionnaire as an instrument of quantitative research. Validity is a construct widely relevant to quantitative research and refers to the truthfulness of the research and the extent to which it measures what it intends to measure (Cohen et al., 2007). Campbell (1986) identifies two aspects to validity: internal and external. For Cohen et al. (2000), internal validity "…seeks to demonstrate the explanation of a particular event, issue or set of data which a piece of research provides can actually be sustained by the data. In some degree this concerns accuracy, which can be applied to quantitative research. The findings must accurately describe the phenomenon being researched" (p. 107).

External validity, by contrast, concerns the degree of generalising results to the wider population, cases, or situations (Cohen et al., 2000). This suggests that the results obtained by research should hold for other participants in another context and time. It is a way to ensure the applicability of certain research to other populations and contexts.

In this study, several pre-validity measures were taken to help enhance the validity of the questionnaires. These included:

a) ensuring each item/statement was theoretically informed.
b) checking the content validity and face validity of the instruments with experts and a small sample of the population.
c) piloting the revised instrument with a sample of the intended population to obtain further feedback regarding clarity and potential ambiguity of constructs and statements.

As to post-validity measures, the reliability co-efficient of the questionnaires was calculated using SPSS (Statistical Package for Social Sciences) version 23. The reliability co-efficient was measured by Cronbach alpha for the three sections first, and then for the whole instrument. Both measures confirmed that the instrument items had high internal consistency, as follows:

a) The reliability co-efficient was found to be:

- .853 for the first category (AMA engagement; n=20 statements),
- .917 for the second category (AMA pedagogy; n=23 statements);
- .814 for the third category (AMA environment; n=12 statements).

b) The reliability co-efficient for the whole instrument (n=55 statements) was found to be 0.943.

4.6.3.2 Reliability and Validity of Semi-Structured Interviews

Several measures were taken to help enhance the validity and reliability of the interview instrument. The pre-validity measures included ensuring the theoretical validity and soundness of the constructs derived from the literature (Yin, 2003). Secondly, expert feedback was obtained on content (e.g., wording, clarity) and format (e.g., presentation, structure). This aimed to ensure that constructs were credible and could generate truthful values. Then, the instruments were piloted with a small sample of the intended population (n=13) to get a feel for the actual interviews, potential issues emerging from administering them, and potential overlap, over-emphasis, or under-emphasis of certain items. The feedback obtained in the subsequent phases was used to improve the instruments and strengthen their validity.

The post-validity measures included proofreading of transcripts (Lincoln & Guba, 1985). Following the transcription process, the researcher double-checked all the transcripts in relation to wording and accuracy. This also included participant-checking to enhance credibility (Lincoln & Guba, 1985). After transcription, interview scripts were all emailed to all participants (i.e., students and academics) to verify their satisfaction with their responses and how they were represented. All those who responded (n=16) confirmed they were happy with the way their responses were represented on the scripts.

4.6.3.3 Reliability and Validity of the Two-Part Data Validation Instrument

Measures were taken to validate the two-part data validation instrument. Pre-validity measures included feedback from the supervising committee and two external experts regarding clarity and format. This feedback was used to refine the final draft. Post-validity checks included proofreading and participant-checking of transcripts and research outcomes (Lincoln & Guba, 1985).

4.7 Chapter Summary

This chapter provided the research methodology adopted in this study. The qualitative case study design was considered to be the most suitable to help uncover nuances of human behaviour and

subjective meanings from the perspective of the research participants. To this end, the research design was defined in the light of the area of exploration, emphasising the paradigmatic considerations, particularly in the interpretivist paradigm, as well as the rationale for case study design and establishing its delimitations in the light of the research purposes. The instruments were then explored in detail, highlighting their design elements, selection strategy, piloting, and administration. The ethical considerations were then addressed, followed by the data analysis procedures adopted for quantitative and qualitative data. Issues of research trustworthiness were then explored and justified.

The next chapter introduces the findings of this research study.

Chapter 5 Results

5.1 Introduction

This chapter presents the findings generated from quantitative and qualitative data analysis for different purposes and in different phases (Figure 5.1). It consists of several sections organised according to the five research questions, and an additional section that converges the findings from quantitative and qualitative analysis. The analysis of questionnaire data is organised according to (a) the three salient areas identified in the conceptual framework and (b) the specified areas of inquiry, also identified in the conceptual framework. It is therefore deductive. For interview data, the analysis is organised according to (a) research questions and (b) the emergent themes pertaining to each question. For reflective journals, the analysis is organised according to (a) research questions, with the exception of the last research question, and (b) the emergent themes corresponding to each question. Finally, the data validation phase is organised according to (a) the verification of the researcher analysis and the interpretations and consistency of participant views and the potential additions and refinements they propose, and (b) the validation of the research outcomes, challenging the research conclusions, and offering alternate accounts. Collectively, the analysis of interviews, reflective journals, and the focus group was both deductive and inductive. Specific instructions are provided under designated headings throughout the analysis.

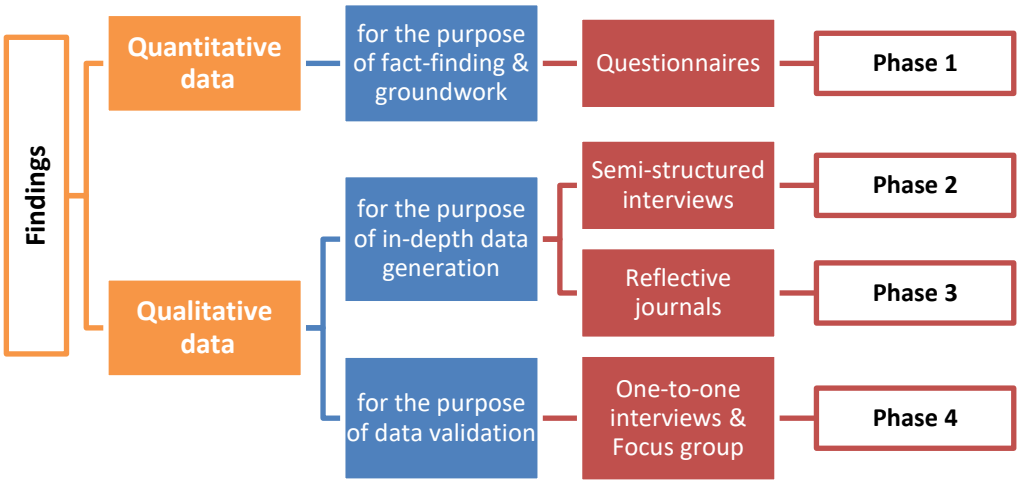


Figure 5.1. Datasets of Analysis per Phase

5.2 Quantitative Findings

This section presents the findings from the questionnaires. The questionnaires aimed to explore students and academics' perspectives of AMA-based learning in the context of IELTE in Oman in relation to AMA engagement, AMA pedagogy, and AMA environment. This phase served multiple purposes: 1) a fact-finding stage to test relevant findings from theoretical and empirical literature against the data emerging from this context, 2) to establish a basis for in-depth inquiry from the study's participants, and 3) to compare and reinforce qualitative findings. The data were analysed using the Statistical Package for the Social Sciences (SPSS) version 23, mainly through generating frequencies and descriptive statistics. The descriptive data are presented in a narrative style under designated headings.

Both students (n=53) and academics (n=3) took part in the quantitative study and completed the questionnaires (in Appendix L). Most students were in their third-year (37.7%) and fourth-year (47.2%), while the remainder were fifth-year students (15.1%). 50.9% of the sample said they had some form of prior experience and 45.3% had no previous experience, while two participants refrained from answering. Regarding the academics, only three participants were found to fit the criteria and participated in the questionnaire. Two had over fifteen years of teaching experience (66.7%), while one (33.3%) had less than fifteen years.

The following sub-sections report converged findings from both participants, arranged by the three salient areas of inquiry (see Appendix N for questionnaire analysis for each participant).

5.2.1 RQ1: AMA Engagement

The research question guiding this phase of analysis is:

- **How do students and academics evaluate learner engagement in authoring AMA-based learning?**

Table 5.1 converges data from the students' and academics' questionnaires to denote overall tendencies in responses according to each area of inquiry.

Table 5.1. Converged Findings for AMA Engagement

	Respondents	Number of Respondents (N)	Mean (M)	Std. Deviation (SD)
1. Cognitive engagement				
1.1.1. Authoring Multimedia Artefacts enhances deep understanding of topic	Students	53	4.15	.690
	Academics	3	4.33	.577

	Total	56	4.16	.682
1.1.2. Authoring Multimedia Artefacts enhances awareness of thinking processes	Students	53	4.02	.772
	Academics	3	4.67	.577
	Total	56	4.05	.773
1.1.3. Authoring Multimedia Artefacts enhances critical thinking skills	Students	53	3.77	1.031
	Academics	3	3.67	.577
	Total	56	3.77	1.009
1.1.4. Authoring Multimedia Artefacts enhances problem-solving skills	Students	53	3.85	.949
	Academics	3	4.00	1.000
	Total	56	3.86	.943
1.1.5. Authoring Multimedia Artefacts enhances creative thinking & creativity	Students	53	4.57	.636
	Academics	3	5.00	.000
	Total	56	4.59	.626
2. Metacognitive engagement				
1.2.1. Authoring Multimedia Artefacts helps students self-regulate & self-manage learning and performance	Students	53	4.34	.618
	Academics	3	4.33	.577
	Total	56	4.34	.611
1.2.2. Authoring Multimedia Artefacts helps students learn to set goals and plan the learning process	Students	53	4.21	.600
	Academics	3	3.33	.577
	Total	56	4.16	.626
1.2.3. Authoring Multimedia Artefacts helps students self-monitor achievement of learning goals	Students	53	4.09	.838
	Academics	3	4.00	1.000
	Total	56	4.09	.837
3.Reflective engagement				
1.3.1. Authoring Multimedia Artefacts helps students think deeply about & review strategies used	Students	53	4.15	.662
	Academics	3	4.00	1.000
	Total	56	4.14	.672
1.3.2. Authoring Multimedia Artefacts helps students evaluate effectiveness of strategies used	Students	53	3.96	.706
	Academics	3	3.33	.577
	Total	56	3.93	.710
1.3.3. Authoring Multimedia Artefacts helps students identify mistakes & learn from them	Students	53	4.23	.697
	Academics	3	3.67	.577
	Total	56	4.20	.699
4. Affective engagement				
1.4.1. Authoring Multimedia Artefacts helps increase positive feelings of excitement, interest & curiosity in learning	Students	53	4.23	.954
	Academics	3	4.67	.577
	Total	56	4.25	.939
1.4.2. Authoring Multimedia Artefacts helps increase motivational beliefs & feelings about learning	Students	53	4.09	.883
	Academics	3	4.67	.577
	Total	56	4.12	.875
1.4.3. Authoring Multimedia Artefacts helps increase self-satisfaction about learning	Students	53	4.00	1.038
	Academics	3	4.00	.000
	Total	56	4.00	1.009
5. Behavioural engagement				
1.5.1. Authoring Multimedia Artefacts encourages students to develop technical & technological skills	Students	53	4.60	.566
	Academics	3	4.67	.577
	Total	56	4.61	.562
1.5.2. Authoring Multimedia Artefacts encourages students to apply different learning strategies & skills	Students	53	4.34	.678
	Academics	3	4.67	.577
	Total	56	4.36	.672
1.5.3. Authoring Multimedia Artefacts encourages students to research & look for additional information and resources	Students	53	4.53	.608
	Academics	3	4.33	.577
	Total	56	4.52	.603
6. Social engagement				
1.6.1. Authoring Multimedia Artefacts promotes team-working and organisational skills	Students	53	3.89	.824
	Academics	3	4.33	.577
	Total	56	3.91	.815
1.6.2. Authoring Multimedia Artefacts promotes collaboration & working with others	Students	53	3.85	.841
	Academics	3	4.33	.577

	Total	56	3.87	.833
1.6.3. Authoring Multimedia Artefacts promotes negotiation of meaning & obtaining feedback	Students	53	3.91	.925
	Academics	3	4.33	.577
	Total	56	3.93	.912
Valid N (listwise)				

Generally, the findings confirm the positive tendencies regarding the different forms of engagement in AMA learning experiences, including cognitive, metacognitive, reflective, affective, behavioural, and social engagement. These findings, therefore, endorse findings elsewhere (see Chapter Two) that AMA learning experiences help enable these forms of engagement.

The mean values are generally close in range. Mean differences that stand out include the following: 1) a difference of 0.88 as to AMA helping students learn to set goals and plan the learning process, 2) a difference of 0.65 as to AMA enhancing awareness of thinking processes, and 3) a difference of 0.63 as to AMA helping students evaluate the effectiveness of strategies used. This discrepancy could be attributed to the small sample size of teacher participants, as well as the fact that academics are generally more theoretically and conceptually informed about these areas and the ways they contribute to learning compared to students.

5.2.2 RQ2: AMA Pedagogy

The research question guiding this phase of analysis is:

- **How do students and academics evaluate the pedagogical approach of AMA-based learning?**

Converged data from the students and academics in Table 5.2 revealed positive tendencies for the four design principles of AMA pedagogy, corroborated by relatively high total mean values, along with standard deviation values below 1 for all categories.

Table 5.2. Converged Findings for AMA Pedagogy

	Respondents	Number of Respondents (N)	Mean (M)	Std. Deviation (SD)
1. Learning by doing				
2.1.1. Learning by doing encourages students to engage actively in the learning experience & learn through senses	Students	53	3.94	.949
	Academics	3	5.00	.000
	Total	56	4.00	.953
2.1.2. Learning by doing encourages students to reflect & think deeply about the learning experience	Students	53	3.89	.847
	Academics	3	4.67	.577
	Total	56	3.93	.850
2.1.3. Learning by doing encourages students to create abstract concepts & generalisations based on experiences	Students	53	4.09	.791
	Academics	3	4.00	1.000
	Total	56	4.09	.793

2.1.4. Learning by doing encourages students to improve decision-making and planning for future learning experiences	Students	52	4.06	.895
	Academics	3	4.33	1.155
	Total	55	4.07	.759
2. Artefact construction				
2.2.1. Creating external products encourages productive learning & self-expression	Students	53	4.04	.759
	Academics	3	4.67	.577
	Total	56	4.07	.759
2.2.2. Creating external products encourages increased understanding & knowledge about the topic	Students	53	4.11	.670
	Academics	3	4.67	.577
	Total	56	4.14	.672
2.2.3. Creating external products encourages active, deep & reflective learning	Students	53	4.06	.770
	Academics	3	4.00	.000
	Total	56	4.05	.749
2.2.4. Creating external products encourages interest in developing & advancing knowledge	Students	53	4.23	.933
	Academics	3	4.00	.000
	Total	56	4.21	.909
3. Student-centred learning				
2.3.1. Student-centred learning encourages students to make learning more personal, motivating & relevant	Students	53	4.02	.888
	Academics	3	4.67	.577
	Total	56	4.05	.883
2.3.2. Student-centred learning encourages students to identify own learning needs	Students	53	3.83	.893
	Academics	3	3.67	.577
	Total	56	3.82	.876
2.3.3. Student-centred learning encourages students to make decisions and choices about content, strategies & tools to use in learning	Students	53	4.00	.784
	Academics	3	4.33	.577
	Total	56	4.02	.774
2.3.4. Student-centred learning encourages students to apply thinking & learning styles	Students	53	3.74	.902
	Academics	3	4.33	.577
	Total	56	3.77	.894
2.3.5. Student-centred learning encourages students to engage actively in a process of learning discovery (learn, reflect, re-learn & improve)	Students	53	3.98	.747
	Academics	3	4.67	.577
	Total	56	4.02	.751
2.3.6. Student-centred learning encourages students to self-monitor and self-assess progress	Students	53	3.79	.863
	Academics	3	4.00	.000
	Total	56	3.80	.840
2.3.7. Student-centred learning encourages students to collaborate, interact with others and negotiate meaning	Students	52	3.94	.826
	Academics	3	4.33	.577
	Total	55	3.96	.816
2.3.8. Student-centred learning encourages students to take responsibility of learning & become independent	Students	53	4.11	.913
	Academics	3	4.33	.577
	Total	56	4.12	.896
4. ICT-mediated learning				
2.4.1. Using ICTs in learning engages students in meaningful learning experiences	Students	53	4.38	.627
	Academics	3	4.67	.577
	Total	56	4.39	.623
2.4.2. Using ICTs in learning improves students' thinking & learning	Students	53	4.42	.692
	Academics	3	4.33	.577
	Total	56	4.41	.682
2.4.3. Using ICTs in learning facilitates new & creative possibilities for learning	Students	53	4.45	.695
	Academics	3	5.00	.000
	Total	56	4.48	.687
2.4.4. Using ICTs in learning encourages students to create, co-create & share knowledge	Students	53	4.19	.761
	Academics	3	5.00	.000
	Total	56	4.23	.763
2.4.5. Using ICTs in learning enables active, creative and reflective learning	Students	53	4.13	.833
	Academics	3	4.67	.577

	Total	56	4.16	.826
2.4.6. Using ICTs in learning improves technological skills & enhances confidence in using technology	Students	53	4.60	.531
	Academics	3	4.33	.577
	Total	56	4.59	.532
2.4.7. Using ICTs in learning enhances engagement & motivation in learning	Students	53	4.28	.662
	Academics	3	4.67	.577
	Total	56	4.30	.658
Valid N (listwise)				

Generally, the findings confirm the positive outcomes of these four pedagogical principles of AMA learning pedagogy, which brings them in line with findings from research (in Chapters Two & Three). The mean values are close in range for both participants.

There are a few cases to point out where the difference in mean values seems relatively high compared to the rest of the data. These include: 1) a mean difference of 1.06 as to learning-by-doing encouraging students to engage actively in the learning experience and learn through senses; 2) a mean difference of 0.81 as to ICT-mediated learning encouraging students to create and share knowledge; 3) a mean difference of 0.78 as to learning-by-doing encouraging students to reflect and think deeply about the learning experience; 4) a mean difference of 0.69 regarding student-centred learning encouraging students to engage actively in a process of learning discovery; 5) a mean difference of 0.65 as to student-centred learning encouraging students to make learning more personal, motivating and relevant; and 6) a mean difference of 0.63 as to artefact construction encouraging productive learning and self-expression. Again, the small sample size of teacher participants could be the reason behind the discrepancy in mean values.

5.2.3 RQ3: AMA Environment

The research question guiding this phase of analysis is:

- **How do students and academics evaluate the learning environment of AMA-based learning?**

Table 5.3 details converged findings regarding students and academics' perspectives regarding the three design principles of the AMA environment. Respondents overall agree with the statements, with total mean values ranging between 3.55 – 4.36 across the three categories and a high consensus in respondent views (values mostly below 1, except in two cases).

Table 5.3. Converged Findings for AMA Environment

	Respondents	Number of Respondents (N)	Mean (M)	Std. Deviation (SD)
1. Teacher facilitation				

3.1.1. The role of the teacher should be to create the conditions for students to learn, instead of providing ready knowledge.	Students	53	3.51	1.171
	Academics	3	4.33	.577
	Total	56	3.55	1.159
3.1.2. The role of the teacher should be to enable students to create their own knowledge & understanding.	Students	53	3.74	1.041
	Academics	3	4.67	.577
	Total	56	3.79	1.039
3.1.3. The role of the teacher should be to encourage students to self-manage, self-direct and take responsibility for their own learning.	Students	53	3.94	.908
	Academics	3	5.00	.000
	Total	56	4.00	.915
3.1.4. The role of the teacher should be to enable students to interact & collaborate with others, talk & discuss their ideas, negotiate meaning & share feedback.	Students	53	4.08	.851
	Academics	3	4.67	.577
	Total	56	4.11	.846
2. Learning atmosphere				
3.2.1. The learning atmosphere provided by Authoring Multimedia Artefacts encourages student-centred learning.	Students	53	3.79	.948
	Academics	3	5.00	.000
	Total	56	3.86	.962
3.2.2. The learning atmosphere provided by Authoring Multimedia Artefacts encourages safe learning & tolerates making mistakes.	Students	53	3.87	.962
	Academics	3	3.67	.577
	Total	56	3.86	.943
3.2.3. The learning atmosphere provided by Authoring Multimedia Artefacts encourages students to learn, try out different strategies, and learn from their mistakes.	Students	53	4.21	.817
	Academics	3	4.00	.000
	Total	56	4.20	.796
3.2.4. The learning atmosphere provided by Authoring Multimedia Artefacts provides a supportive & friendly learning atmosphere.	Students	53	3.96	.831
	Academics	3	4.00	.000
	Total	56	3.96	.808
3. Project-based learning				
3.3.1. Project-based learning encourages students to discover & explore new knowledge & meanings.	Students	53	4.13	.761
	Academics	3	4.33	.577
	Total	56	4.14	.749
3.3.2. Project-based learning encourages students to make connections between different information & knowledge.	Students	53	4.00	.707
	Academics	3	5.00	.000
	Total	56	4.05	.724
3.3.3. Project-based learning encourages students to engage deeply in a process of learning & reflection.	Students	53	4.08	.781
	Academics	3	4.67	.577
	Total	56	4.11	.779
3.3.4. Project-based learning encourages students to try out different learning styles, strategies and skills.	Students	53	4.34	.732
	Academics	3	4.67	.577
	Total	56	4.36	.724
Valid N (listwise)				

While the findings generally revealed a positive tendency regarding the three design principles of AMA-based learning, a few mean value differences stand out, most of which concern the role of teacher facilitation. 1) there is a mean difference of 1.06 regarding limiting teachers' role to encouraging students to self-manage, self-direct and assume responsibility for their own learning. Students seemed less inclined to think so, compared to teachers who all completely agreed this should be the case. 2) There is a mean difference of 0.93 regarding limiting teachers' role to enabling students to create their own knowledge and understanding, which suggests that students were relatively less inclined to compromise the teachers' traditional role in instruction, whereas academics were more supportive of this. 3) There is a mean difference of 0.82 regarding limiting teachers' role to creating the conditions for students to learn rather than providing ready knowledge. Students seemed comparatively less supportive of this. The highest mean difference is associated with the learning atmosphere. While academics were all in complete agreement that

the learning atmosphere of AMA learning encourages student-centred learning, students were less inclined to think so, with a mean difference of 1.21 between their opinions. Finally, 4) there is a mean difference of 1.00 regarding the role of PBL in encouraging students to make connections between different information and knowledge, where academics were all in complete agreement, but students were less inclined to think this should be the case.

The quantitative findings in the three categories reveal that AMA-based learning helped promote rich learner engagement in the learning experience, and they generally show a positive value for the key pedagogical principles and key environment design principles of AMA-based learning. Given the gaps in local research regarding these areas, these findings contribute to the pool of knowledge and our understanding of AMA-based learning in the context of Omani HE.

5.3 Qualitative Findings

Qualitative findings drew from three methods: semi-structured interviews, reflective journals, and a two-part data validation of one-to-one interviews and a focus group discussion. Each method served different purposes and contributed to answering the research questions differently. Altogether, they contributed to developing the analytical framework, which ultimately established the empirical validity of the proposed AMA-BL model as a comprehensive model to account for AMA-based learning in the context of IELTE in Oman (in Chapter Six).

For phase two of data collection, the semi-structured interviews aimed to 1) provide richer data from a small, yet purposive, sample of the population regarding their own experiences and perspectives of AMA-based learning, and to 2) reinforce as well as expand the insights gained from the quantitative findings. Three teachers (2 females, 1 male) and nineteen students (12 females, 7 males) participated in in-depth semi-structured interviews to elicit their perspectives, experiences, and views regarding their first-hand engagement in AMA experiences. Teachers drew on their personal experiences in initiating, overseeing, and evaluating the outcomes and were involved in the process from start to end, while students drew on their SGP experiences as part of the requirements of the EduTech module. The teachers' perspective was especially helpful in understanding how various elements of pedagogical design reflected in pedagogical implementation, while the students' perspective was helpful in eliciting potential variations in how they approached the AMA experiences and the challenges they associated with them.

For phase three, students' reflections on SGP were analysed to 1) gain more insights into the learning and challenges throughout production, and to 2) reinforce previous findings from interviews. Journal reflections were written by students following their podcasting experiences. A total of 39 journal reflections (11 females, 28 males) were collected and thematically analysed.

For phase four, a two-part data validation measure consisting of one-to-one interviews and a follow-up focus-group discussion was conducted 1) to take findings back to participants to member-check and verify the accuracy of the researcher's interpretations, and 2) to consult them on the research outcomes and allow them to validate and/or challenge them. A total of three participants were recruited: two students (females), and one teacher (male).

The presentation of analysis for the qualitative data is structured in line with the analytical framework developed from qualitative data (Chapter Five, section 4.5.2.2). Using MAXQDA for analysis, the transcripts were thematically analysed following the process suggested by Braun and Clarke (2006) (outlined in Chapter 4). The themes, sub-themes, codes, and sub-codes generated from each section of the data are defined and explained where they occur, and appropriate quotes are provided as evidence. Th names of all the participants were anonymised, and a code was assigned to designate each participant and their corresponding type. For example, interview participants were labelled as S1, S2, S3, S4… S19 for students and T1, T2 and T3 for teachers. For Reflective Journals, students were labelled according to their groups: S1G1RJ/S1G2RJ, S2G1RJ/S2G2RJ, etc., and for the data-validation phase participants were labelled as S1DV, S2DV, and T1DV.

5.3.1 RQ1. AMA Engagement

Data collected from interviews and reflective journals were analysed to answer the following research question:

- **How do students and academics evaluate learner engagement in AMA-based learning?**

This question sought to elicit participants' perspectives regarding their engagement in AMA experiences. The aim was to identify the roles played by academics and students in realising AMA-based learning in this context.

As mentioned earlier, the analysis was organised according to the themes articulated in the analytical framework. Therefore, the themes and subthemes were captured in a narrative style, with quotes that substantiated participant views, opinions, and claims.

5.3.1.1 Data Analysis: Semi-Structured Interviews

Semi-structured interviews were analysed to elicit participants' perspectives, experiences, and views regarding their first-hand AMA experiences. Teachers' findings were helpful concerning the facilitation of the different phases of AMA production experiences, while students' responses

helped capture the different dimensions of engagement through identifying the different processes and strategies that characterised relevant engagement behaviours. Together, these insights provide a coherent account of AMA-based learning and a systemic approach for facilitating AMA-based learning, while highlighting the role played by academics and students in realising it. Emerging themes are discussed below.

Creating the Conditions for Learning

Analysis of data revealed insights regarding the enabling design factors central to AMA-based learning implementation, and their implications for students and academics. These findings substantiate the underlying design principles that determined and framed learner engagement throughout the production phases. The significance of ensuring alignment between learning and assessment was clear in the findings. Reflecting on her experience applying AMA to her literature module, this issue touched a nerve with T3, especially in a context dominated by testing.

> *I don't like the fact that I am testing my students on what they know about literature. I want them to understand and appreciate the art. And how do I do that? By giving them a fifty mark exam? That's ridiculous. To me, it's ridiculous, but I can't do anything. I am confined by this ministry module, ministry syllabus, and I cannot just do anything I want. (T3)*

Infrastructural readiness and availability of physical resources were considered necessary for facilitating successful AMA-based learning.

> *… we cannot assume that all of them have their own computers at home. So, I always make sure that their computer labs here in the college will really allow them. For example, YouTube is not really accessible to them. So even though I want them to post, for example, their own video recording of an explanation or synthesis of something, they can't. (T3)*

Providing supporting documents, such as project descriptions and assessment rubrics, to guide and direct students proved significant in facilitating student-centred learning, benchmarking students' effort, and enhancing their investment in the task.

> *I'd say matching of what they produce to the criteria implies that this is really significant for them because they know how they're going to be marked. So, since they know how they're going to be evaluated, they do well in a particular criteria when they think this is the heaviest – they become more creative. (T3)*

Teacher facilitation was revealed as the most significant factor for initiating students to the AMA experience, such as providing introductions (e.g., background literature, cases to analyse), modelling (e.g., hands-on workshops, access to online tutorials), and delegating the project (e.g., project requirements, expectations). Teacher interviews were most enlightening in this regard.

> *The software was given to them… it was pre-downloaded to computers, and some students were bringing their own laptops, so software was distributed to them on flash sticks. As for how to work with the software, I decided that I want them to learn it by watching instructional videos, and they could do it in pairs, or they could do it on their own, it was up to them. And only if they still had issues, then I would address problems with them. (T2)*

This role continued throughout the production phase where the teachers played a role in overseeing task implementation. They provided intellectual and emotional support (e.g., feedback, motivation, validation), followed up students' progress (e.g., intermittent checks), and intervened when needed (e.g., providing suggestions, assisting). These approaches factored significantly in facilitating the AMA experience and helping students sustain their investment in the task.

> *I think they need also that kind of complement along the process. Like, I really tell them, well, that's a marvellous idea. Why don't we do it? And I think that also helps them. It's an additional boost to them because they already get that excitement. The minute that you tell them the project, then they're excited about it, and then they come to seek for this kind of approval? You know that they're into it! And you don't want to kill that! (T3)*

> *Although [the teacher] had given us plenty of time before the deadline, [the teacher] used to ask us at the beginning of classes how far we got, whether we started, what difficulties we faced, what we discovered. (S12)*

While the novelty of this approach was demotivating to many students, teachers pushed them.

> *We complained a lot to the teacher, that it was difficult, and how can we do it? But [the teacher] used to always say, 'Easy! You can do it'. (S17)*

Overall impressions of the AMA experience suggest that the students' performance varied, and time limitations and lack of self-efficacy were acknowledged as inhibiting factors. Weak students seemed to have the biggest problems. These findings are significant for understanding the

complexities that surround AMA-based learning and for planning productive support schemes to minimise negative influences.

Promoting Flexible and Iterative Learning

Findings suggest that AMA learning was characterised by self-discovery and knowledge-building. Discovery in this context denotes self-exploration of software functionalities and experimenting with the recording equipment. Also, students performed trial recordings to familiarise themselves and experiment with the different functionalities offered by these tools. One noted his discovery:

> *Plenty, like how to add sound effects to intros and outros, and secondly, if I record a long sound file and it has segments I didn't want or segments with loud or low volume, then this software allows me to either reduce the volume, increase it, or mute it even. At the same time, the software allows stretching the duration of time for the sound file, and so if it is quite short then you can stretch it longer. (S5)*

Students also self-accessed additional, mainly online, resources to fill any knowledge gaps. This is because teachers intentionally provided minimal guidance so to enable more self-learning.

> *I watched online tutorials on YouTube on the functions of the software, and how, for example, to clear the sound file, how to use every single function in the software, how to leverage these functionalities into my project. I also asked students from previous semesters about how to use the programme. (S13)*

Students' approach to AMA production was marked by flexibility and iteration. Findings indicated that most interviewees (n=15) recorded several times to reach an acceptable quality. Some re-recorded more than ten times. Different factors were cited to justify this decision, including undesirable interruptions, lack of confidence, technical issues related to the pauses and cuts, language errors, issues with background noise, or simply to improve on quality.

> *The first attempt was for trial purposes, more than actual production, to get a feel for the obstacles and ways to overcome them. After sensing these obstacles, I tried to overcome them through knowing their triggers to produce something better than my initial attempt. Then I started recording, imported the file to the software, and evaluated the overall quality as to what else to add and what to remove so that I can produce the intended product. (S9)*

Editing seemed laborious and overly iterative. Students worked mainly on eliminating background noise, fixing language errors, fixing volume discrepancy among segments, and improving delivery.

> *I repeated to correct the pronunciation of certain words. Other reasons that made me repeat the recording was background noise in our home. I repeated many times, so the pronunciation and audio were clear, and also the pauses between sentences, so they become clearer to the listener. (S2)*

Students also worked on adding effects, which involved searching for appropriate music. For many, this process was time-consuming. Others saw in it an opportunity to reflect and show their identity. Some were concerned about choosing something that appeals to their audience.

Promoting Active & Independent learning

Findings revealed evidence of self-directed and self-regulated learning throughout the AMA experience. Students exercised self-choice on several aspects, including the topic, audience, interviewees, equipment, and recording venue. Several factors seemed to influence self-choice, including topic currency, relevancy, novelty, suitability, and appeal to audience. All these decisions were made by students as they saw fit.

> *At first, I recoded the sound file on the phone and then transferred it to the laptop. After consulting my mate, we decided to record via the laptop on grounds of quality. We felt the recording quality was much better when using the laptop because the phone picks surrounding noise. Also, because it was difficult to record through the phone and then email it, download it to the laptop, and then import it to the software. This meant we were going to waste time, so we proceeded with the laptop. (S19)*

Another important aspect related to self-regulation, which refers to students' effort at planning their podcasting project, which included planning, sequencing the task, and scripting.

> *Initially, we had to decide on the topic, and [then] we made an outline, a plan about what to talk about, the goals to focus on. In the case of grammar, for instance, how are were going to present it? What software are we going to use? ...after that, we designed the programme according to the plan. (S18)*

> *Although I have prior experience, I need to prepare again. Content needs to be located, what is it I am presenting to the audience? This content needs to be suitable in several respects, in the duration of time, the amount of information, the relevant sources, etc. The content itself requires much effort. (S15)*

Students played an active role in evaluating their own products, with emphasis on sound quality, delivery style, pausing, quality of production, and linguistic performance.

> *We still made mistakes unconsciously, like pronunciation mistakes, slips of tongue. These things had a negative effect. Having listened to the product a second time, you notice you made mistakes unintentionally. So, you had to repeat the process. So, the main influencing factors were partly linguistic, partly to do with the noise – several different things influenced the quality of the outcome. (S9)*

Many seemed confident that they performed well and they seemed to look forward to doing even better. Many said the experience made them quite confident about themselves. Others noted its future implications for them. Together, these perspectives provide an interesting portrayal of learner engagement in AMA-based learning and provide significant feedback to AMA-based learning design and practice.

> *My feeling was one of pride that I produced this podcast, and contentment that this was my first experience. Thank God! The podcast was good. (S4)*

> *My effort was humble; it wasn't that excellent a quality, but I was proud of my accomplishment as a student trying the software for the first time. I felt a sense of accomplishment that we managed to produce something we never thought we were capable to do at the start. So, I felt accomplished and proud that I produced something worthwhile. (S9)*

Promoting Effective Learning

The findings also revealed that the AMA experience promoted effective learning. Undergoing this experience helped raise students' awareness about this approach, their self-efficacy, and what they can accomplish. Teachers noted that in conducting such projects many students came to discover themselves. Initially students seemed to have negative self-efficacy beliefs. When asked whether students possessed the necessary skills to undertake this experience, a teacher noted:

> *No, I don't think so. I think in the process, a lot of them started discovering themselves. For most of them, it was like the first-time experience. And later on from what they told me that, some of them hated the experience… but some students were telling me that they actually really, really enjoyed it, and that they discovered certain skills in themselves, even technical skills that they didn't know that they possess, like how to work with software; or students who are like really trying to perfect whatever they were preparing, you could hear it from the final product that they really worked on it. Yes. So those said that*

> *they really, really enjoyed it, and that they learned a lot of new things with it. And it was not just the language, it was also about the technical skills. (T2)*

The AMA experience seemed to also promote emotional and motivational growth towards learning. This was because of the positive feedback students received, which increased their confidence, satisfaction, and motivation for this approach. The experience motivated them because they had produced something themselves and because it gave them a sense of empowerment and achievement.

> *Sometimes even if they were… small or little achievements, but they make our day. Not only that, but next time you do something, the realisation you have done something with all your effort, you worked hard on it, and it turned out the way you wanted makes you realise you can do other things. This means you can do other things irrespective of their difficulty level; you can do it even if it challenges you. This gives you motivation for other achievements. (S15).*

Promoting transferable learning

The findings suggest the AMA experience was perceived to be transferable. Many pointed out they wanted to continue with podcasting, while a few had already transferred it to extracurricular activities within the institution.

> *I took this module before the summer holiday. I decided after this experience to start recording other episodes about topics of interest. Currently, there is a plan to initiate a podcast for the English department. One classmate is joining me. There is also another plan. Since I am a member in the reading club, the podcast we are planning will include book summaries…. I mean, I am not planning to stop, I like to continue with this. (S3)*

The AMA experience was also believed to be transferable to future employment because it gave students ideas about what pedagogical strategies to use for their future classrooms.

> *As a future teacher, keeping up with these techniques reflects my personality, whether I am keeping up with educational innovations or not. (S14).*

5.3.1.2 Data Analysis: Reflective Journals

Students' podcasting reflections were analysed to elicit their perspectives, experiences, and views regarding their first-hand engagement in AMA experiences. These findings helped reinforce those

reflections obtained from semi-structured interviews. The themes that emerged are detailed below.

Creating the Conditions for Learning

Very few findings seemed to acknowledge the design principles of AMA-based learning, including the role played by the teacher in facilitating the AMA experiences and preparing students for the arduous nature of task Requirements, particularly regarding task initiation in the earliest phases of the project.

> *I have learned how to create podcasts in class through the teacher's explanation. (S18G2RJ)*

> *The teacher provided us with some tutorials on using the app to create podcasts. (S9G1RJ)*

Most findings, by comparison, seemed to highlight the students' role and involvement in the task, as detailed in the headings that follow.

Promoting Flexible and Iterative Learning

The findings highlighted the iterative nature of learning and re-learning as emphasised by AMA experiences; mostly those associated with the production phase. Students adopted flexible approaches to the task, which also revealed an emphasis on discovery learning, knowledge-building, and problem-solving.

> *I didn't record the script immediately. I started recording random things, then editing them to see how Audacity works. When I learned the basics I immediately recorded the script I prepared. I chose to record at midnight because it was the quietest time. I recorded myself many times as each time I recorded I got interrupted. This step was the worst for me as it was too difficult to record it at home, so I kept recording over and over again. Each time the recording got worse than the previous one till I decided to stick to the last one I recorded and just move to the next step. (S17G1RJ)*

Task iteration was partly triggered by speaking errors, partly by production issues and partly by adding further enhancements, which underscored the trial-and-error approach to learning.

> *Almost every time I made a lot of mistakes. So I returned back to record again. (S4G1RJ)*

> *Sometimes after finishing recording parts, I had to record things again, because I did make a mistake or the sound was not clear, as well as, I continuously kept changing the sound effects in order to make the podcast perfect. (S10G1RJ)*

The technical dimension of the task was strong, showing technical mastery and multitasking as central to how students engaged in the task.

> *I recorded my audio using the phone, and after I finished I uploaded all the audio files to the Adobe Premiere programme. So I started editing and adding music, and after finishing I downloaded the file to my laptop. (S21G2RJ)*

All these findings corroborate the flexible and iterative nature of AMA learning, and how it emphasised personalised learning, learning persistence, and problem-solving.

Promoting Active and Independent Learning

Learner autonomy was a dominant theme in the findings, and this underscores the roles of learning ownership and self-regulation throughout the different phases of production. Students seemed to claim full ownership of the task and exercised decision-making regarding the topic, planning the task, and scripting.

> *I started to listen to many podcasts and search for topics that match the theme I chose. Then, I started searching for a script for my podcast from many resources and I ended up using this resource. I made a beginning and an ending. I created a table in Google Docs and copied the script in it. (S17G1RJ)*

It seemed students made optimum use of online utilities, particularly YouTube, which underscored its educative potential for informing, guiding, and sustaining active and autonomous learning.

> *In the very beginning, I started watching YouTube tutorials on how to make a successful podcast especially for the first time, then I stepped forward by searching for an interesting topic to talk about and it related to my theme selection. (S25G2RJ)*

> *I watched the videos step by step [while] I was working on the podcast. I tried my best to learn more tricks from all the videos I was learning from. (S5G2RJ)*

Self-regulation was also evident in findings throughout the different phases of production considering the AMA experience demanded continuous decision-making to satisfy the demands of the task.

> *I have taken several decisions, including writing additional information to complete the specified time for the podcast, which is 10 minutes, and I had to make some changes, including increasing the speed of the voice and reducing it. (S18G1RJ)*

This was also evident in post-production, showing that students took decisions when evaluating their work, inviting second opinions, and making final adjustments before submission.

> *After I finished my podcast, I listened to it again and it was not good. Then I had to change some parts, and then I listened to it again and it was good. After that, I decided to send it to my friends and some of my relatives to know if there were any mistakes. Besides that, they gave me their feedback and I changed it again to make it more creative. Then I heard it for the last time. Finally, I was satisfied with it (S4G1RJ)*

Promoting Effective Learning

Limited attention was given in the students' reflections to highlighting how AMA addressed effective learning. What emerged in the findings, however, addressed how AMA promoted motivational growth and empowerment.

> *I think my podcast was very superb, and I am really proud of my progress. That shows I can do anything even if it seems difficult or a new experience at the beginning. (S16G1RJ)*

> *In fact, I was happy with my work for the podcast, until I went to my mum, dad, and my brothers to tell them that I had taken the BBC radio to our home. (S3G2RJ)*

This evidence, albeit limited, emphasises the role AMA learning can play in motivating and empowering learners to feel good about themselves.

Promoting Transferable Learning

The findings seemed to also highlight the transferable potentials of AMA learning, where students could see that the skills and knowledge were transferable to their immediate and future experiences.

> *I liked the process. I think I want to make a couple more in the future. (S1G1RJ)*

Another noted:

> *It was a good experience because as teachers we need these types of experiences to apply in our schools. (S6G2RJ)*

5.3.2 RQ1.1. AMA Challenges

Data from interviews and reflective journals were analysed to answer the following question:

- **What challenges do students and academics associate with AMA-based learning?**

This question sought to elicit participants' experiences and perspectives regarding the challenges they associate with AMA experiences. The aims were 1) to identify different kinds of challenges, and 2) to provide a realistic and balanced view of AMA experiences by considering both potential and perceived challenges. The findings revealed several challenges in the different phases of the AMA experience.

5.3.2.1 Data Analysis: Semi-Structured Interviews

The findings from the in-depth interviews with IELTE academics and students revealed several challenges associated with the AMA production phases, and these varied among the participants. The teacher perspective revealed challenges regarding the initiation and direction phases, while the student perspective was illuminating with regard to the issues students faced and struggled with, and which influenced their performance and outcomes. Themes that emerged follow below.

<u>Personal Challenges</u>

Personal challenges were frequent and were mostly associated with students' struggle with the heavy demands of task implementation. The list includes challenges with decision-making, scripting, and persistence despite feeling overwhelmed and stressed out. Underlyingly, these issues highlight the psychological pressures inherent in open-ended and PBL tasks, and which educators need to be aware of. Each factor reflected differently in the experience.

> *I was worried in the beginning – how to locate information, how to deliver podcast-style. We only had experience doing class presentations but having to do it as a podcast means you have to be careful about language, precision, eloquence. (S14)*

> *In fact, I was facing difficulty at the beginning because I tried numerous times, I made around 100 sound recording attempts, tried to edit and edit, but then I felt like I lost hope. (S1)*

The production phase was similarly challenging. It included issues with language, disruptions, delivery, and psychological pressures.

> *…honestly it was tiring. Sometimes it occurs to me while recording to settle for first attempts and be done with it. But then I would have a guilty conscience – No! No! I should do this. I mean, you partly feel guilty conscience. This issue was during production.… sometimes I say to myself, I will record this once; whether it turns out good or bad, it doesn't matter. This was the problem, a psychological problem– sometimes I give up, other times I persist. (S12)*

The post-production phase was no different, particularly in relation to evaluating the product, time limitations, and withstanding psychological pressures.

> *A general challenge was evaluating the outcome… the teacher had specific requirements, so I had to revisit my work… the content in general, and fixing errors. (S8)*

> *Among the challenges was the time factor, considering I had six modules, each with its requirements… I was feeling a little burdened because there was no time. When would I record? When would I…? (S13)*

Technical Challenges

Technical challenges with the production were common, including issues with the software, equipment, editing, file conversion, and using multiple software. Editing was the most frequent challenge, partly considering time constraints and partly due to task novelty. One interviewee reported going to considerable lengths to manage a recorded interview with someone from the USA, and how this decision had many difficult implications for editing:

> *This interview demanded a native speaker, … but since only a few of them are available here I couldn't arrange an interview with them. In the end, I had to look for someone outside college. Unfortunately, I couldn't meet this person, so eventually I was only left with the option of emailing him all the questions so that he would do the recoding himself and then I would merge [our parts]. The fact that this was lacking an actual interview atmosphere was quite challenging to me, so I had to inform him to make pauses, even for a second so I can insert my part – so that these few seconds would make it look like a real interview. This was quite difficult, difficult in the true sense of the word, first because I only communicated with the person via social media; I know nothing*

> *about his background – he was in America. So, I had to explain to him, this and that, and this is how it is going to happen. So, it was all difficult – first communicating with him, then convincing him this is an interview, and this is how we are doing it. It was difficult. But then I found the answers, the thing I wanted. So, editing was quite difficult and cumbersome and took an extremely long time till it shaped up in its final form. (S15).*

The findings also suggest that the equipment students used contributed additional problems due to unacceptable quality issues. The same was true regarding locating a convenient venue for recording, especially for female students in a hostel. These technical difficulties seemed to add to the complexities of student experiences and cause some negative attitudes among students.

> *My laptop would freeze, [and] all my work would be lost. I had to re-do it. I need a better laptop. (S17)*

> *I had an issue with the voice clarity; there was background noise, possibly because of the quality of the microphone. (S11)*

> *The biggest challenge [for me] was file conversion. (S19)*

5.3.2.2 Data Analysis: Reflective Journals

Several challenges were revealed by the analysis of student reflections, as detailed below.

Personal Challenges

It was evident that the pre-production phase posed many challenges to students, due mainly to personal and psychological reasons including the lack of relevant experience, lack of motivation, feeling overwhelmed, and feeling pressured by other modules.

> *To be honest, I was not enthusiastic about producing my own podcast since I thought it was too complicated and that I would not be able to complete it within the specified period of time, so I started working on it and thinking about it a little late. (S13G1RJ)*

Difficulties with task implementation were also frequent, including deciding on an appropriate theme, locating appropriate resources, scripting, planning, and finding a suitable recording venue. These struggles reflected the task novelty in a negative light.

> *It was difficult to plan for my podcast and to find suitable information because it was the first time that I was recording a podcast and I do not have ideas*

> *what to include and how the podcast goes. Besides that, it was difficult to search for many resources as well. (S4G1RJ)*

The post-production challenges included evaluating the product, improving the product, satisfaction with the outcome, seeking feedback, and acting on received feedback.

> *The only challenge was fixing the mistakes and how satisfied I was with my podcast. (S11G1RJ)*

> *I gave some of my family members to listen to it and they told me that it was loud, has a lot of [hissing] sound in the background and the music at some points was covering my voice. At the beginning, I didn't take action toward that feedback as I was disappointed because I worked hard on it. I just decided to leave it the way it was, but the next day I edited it again. (S17G1RJ)*

Such challenges shed light on the implicit personal struggles likely to influence the quality of AMA learning.

Technical Challenges

Several technical challenges emerged from the findings, and these mainly pertain to software mastery, recording gear, and editing. While some had difficulty with the gear (e.g., S2G1RJ, S3G1RJ, S9G1RJ, S13G2RJ), most of the issues were software and editing related, such as the technical production of the podcast, which was found to be time-consuming, tiring, and confusing.

> *I watched many tutorials on how to use Audacity while I haven't even downloaded it, thus the first time I used it I felt super confused and I was only left with 4 days which really made me panic at that time. (S17G1RJ)*

Two others noted:

> *The app itself 'audacity' wasn't practical and needed time to comprehend all the functions there. (S8G1RJ)*

> *I found difficulty in the use of microphones, so I tried to check my laptop setting. Also, I find it difficult to apply some effects because I was not familiar with the effects that may occur. (S13G2RJ)*

These findings suggest technical difficulties and troubleshooting are central to AMA learning, and these difficulties seemed to push students to minimise their influence.

Infrastructural Challenges

Infrastructural factors were also found to inhibit the SGP experience, although only few students reported such challenges. These mostly included issues regarding the internet coverage, which caused additional trouble for students working in remote villages.

> *The existing resources that I could use to register were rudimentary resources. They were not available in the area in which I live, and their price is therefore high. (S27G2RJ)*

5.3.3 RQ1.2. Suggestions to Overcome AMA Challenges

Data collected from semi-structured interviews and reflective journals were analysed to answer the following research question:

- **What suggestions do students and academics propose to overcome the challenges of AMA-based learning?**

This question sought to elicit participants' perspectives regarding overcoming the challenges associated with AMA experiences. The aim was to identify context-specific suggestions that address and help overcome these challenges, and which participants consider most relevant and practical in this context.

5.3.3.1 Data Analysis: Semi-Structured Interviews

Both teachers and students provided suggestions and practical guidelines to facilitate a more productive AMA engagement. The themes that emerged are detailed below.

Personal Suggestions

To help improve AMA engagement, many suggestions stressed the need for students to appreciate the educative value of the task to help them persevere through the arduous nature of AMA learning. Self-motivation was considered necessary to help students adhere to deadlines. The same is true for consulting experts (including previous students) to assist them with task implementation and fixing linguistic errors. One teacher suggested that the students needed to take it more seriously to see through its educative gains:

> *First, they have to believe that it's important… and it plays a role in their learning and their self-development. And of course, they have to be motivated to do it. I mean, there should be a reason behind doing it. With no reason, even if they did it, it won't actually have any positive effect. (T1)*

> *My best advice is to learn from former students who took this module, and also from the YouTube tutorials… and of course from the teacher. (S11)*

Practice and rehearsing scripts before production were also emphasised. Some suggested partitioning the work into segments to avoid repeating the whole recording if things went wrong. Others suggested seeking expert advice on linguistic areas.

> *In the initial phases, there is a need to consult an expert in the language areas generally, such as errors and pronunciation. Students ought to rehearse multiple times before initiating recording. (S8)*

> *I expect most of us encountered these challenges, considering it's our first experience, but if some students find it difficult, say in speaking, I advise them to practice. (S14)*

Since these findings draw from first-hand experience, they could be helpful to those new to AMA-based learning and can provide practical guidelines to engage more productively in AMA experiences.

Technical Suggestions

Some technical issues were also revealed by the findings, and these were mostly associated with editing. Suggestions to minimise such issues included using popular software and additional software for noise reduction. One teacher believed online tutorials could significantly minimise the technical challenges faced by students.

> *As for the technical factors, I think watching YouTube tutorials probably will do a lot to help here, because most of their questions are actually questions that could be addressed if they watch the tutorials I usually sent to them. (T1)*

Another noted:

> *Other suggestions, they can use alternative software to eliminate noise. (S8)*

Since these issues were rather specific and straightforward, findings were limited in this regard.

Pedagogical Suggestions

Several pedagogical suggestions emerged in the findings, including the need to provide more modelling, analyse samples produced by former students, and report former experiences, challenges, and ways to overcome them.

> *It would be good if [students] are given a podcast sample and identified as such so they get to know how it is done, such as in terms of delivery style. Also, rather than sharing with us YouTube tutorials to watch, they can be demonstrated in class as a lesson. (S12)*

Interviewees suggested introducing self-recording earlier in the programme to familiarise students with SGP. This is because students seemed self-conscious about recording their own voices.

> *Maybe we should have like one or two activities prior to that where they actually have to record an answer to a question, or they get used to hearing the sound of their voice. (T2)*

The findings also suggested introducing collaborative rather than individual podcasting because the experience, while it was educative, it was also tiring.

> *Rather than having individual work, it could be made into pair work because, first, you can choose a partner… secondly you can divide up the work. (T2)*

Several other suggestions were proposed to enhance AMA-based learning, including setting clear deadlines for each phase of production, extending deadlines, enabling more YouTube-based instruction, and allowing students the freedom to choose any topics they wanted. It is evident that these findings proceed from specific issues experienced by participants, and therefore could significantly contribute to enhancing any future iterations.

> *…projects, for instance, do not have to be centred around education because what matters is that students show their interest to be more creative. Not everyone is interested, for instance, in English language teaching… Like me, I am not interested in these topics, but we are forced to do it this way. (S12)*

> *…it's best we start with the project early on, so the student will have more than one opportunity to improve one's work... In the study week, we had to abandon our studies to submit the project. (S6)*

Infrastructural Suggestions

Infrastructure-related suggestions emphasised the need for a quality technological setup, regular maintenance of technological tools, and the provision of a designated recording venue. Both groups of participants indicated that more work is needed on campus to boost AMA-based learning and create the optimal conditions for sustaining it. While they managed to get the work

done with the tools at their disposal, they suggested that a more professional setting was needed to improve the quality of AMA learning.

> *They must set up an appropriate area for recording, away from disturbance, a designated area specially prepared for recording purposes. (S18)*

Clearly, these suggestions consider existing problems with the current infrastructural setup on campus. These suggestions need to be considered in future iterations of AMA-based learning.

5.3.3.2 Data Analysis: Reflective Journals

The findings revealed several suggestions to tackle AMA engagement challenges, as detailed below.

Personal Suggestions

Most suggestions concerned how individuals could improve how they approached task implementation, including building necessary knowledge (e.g., YouTube tutorials, listening to authentic samples, software mastery), overcoming frustration and tension (e.g., building confidence, seeking assistance), careful planning (e.g., choosing a familiar theme, not rushing with scripting, using reliable sources, rehearsing), and ensuring technical preparedness (e.g., updated software and system, practising).

> *I suggest that we should not rush to judge something before trying it, nor do we depress ourselves directly, but rather look at things positively with enthusiasm, and try to start work directly and not postpone it, because that makes us find it difficult even the simplest things before trying it and that we waste our time thinking without work. (S13G1RJ)*

> *The problems you encounter are normal for someone inexperienced in using this type of education. With a little patience, you also must remember that you have completed a large portion of the work. This stage requires patience and also a creative sense to be able to produce the work in its final form. (S3G1RJ)*

Inviting external feedback (e.g., from relatives, peers) to improve on the outcome before submission was also suggested.

> *Listen to your final podcast to identify mistakes and fix them if there are any, you can also share it with your friends to know their feedback before publishing it to the public. (S6G1RJ)*

Technical Suggestions

The findings revealed several suggestions to tackle the technical challenges inherent in AMA experiences. These pertain to software mastery and overcoming the obstacles presented by the software Audacity and by podcast editing. Most suggestions point towards utilising YouTube tutorials to gain sufficient mastery of the software and editing processes.

> *Spend more time training on the Audacity application because it provides more than one option to manipulate the sound and add various effects to it. I also suggested that we should try the programme before, and then start working the project on it after mastering the use of the programme. (S13G1RJ)*

> *I have to familiarise myself with editing features provided in Audacity and practice till I become a good user of it. Also, I have to choose a good quality microphone. (S5G2RJ)*

Other suggestions touched on helpful editing techniques.

> *I suggest not recording the whole thing at one time, but you need to cut your recording to avoid any mistake that will happen, and it makes you delete your record as well. (S24G2RJ)*

Pedagogical Suggestions

Only a few pedagogical suggestions emerged in the findings, but these included more teacher assistance with theme selection and locating appropriate sources, as well as providing more structure to the AMA task.

> *The biggest issue for me was collecting information and I think the teacher should show the students the best way to collect information and also to be in touch with his students if they need any help. I (S11G1RJ)*

> *Perhaps many workshops from the teacher might be beneficial about Audacity. In addition, making a timetable for the podcast, e.g. today I will finish this, tomorrow I will finish this, and so on, that might save a lot of time. (S10G1RJ)*

Infrastructural Suggestions

Only one suggestion was proposed, which reinforces the one proposed in interview findings.

Availability of the materials used in the recording and the creation of a dedicated place for recording so that the situation is quiet without noise. This helps a lot in overcoming challenges. (S27G2RJ)

5.3.4 RQ2. AMA Pedagogy

Data collected from interviews and reflective journals were analysed to answer the following research question:

- **How do students and academics evaluate the pedagogical approach of AMA-based learning?**

This question sought to elicit participants' perspectives regarding four underpinning design principles behind AMA-based learning, namely learning-by-doing, artefact construction, student-centred learning, and ICT-mediated learning, along with the challenges each area is believed to pose. While each area stipulated a particular perspective into inquiry, the thematic analysis revealed the four areas generated somewhat similar themes and subthemes, while they slightly differed in some of the codes. Ultimately, twelve major themes emerged in the analysis of data, as discussed in the sub-sections below.

5.3.4.1 Data Analysis: Semi-Structured Interviews

Informed by their first-hand experiences, participants' perspectives on AMA pedagogy were helpful in understanding how various elements of pedagogical design, namely learning-by-doing, artefact construction, student-centred learning, and ICT-mediated learning**,** reflected in pedagogical implementation. The themes that emerged are discussed below.

<u>Creating the Conditions for Learning</u>

Interviewees were of the view that to successfully facilitate AMA pedagogy requires satisfying several alignment measures, creating a safe learning atmosphere, providing teacher facilitation, and providing an incentive system to enable optimum AMA-based learning. Ensuring alignment stipulates consistency in pedagogical practice among teachers and moving away from didactics, as well as the need to attune assessment and pedagogy to suit the inherent demands of AMA-based learning, especially in relation to nurturing productive learning and introducing alternative forms of assessment. They criticised the current provision system, emphasising the need for a more aligned practice.

> *…we are preparing students to be responsible, to be autonomous learners at the end. And just to reach that end goal, what are we doing now? The current practice is not enough. (T1)*

The interviewees seemed wary of the limitations of the educational context in Oman, which prioritises information delivery and downplays experiential learning. They noted it is heavily teacher-centric, so that making way for AMA-based learning requires deep changes.

> *…our students are ready but, as teachers, are we ready to change our traditional ways of teaching… to introduce new things? Again, that will require some changes at that level of assessment as well. So, we probably must even change the way we assess our students. Instead of assessing our students through paper and pencil, we might need to reach a level of assessing them through observation and documentation, which requires a lot of effort, and I know for sure is that it is against how things go here, I mean, the policies themselves…. And to change that, it is something difficult, it's not easy. (T1)*

Teacher facilitation seemed highly determinant to facilitating effective AMA-based learning. The findings suggest that the approach demanded various forms of intervention, suggesting that teachers played both direct and indirect roles in facilitating, overseeing, and evaluating students' work. Still, some had the impression that certain students demanded more intervention than others, as exemplified by the relative uncertainty and confusion that accompanied the initial phases of task implementation. This they attributed to a lack of students' prior knowledge, confidence, willingness for new undertakings, among other factors.

> *…while some believe the teacher's role can be largely minimised, eventually there is still a need for the teacher. This may depend on the nature of the module, or where the teacher's role can be minimised to enable knowledge-building and discovery among students, and where it can't. This remains the teacher's role, and the teacher must abide by it. (S16)*

Introducing an incentive system whereby students collected additional points and then exchanged them for marks or transferred them to other students seemed to create an enabling environment conducive for effective learning. T2 narrated how she laid out its purpose to students:

> *Here is your chance, create something interesting, introduce something interesting in class, you will be given extra points that will be later on, end of the semester, converted to marks, that you lost in the process somewhere. (T2)*

Promoting Relevant Learning

Interviewees stressed the potential of the four design elements underpinning AMA pedagogy for promoting relevant learning, considering they are in line with contemporary HE practices, with contemporary literacy requirements, and with growing trends toward enabling learner-centric and ICT-mediated education.

> *Students require more practical than theoretical learning, unlike traditional pedagogies which are odd to present-day demands. If we compare instructional methods in some universities, like Finland, we read about their use of pedagogical strategies. They emphasised practical more than theoretical learning as this improves education. (S14)*

Not only did interviewees report preferring AMA but they also noted it appeals to the learner styles in HE because it provided different modes of learning, enabled students to construct artefacts for extracurricular activities, assisted students in creating materials for other modules, and assisted teachers in diversifying instructional strategies and creating additional materials for students. They also, however, acknowledged that more effort is needed to embed this approach in the Omani education system.

> *We need to push learning by doing… Students have to experience doing things themselves…they really have to experience the process, they really have to face the challenges themselves and to learn from these challenges until they formulate their final product. (T1)*

The findings suggest that students valued how the AMA approach responded to their learning styles and preferences.

> *…following the usual routine of memorisation, attending lectures, listening to the teacher, then memorising, then pouring that on the exam paper – this doesn't work for me. I did study some modules that require application, but the final assessment was through testing. How could the teacher test my ability to apply when all they see is written words I memorised from a chapter or a slideshow? (S19)*

ICT-based learning was also believed to meet real-world demands given how ICTs have shaped how people access, communicate, share, and exchange knowledge.

> *This is now [the technological] age; we must make it as authentic as possible to [students]. If we stay away from that, then it probably sounds artificial. (T3)*

> *Especially the current generation, because they are dependent on iPads, dependent on smartphones for doing everything, their brains are programmed to use computing in everything. So, when you hand them a pen and paper, they feel it is awkward, and it is likely they forget more than if they were using technology. (S9)*

All these factors substantiate how the AMA pedagogy reinforced the perceived learning relevance, which was believed to help enhance the appeal of AMA pedagogy to the Omani HE context.

Promoting Flexible and Iterative Learning

The open-ended and ill-structured nature of AMA-based learning, according to the findings, enabled a more flexible and personalised approach to learning, in which learning was an iterative process of learning and re-learning, discovery, and problem-solving. Despite the complexities and the demanding nature of the approach, the findings suggest that students had the opportunity to experience process learning with its ups and downs. Such learning struggles were believed to be crucial for learning.

> *And they go through all challenges. And by the challenges they face, they learn. (T1)*

For some students, this approach encouraged learning perseverance.

> *Learning through trial and error is more memorable… it also teaches you perseverance; one doesn't need to wait for everything to be served ready for him. One must try, and failed attempts can become successful with time. (S17)*

Discovering new things was inherent in AMA learning, and it enabled students to face and deal with different challenges with scripting, locating suitable resources, or learning to use the software.

> *They get exposure to the learning. They do learn new skills. They do have some new challenges, like being able to solve a technical problem; that is a challenge which could be solved. Once they solve it, there is something new they learned. (T1)*

While the open-ended and flexible nature of AMA-based learning was not viewed in the most positive light at the initial phases, it enabled students to discover many things throughout the

experience, especially discovering themselves as learners. This resonated with the experience of one interviewee:

> *It was important to know yourself as a learner. As a student, I must seek and search and discover things by myself. By doing all these I will reach to a stage where I will discover things by myself; I will remember them more. (S7)*

Another significant finding concerned how this pedagogy nurtured more personalised approaches to learning.

> *Each student can try it their own way; one is not forced to do it a certain way. So, it is more creative. (S6)*

All these findings are significant and reveal how the AMA pedagogy helped empower more meaningful learning adventures, which seem appealing to educational reform initiatives in Oman.

Promoting Active and Independent Learning

Overall, the AMA pedagogy seemed to enable active engagement in learning and encouraged students to work autonomously. It promoted learner responsibility, self-direction, and self-regulation.

> *Applied learning plays a big role in preparing the student to become responsible for one's own learning. Applying different multimedia is different from theoretical learning. (S8)*

> *When learning is student-centred, the student has a bigger sense of responsibility, making decisions on their own, sharing one's opinion. (S11)*

The findings also revealed that the AMA pedagogy encouraged students to exercise decision-making.

> *I always give them tasks where there is a possibility of picking some choices. So, for example, they can pick the group they want to work with, they can pick the article they want to analyse, come up with the recommendations, and probably summarise the articles themselves. This amount of choice is, as far as I understand, a little kind of responsibility given to them, and they successfully did it throughout the stages themselves. (T1)*

Another interesting finding showed that the AMA pedagogy facilitated interaction and collaboration among learners, which was especially useful in a culture that is known to separate genders.

> *…it enables you to share your ideas with other students, for example in mixed-gender schools. It therefore facilitates communication among students. This suggests that technology can represent an ideal environment for learning, in relation to reducing stress, eliminating shyness, etc. Therefore, it becomes a more comfortable learning environment for this type of learners to share their ideas. (S9)*

Overall, these factors substantiate how prioritising applied learning, artefact construction, student-centred learning, and ICT-mediated learning reflected positively on perceptions of AMA pedagogy.

Promoting Effective Learning

The findings suggest the AMA pedagogy facilitated more effective learning compared to conventional practice. The effectiveness in this context is viewed in line with promoting better learning gains, including promoting self-efficacy, enhanced learning, praxis, emotional and motivational growth, creativity, and individuality.

The findings suggest students were able to discover themselves as learners, activating their dormant aptitudes and ability to produce things. One teacher and a student mentioned how this approach uncovered new passions students never knew they had:

> *It's like a completely new experience. You know, I think for some of them it is quite empowering, that they can actually do something like that; sometimes they didn't even know that they have the power of doing it. Sometimes they didn't have a need for it, and they discovered it for themselves. (T2)*

> *Knowing my personality, I thought I couldn't record my own voice, I thought I was shy, not capable of showing [myself] before an audience. But podcasting, given the fact that it is not performed before a visible audience, was something great. I mean, I discovered something within me, that I can produce great works that can wow people. (S13)*

Another noted it produced deeper learning compared to conceptual learning:

> *…because it's done by practice, like, it's learning-by-doing… So, the value of that, the coverage may be tiny, but it's heavier. Whereas when you are just giving them the usual one, lecture for example, all lectures you may have covered a lot of topics, but it's shallow; it's on a surface level, whereas if it's done by them, the depth is there. (T3)*

This pedagogy helped enhance learners' motivations, enjoyment, confidence, and passion, especially when creating something of interest.

> *…why they are so hesitant to try new things, because they think from the beginning they will fail.' I don't know how to do it', that's their attitude… But once they go through that, once you push them through that, I think they kind of get confidence they can learn things, that they can learn new things. (T2)*

It was also endorsed for promoting emotional growth through increasing students' confidence and encouraging them to produce new and creative things. It was also found to enhance their self-capability and learning of mastery.

> *When we were doing Google applications, this is what they had to do. I said, I don't want to hear any lecture here. No PowerPoints! It is a workshop, hands-on workshop. So you go, you explore what is Google Docs, you know all its ins and outs, and you have to tell the students, but you have to do it in a way where they also learn. So, you are not just showing them on the board, but they must follow your steps. So, you give them a small task, and they must go and perform it. (T2)*

It is evident participants were positive about the AMA pedagogy, and how it enabled students to transcend their sense of self, try new strategies, discover themselves as learners, and re-evaluate themselves and their learning. Also, it seemed to have contributed to better learning gains which the academics emphasised as being what pedagogies should prioritise.

Promoting Transferable Learning

Interviewees were overall positive about how the AMA pedagogy can establish a basis and continuity for learning beyond the classroom. Interviewees believed it encouraged them to extend what they learned to novel experiences within the educational institution and beyond.

> *We have now started a reading club. In this club, we are working on initiating a podcast, among other club activities. This podcast will include book reviews, discussions, ideas, etc. This reflects I am fully accepting the idea of podcasting.*

> *It was actually my idea to initiate this podcast, and that we create material for people to listen to, audio material. (S15)*

Moreover, findings suggest such an approach to pedagogy can prepare students for future employment by building the skills needed for their future teaching careers. One student had this reflection to share:

> *Honestly, I was hoping we had more modules that offer applied learning in our programme…I found this module to be quite beneficial for preparing us as teacher trainees … this module was more practical than theoretical, because as teacher trainees it helps us experience quite early, and to face the challenges early on, and get ready for them before the actual employment. (S14)*

Overall, findings substantiate how the AMA pedagogy encouraged new ways of thinking about learning beyond the confines of the classroom. These findings substantiate the transferability premise of learning promoted by AMA pedagogy.

Personal Challenges

The AMA pedagogy was believed to pose personal challenges to the individuals directly involved in or affected by such an approach. The novelty of AMA pedagogy in this context and its demanding nature were perceived to be inhibiting factors to many participants. Unpacking these factors revealed both direct and indirect justifications, suggesting that this approach could easily overwhelm students, especially novices, causing them unnecessary pressure. This was believed to compromise the quality of outcomes. The findings, however, also suggest many of these concerns seemed to subside with time.

> *It causes a little pressure for the student, that is, once the student gets used to it, one will feel it is manageable. However, at the initial stages, the student will feel the pressure building up, and this will reflect negatively on his performance in the module, on in the task one is working on. (S1)*

Findings also suggest not all interviewees were drawn to this approach due to their preference for didactic strategies, or the fact they have been enculturated into a bias towards theoretical learning. This was another interesting finding, which suggests students could be ill-prepared for the type of autonomy advanced by AMA-based learning.

> *It is possible students weren't used to being given complete freedom and complete autonomy. Having come from schools they completely depended on teachers, and so when they join university or college, the same thing happens.*

> *They are not used to be given complete freedom or complete responsibility to do things on their own. (S3)*

When asked about whether this approach should be expanded, a student noted:

> *I am fine with this approach, but other students may not be. They may consider it an extra effort, and extra burden. There are unfortunately students who are not passionate about exploratory learning. There is a need to redefine things with these students, regarding the way they think, regarding the way education works around the world! It is not the conventional education anymore, where you memorise the textbook and then you will be tested on it, where you write down all that you memorise, and you are done. Today's world is different, it has changed. (S15)*

The above challenges were perceived as a threat to AMA pedagogy. While many of the challenges were believed to be a natural consequence of the biases and dispositions of the larger education system (e.g., biases toward conceptual learning, preference for testing, among others), many were also pragmatic in nature (e.g., lacking relevant experience, preference for test-based and conceptual learning, or lacking readiness to shoulder responsibility for their own learning). These factors could distort the effectiveness of AMA pedagogy.

Pedagogical Challenges

Several pedagogical challenges also emerged in the findings, particularly concerning existing biases towards conceptual learning, insufficient teacher expertise, and difficulties with management and assessment of AMA-based learning. The findings suggest that bias toward conceptual learning is reflected in the hold of didactic and surface learning approaches and teaching for the test.

> *Because we rarely create things. Our final product of courses is exams. I mean, that's the way, how students see things. They study to pass the exam, but here they study to produce something. So, this by itself is a different experience. (T1)*

> *If you notice, most emphasis is placed on rote learning. We are too far from practice; [we have] only materials, and you must memorise them. But applied learning is quite scarce. (S11)*

Assessment of AMA learning was perceived to be problematic because it was difficult to observe the process and difficult to assess the outcomes for larger groups.

> *…learning-by-doing, although better, it has a lot of challenges: the time and it is harder to observe. And it becomes already very subjective when it comes to looking into what they do. Unlike when it is a test, you have objective types, you can easily mark it. (T3)*

The academics suggest that successful implementation of AMA-based learning requires considerable effort from teachers in fore-planning and providing guidance to students. Existing pedagogical schemes presented another issue since they lacked flexibility, offered limited options to learners, and were time-constrained.

> *…we can get tempted to lecture and lecture, and not really make them do something because of what you're trying to finish… So, if it becomes student-centred learning, sometimes it becomes chaotic if they're not properly guided. So, there's a lot of effort put by the teacher, if they're allowed that much. (T3)*

These views are helpful to consider in the context of AMA pedagogy because they shed light on the indirect influences at play, which could reflect negatively on the implementation of AMA-based learning.

Infrastructural Challenges

Considering how AMA pedagogy draws heavily on the manipulation of technical tools and ICTs, the findings indicated negative views regarding the infrastructural preparedness on campus, including the availability of reliable network services, recording gear, and computers. This was perceived to jeopardise student-centred learning and self-access to resources.

> *The technology on campus is not helping; many computers are not functioning well; the internet connection is really poor. (S18)*

The availability of network services was also reported to be problematic. Many students lived in remote villages with no access to internet, and this inhibited their ability to sustain working on their projects outside the institution.

> *Among the challenges is the fact this environment doesn't provide all the necessary resources. Like, I noted there is no recording studio, microphones, and the like, so we had to rely on our phones. I anticipate if resources were made available, they could raise better awareness about this approach. (S15)*

> *We still lack the basic stuff, which should not be even a problem anymore: the Internet, the devices, and some other issues are actually things we still have. I*

> *mean, we cannot leave these challenges. So, there are challenges, and we really must overcome them. These challenges are not only in college here, but almost across the country. If you look at schools, there are many schools where still teachers suffer from the accessibility of internet, from the devices they have, even if they have the knowledge, even if they have the desire to use technology, there are many challenges we have. (T1)*

The findings therefore suggest the status-quo on campus is not optimally supportive of AMA-based learning. This can have negative implications on students (e.g., frustration) and on large-scale implementation of this approach. Although students seemed to manage their AMA productions using their own gadgets, both quality and efficiency were compromised.

Education System Challenges

The findings revealed a strong critique of the broader education system in Oman for enculturating didactic learning and teacher reliance; contributing graduate outcomes that are weak and ill-equipped for employment demands; and producing teachers ill-prepared for this technological era. One teacher noted how this could inhibit accepting the student-centred approach:

> *…if you are to change to a student-centred approach, then probably we will have to stress many points where we might even have to change assessment…. And to change assessment, the authority might be against you, the environment, the culture, the parents might be against you. They know that, at the end of the semester, they will probably receive a paper saying that their student got A, B or 90 or 100. But it is difficult for them to just accept [this approach]. (T1)*

When asked why students were more comfortable with conceptual learning, a student noted:

> *Possibly a result of the educational environment. They got used to receiving more than applying, that is, receiving information without actually practising anything. One can become irresponsible, only relying on the teacher more than on oneself. (S8)*

The findings also suggest insufficient attention is devoted to promoting digital literacy and ICT-based learning. One interviewee mentioned how the employment market could also inhibit innovation and the integration of technology:

> *The employment market I will be joining functions on knowledge transmission – I will be forced into that. Eventually, the work field I will be joining will be constrained by this. (S19)*

These findings suggest that the education system in Oman was perceived to inhibit successful integration of AMA-based learning, and this perception could have negative implications on the success of AMA pedagogy given such convoluted influences, be they direct or indirect.

Sociocultural Challenges

Sociocultural challenges to AMA pedagogy were also reported in the findings. Such factors as insufficient community support, cultural barriers, and lack of acknowledgement or awareness of the educative potentials of artefact construction could reflect negatively on the successful implementation of AMA pedagogy.

> *Lack of support from the community, and lack of understanding of the rationale could inhibit people's desire to contribute multimedia artefacts. The surrounding environment could be an inhibiting factor. (S9)*

Inherent cultural barriers were also perceived to pose a challenge, such as people refusing to be captured in audio or video intended for the public or mass audiences.

> *You can say the community doesn't welcome the idea that a girl records a podcast in her own voice, does the montage, shares her voice, appears on video tutorials. These are some of the factors why we are considerably weak in production. This could mean the community itself doesn't encourage creativity. This I have seen everywhere; it doesn't accept talents. It is difficult sometimes for one to boast a creative idea. He can be criticised. So possibly the community itself forms an obstacle. (S11)*

Also, the local culture was believed to pay little regard to autonomy and it consequently fails to prepare students to be self-autonomous learners.

> *Personally, I don't think that students fully accept being the centre of learning, and that learning is student-centred. Why? Unfortunately for some, it is the families or communities they come from, where one has become used to being served everything ready, has become used to being at the receiving end more than looking for things or doing things on their own. (S15)*

These views substantiate the negative influence of sociocultural factors in the context of AMA-based learning. Such factors could be firmly rooted in culture and may not be subject to change. Awareness and knowledge of these could likely help minimise their influences.

5.3.4.2 Data Analysis: Reflective Journals

Student reflections seemed to also reveal insights regarding students' views of the four AMA pedagogy principles, namely learning-by-doing, artefact construction, student-centred learning, and ICT-mediated learning. These are detailed below.

Promoting Relevant Learning

The relevance of the four pedagogical principles to learner preferences, HE pedagogical practice, and real-world practices was frequent in the findings (n=37 codes). Evidence suggests students preferred how AMA learning complemented their personal preferences and styles of learning.

> *I really like this type of learning as it gives us the chance to learn and practice by ourselves. (S6G1RJ)*

Another noted:

> *I believe that this type of learning is preferred by many students because nowadays learners tend to be more independent instead of being spoon-fed by their teachers (S8G2RJ)*

Integrating technology into pedagogy was also viewed as central to 21st-century learning dispositions and how it infiltrated different walks of contemporary life.

> *I am a supporter and fan of learning through technology. With the global trend of using the Internet, everyone has had to switch traditional educational methods in more sophisticated ways through the use of the Internet and technology in education. (S3G1RJ)*

The findings do not only suggest the need to adopt contemporary approaches to pedagogy, but also commended their effectiveness for student learning.

> *As technology plays a key role in our lives these days, I think it is an effective method of teaching. (S10G1RJ)*

> *Learning with technology keeps pace with the progress of the times and develops many skills for the individual, and we need technology to learn. (S19G1RJ)*

Promoting Flexible and Iterative Learning

Reference to how AMA pedagogies cultivated flexible and iterative learning was limited in student reflections. While students devoted more attention to outlining their autonomy and their decision-making throughout the production phases, reference to the trial-and-error basis of learning seemed undermined. Still, the existing evidence suggests process learning facilitated more learner autonomy.

> *I really like this way of learning because it gives me all freedom in doing whatever I want which helps me in my process of learning (S12G1RJ)*

As to their view of student-centred learning, one student noted:

> *I think it is very important to focus on students because students are doing that much, and it will repeat itself many times. They want to learn and enjoy doing it at the same time. (S24G2RJ)*

This reflects interesting insights regarding how flexible and iterative learning helped facilitate better learner engagement, including enjoyment of learning.

Promoting Active and Independent Learning

There is a general perception among students the SGP experiences enabled more autonomous and independent learning strategies. Students noted that the task enabled them to assume full ownership of their learning, from decision-making, through self-regulation, to final production.

> *I think it is a wonderful type of learning as it gives students a chance to experience things around them, learn on their own, and be independent learners. (S8G2RJ)*

> *It provides an opportunity for the students to learn by themselves and develop a sense of responsibility. (S5G1RJ)*

The findings also suggest this approach facilitated knowledge-building and reflection in and on learning.

> *It allows you to search and discover new terms and knowledge that will be effective for your own learning experience. (S16G1RJ)*

> *It encourages students to reflect on what they are learning and how they are learning it. (S25G2RJ)*

Promoting Effective Learning

The highest frequency in the findings (n=75 codes) addressed how AMA pedagogy nurtured effective learning, which included facilitating meaningful learning, enabling deeper understanding, improving linguistic skills, and enhancing motivation.

> *This type of learning is meant to make learners learn critically, along with the use of technology. When students construct a podcast, they will be creative and cognitive because they make connections in their minds to come up with a perfect podcast. (S11G2RJ)*

> *…with podcasting, you will make sure that your students have understood the lesson or not and know if they achieved the goal of the lesson. (S7G1RJ)*

> *From my point of view, this type of education will have many benefits for students and will motivate them more to learn. (S14G1RJ)*

AMA pedagogy was also perceived to cultivate creative learning and nurture students' talents.

> *It also provides students with an opportunity to show their abilities, skills, talents, and creativity to produce the intended outcomes. (S8G2RJ)*

> *[It] opens many domains to students. They might have a talent for presenting or creating a podcast on the world wide web or any channel. (S20G2RJ)*

> *I think that is a sufficient type of learning, it allows us to be creative, motivated and it gives the taste of accomplishment. (S25G2RJ)*

AMA pedagogy was also seen as essential for enhancing praxis and developing learner technical knowledge and skills.

> *I think that it's a useful way of boosting the student's skills in different aspects as he is the main focus in this way of learning. (S26G2RJ)*

> *It helps students to look for their own skills and how to improve them in their learning process such as critical thinking and problem-solving skills. (S16G1RJ)*

Promoting Transferable Learning

The findings suggest the AMA pedagogy enabled learning transfer to immediate and future contexts. Students perceived a potential value for how AMA pedagogy nurtured them so that they could see an extension for what they did to their lifelong learning and employment.

I think it is great that I learned about all these new things. I feel great because I learned a new skill. Maybe I will make more podcasts in the future just for fun. (S1G1RJ)

In addition, for me as a future teacher, for sure I will apply this method to my students, especially if I notice that they can do it in a creative way, who knows maybe their podcasts will be sold, by that they will get money. It might take time and effort; however, [its] advantages cannot be counted. (S10G1RJ)

I think [artefact construction] is a good job for students because it helps them impart information, experiences, and benefits. (S18G2RJ)

Personal Challenges

AMA pedagogy was perceived to raise several challenges to individuals partaking in AMA learning. It was the highest recurring challenge in findings (n=47 codes). Such factors as novelty and lack of prior relevant experience were seen to disadvantage students greatly.

It could be challenging because it is a new way and we didn't get used to it yet (S6G1RJ)

The challenge with it is that if the student has no experience with this method, the student might fail to understand the lesson or the course. (S11G1RJ)

Sometimes it feels overwhelming as you are totally responsible for your work, so you should really do your best and work hard. (S17G1RJ)

It was interesting to see that such challenges subsided over time as students gained confidence and developed comprehensive knowledge.

As students, they will face many problems in choosing the right programmes and choosing the right information, but from perseverance they will solve all problems and they will be able to take advantage of this new method in the best way. (S3G1RJ)

…most of the students are used to the old method where they sit and listen to the teacher, however I think students will get used to it after a while. (S1G1RJ)

Technical Challenges

Most of the technical difficulties reported related to managing the technological tools, including software and hardware.

> *Challenges may arise around the use of digital software. And learn more about using it correctly. (S27G2RJ)*

> *The technical problems are the main challenge when using technology. (S17G1RJ)*

'Audacity' was perceived to be challenging and complicated, which overshadowed mastery of the technical demands of editing, especially for novices.

> *…some parts throughout the podcasting journey require professional users of technology in general and audacity software to be able to deal with any issue that may occur, and which affect negatively on the quality of the final product. (S8G2RJ)*

> *…audacity itself was quite challenging as it was my first time to create a podcast and use this complicated software (S9G2RJ)*

Pedagogical Challenges

Several pedagogical challenges were raised, which underscored the teachers' role in facilitating successful AMA learning.

> *…there is one challenge in this approach which is represented in how to present this method to the learner in a clear, smooth, and fun way in order to facilitate the learning process and be firmly established in his mind. (S13G1RJ)*

Evidence also suggests the need for stricter guidance and intervention measures from the teacher, particularly regarding attuning technological choices.

> *They need a little guidance from the teacher, to ensure they are doing everything right. (S8G1RJ)*

> *… if the teacher didn't help the students, they might not understand the lesson and the course. (S11G1RJ)*

Some students demanded much more flexibility from the teacher regarding the tools to work with, while others emphasised the need to align technological choices with learner preferences.

> *limiting the use through using audacity makes my movement restricted so I cannot use another app. (S9G2RJ)*

Challenges arise in this type of learning in how to provide learning through technology, or more precisely how to choose the right type of technology for each learner to suit his learning and increase his experience, culture, and knowledge. (S13G1RJ)

Infrastructural Challenges

Infrastructural limitations reflected negatively in students' experiences, suggesting that a lack of key services both in the country and in the institution may negatively impact the quality of learning and outcomes.

The problems facing this type of education is the lack of suitable software and a good internet resource. (S21G2RJ)

The student may face a small challenge such as the importance of internet availability. (S19G2RJ)

The internet connection sometimes is bad as I will have some issues through learning technology when I search for information or music. (S4G1RJ)

It is challenging because in our situation we don't have good internet services in our country (S6G1RJ)

5.3.5 RQ3. AMA Environment

Data from semi-structured interviews were analysed to answer the following research question:

- **How do students and academics evaluate the learning environment of AMA-based learning?**

This question sought to elicit students' and academics' perspectives regarding the role played by the three design principles of the AMA environment, namely teacher facilitation, safe learning atmosphere, and PBL in facilitating AMA-based learning, and the challenges they posed, drawing primarily on their first-hand experiences.

5.3.5.1 Data Analysis: Semi-Structured Interviews

The themes that emerged from participants' views on AMA environment are detailed below.

Creating the Conditions for Learning

Findings from the three AMA environment design principles (namely, learning atmosphere, teacher facilitation, PBL) highlight the significance of providing aligned pedagogical practice, a suitable physical environment, a safe learning atmosphere, teacher facilitation, and learning incentives to AMA-based learning implementation. Interviewees emphasised these elements all have implications for successful AMA-based learning and are determinant in creating an environment conducive to learning.

> *I like the way where students are sitting in the lab, they are showing things to each other, and they can show things to the teacher…I think it's a great learning atmosphere, where they feel free to voice their concern, they feel free to ask a question, or they feel free to give information even that they got. (T2)*

> *It all depends on the module as such. The education technology module, for instance, allows for minimising the teacher's role. However, in other modules, especially theory-oriented, we need the teacher; he can't just limit his role to that of a guide, giving us only the title and then we have to go do the rest on our own. We need the teacher to provide explanations; we can't understand everything on our own. (S13)*

Satisfying the physical needs of the learning environment was similarly perceived to be an enabling factor for successful AMA-based learning. Participants stressed the need for better infrastructural readiness and support systems on campus to improve the quality of AMA learning.

> *…it's important to provide the suitable atmosphere and environment for learning. For instance, if the module is based around ICT-mediated learning, then provide computer labs. (S14)*

> *If that is to work, there should be some kind of a system developed, where cheating is minimised, where there are stricter consequences, where it's easier to be detected. (T2)*

Teacher facilitation was found to contribute to improving the success of the AMA environment. This was a determinant factor, particularly in relation to release of learning responsibility and empowering active student learning; intervening only at critical times.

> *The way some teachers treat students can nurture them to be independent learners. (S9)*

> *… without their guidance, without their facilitating, it may not even achieve what you intended to achieve. So really, even though there is a multitude of all*

> *these methods of being able to make them author multimedia artefact in whatever way possible, you still have as a teacher to give them some guidelines on how to carry on with that task… So, for the sake of uniformity, for the sake of achieving common targets, for the sake of really learning, it has to be facilitated one way or another. (T3)*

All in all, the study findings suggest the conditions for learning supplied by the AMA environment contributed positively to how students experienced and perceived AMA-based learning, which reflects their significance as support systems for facilitating effective AMA-based learning.

Promoting Relevant Learning

The AMA learning environment design elements were perceived to contribute to learning relevance, both to learner styles and real-world learning. The findings suggest many students appreciated this room for autonomy and the opportunity to exercise their voice and choice. While minimising teachers' traditional role to facilitation posed challenges to some students, many came to accept it and even preferred it.

> *They do prefer projects then other types of assessment, like tests, quizzes; they do actually prefer that because with tests and the quizzes, there is allocated time and that time is very tight when it comes into like that amount to give them. But with the project, students have a little more freedom to work on it at their own pace, at their own time, and probably to access information from different tools, to do them at the way they feel that they should be done once teachers set the rules to them. (T1)*

> *[PBL] is my preferred learning style. Indeed, in this experience I mainly depended on designing, producing, innovating, and applying things, but this doesn't deny I learned something, the theoretical aspect that is. (S19)*

Many aspects that underpin AMA environment design were also seen as relevant to evolving educational approaches.

> *I feel that teachers these days are always trying to get the learners involved, they make them do presentations, explain. The good thing about this is that the learner becomes independent [and] researches on his/her own. (S6)*

Teachers were positive, nonetheless, about students' acceptance of the design principles of the AMA environment. When asked if shifting responsibility for learning to students enhances their learning experiences, one teacher noted:

> *In fact, students like it when you give them a chance to pick their topics, when you give them chance to choose the day …to have their assessment…I rarely have issues with the students regarding giving them responsibilities. (T1)*

These findings are interesting to consider in the Omani context because they reveal interesting tendencies amongst students, viewing them as advocates for learning autonomy and PBL.

Promoting Flexible and Iterative Learning

The opportunity to learn through trial-and-error was believed to strengthen and enhance learning, enable critical and independent thinking, nurture perseverance, promote safe learning, promote knowledge-building, and encourage personalised approaches to learning.

> *I discovered trials teach the person, and errors do too. For me, I don't forget the simplest error I make, and next time I avoid it. Errors are the basis of experience. (S1)*

> *When the teacher is not the centre, but as a guide, directing and overseeing students' learning, this allows the student to learn more, discover oneself more as a learner, not only a recipient of information [but] he also researches on his/her own, he will achieve more in this area. (S7)*

Open-ended PBL was especially perceived to provide more room for students to try, refine, and improve their learning than could be afforded by conventional approaches.

> *Sometimes the student needs to try more than once, even students who have difficulties in, say, operating software, they need to try more than once to perfect them well. (S14)*

> *The good thing is that the learner acknowledges a knowledge gap, and therefore works to fill [it]. (S6)*

These findings corroborate the fact that the AMA environment enabled students to learn, revisit their learning, and expand their knowledge. The open-ended nature of AMA-based learning, coupled with a student-centric approach, seemed conducive to learning.

Promoting Active and Independent Learning

The AMA environment seemed to have encouraged a more active and autonomous route to learning. Students varied in this regard, some being more autonomous than others. Despite the novelty of the experience and the complexities of implementation, the findings suggest the AMA

environment encouraged learner responsibility. Students' self-regulation was improved as well because they were enabled to manage the process on their own, with minimal teacher direction.

> *This helps prepare students for the future… university students will cease to be students in the future, and so reducing teachers' role to that of facilitators helps them realise one day they won't have anyone to guide them. (S19)*

> *…I really appreciate the students where I could have, like, shortly instructed them what they're supposed to do, what are the learning outcomes from it, what is expected from them, and then gave them the freedom, and then they will come back with the ready product after two weeks or three weeks. I think I really appreciated students like that. Because I don't want students to be heavily dependent on me, I want them to find their own ways, I want them to find their own learning. (T2)*

This is not to say that learner autonomy was a result of minimal teacher facilitation. For one teacher, the AMA environment enabled the route to self-discovery:

> *[it] comes with independence, being quite independent, being given freedom. Maybe in the process, students will be able to discover what kind of learners they are. Because some of them don't even know what kind of learners they are. They, by not being limited by the teachers, …it's like a road to self-discovery. So, they can discover their own ways of doing things. I think it's really, really important. (T2)*

Additionally, results indicated the AMA atmosphere promoted interaction and collaborative learning because students exchanged ideas and learned from each other. One noted:

> *Creating such an environment helps significantly in the learning process because students have different abilities, knowledge varies from one student to another, the students learn from their peers, from their teacher, and the teacher from the student. Knowledge is shared. (S10)*

These examples substantiate the role the AMA environment played in supporting active and autonomous learning. This finding is significant because it highlights the educative nature of process-based learning and the ways it empowers a student-centric pedagogy.

Promoting Effective Learning

Just as the AMA environment principles were believed to promote autonomous learning, they were also believed to promote effective learning outcomes. Together with teacher facilitation, provision of a safe learning atmosphere, and PBL were found to enhance self-efficacy, creativity, and diverse learning outcomes.

> *…by not being limited by the teachers, it's like a road to self-discovery. So, they can discover their own ways of doing things. (T2)*

> *We discovered we were able to carry on [learning] without teachers' assistance. We learned how to research, how to overcome the obstacles we face at anything. (S2)*

The AMA environment promoted learner creativity because it provided more freedom, encouraged applying personal strategies, and encouraged the unique expression of self. This was both motivating for students to learn better and increase their confidence.

> *Giving them responsibility and having them accept that responsibility of doing that task, they looked at it at the beginning as a challenge. But then, in the end, they looked at it as an achievement. And I think those two words are important here. They challenged things, but they achieved something. (T1)*

> *…self-learning promotes motivation to learn more, beyond the module demands set by the teacher, but to consult alternative resources on your own, alternative software… that is, more opportunities, discovering options… (S11)*

> *… we are not only preparing them for exams or preparing them to get certificates. We prepare them for lifelong learning. And to do that, of course, we have to shift responsibilities. (T1)*

Overall, findings suggest the AMA environment promotes attention to learning, rather than instruction, which is significant for promoting enhanced learning, (e.g., memorable learning, widening knowledge, quality learning experience), motivational growth (e.g., enhancing motivation for learning, promoting a sense of achievement, increasing learning satisfaction), learner creativity (e.g., creative thinking), and learner capability (e.g., mastery learning).

Promoting Transferable Learning

One of the interesting implications for the AMA environment was its perceived transferability to immediate and future contexts. The findings revealed that nurturing autonomy, safe learning, and PBL helped students become independent, assume responsibility for their learning, and improve

their work. These elements were perceived as helping to prepare students for future employment.

> *… later the student will become self-responsible; in a similar scenario, similar experience, he/she will be more confident, more responsible… this experience will prepare him/her for potential challenges likely to be faced later in life. (S8)*

> *The student will later join the employment market and will have complete responsibility... so the student must be fully prepared to try these things. One must try, make mistakes, and learn from these mistakes to avoid them later. The idea is that students must be prepared in the university before joining employment. (S3)*

Students believed learning through projects was especially useful to their future learning because the knowledge and technical skills gained can be used in subsequent experiences both in formal and informal contexts.

> *For the podcasting, now I learned everything about it; this won't only benefit me in practical knowledge, but in business too. First, I developed knowledge of it, utilised it, and I can make money out of it. (S7)*

> *In my future teaching profession, I will try to transfer this experience to my students and help them become more independent, so they get to discover themselves. (S17)*

As evident from these instances, the AMA environment principles were perceived to offer a learning value beyond the classroom, which can extend to future employment.

Personal Challenges

The findings also indicated that the AMA environment can raise few challenges to those involved. A frequently recurring theme pertained to the challenges posed by the underpinning design principles. With reference to limiting teachers' roles to facilitators, the findings revealed few issues regarding students' readiness to assume learning on their own.

> *[independent learning] was problematic because of the readiness level that they have about independence. (T3)*

One student tied this to the need for strict teacher intervention and control, considering the difference in the students' readiness threshold for autonomous learning.

> *Students differ in this. There are those who find it difficult, so the teacher has to follow up with them step by step. (S2)*

This issue was not exclusive to students, however, because the environment was also perceived to also be problematic for teachers, especially considering the amount of effort it requires of them. When asked whether teachers are ready to assume the facilitation role, two noted:

> *…changes are not welcome to some, especially if it destroys the comfort that they're used to. So for example, I'm so used to lecturing, I can finish things through lecturing, I don't want to change that. (T3)*

> *There are teachers who are really, really afraid of letting go of that control over the class. (T2)*

Not all students were used to the learning atmosphere stipulated by open-ended PBL, which was perceived to be problematic as well.

> *It's challenging to the student, first because he/she hasn't gotten used to this type of learning environments. After sufficient experience and taking modules with a similar approach, the student will be more at ease, and will engage more productively, compared to being exposed to [it] for the first time. (S9)*

A teacher reported an extreme case where the SGP project was extremely problematic, which involved a student who suffered from hesitant speech (i.e., a stutter).

> *He has a problem, like he cannot really speak well… he can never pronounce any single word well. And for that particular student… that project was an issue. (T1)*

Pedagogical Challenges

Several pedagogical issues also emerged in findings concerning the design elements of the AMA environment. Open-ended learning and PBL were perceived to raise issues regarding teachers and students misunderstanding their roles, as well as issues of trust, considering the AMA environment invests in learning freedom, trial-and-error learning, and self-responsibility.

> *The other one is misunderstanding the role – having that misconception about what is my role as a student, and what is my role as a teacher. Shifting the responsibility itself will create some other issues about the trust of knowledge that students will receive about a particular topic. They always look at the teacher as the source of knowledge [that] they might not trust the information*

> *they receive from a colleague, from the internet, or from whatever. [This is] something I still feel in their class. (T1)*

This was corroborated by students, suggesting that the misunderstanding of teachers' roles could result in fuzzy responsibility boundaries and possibly abusive power by mistaking facilitation for dumping everything on students.

> *We had many teachers who misuse the concept of teacher facilitation and learner autonomy, or maybe because they misunderstand. They think that learner autonomy means they have no take in this, so their job is limited to giving you headlines. (S19)*

The AMA environment was also perceived to be problematic in larger classes.

> *It is difficult to follow up with each student if they were in large numbers. (S6)*

In reference to PBL, one teacher noted several problematic implications for the open-ended and PBL nature of learning to both teachers and students:

> *Project-based learning might have issues if rubrics and the assessment criteria were not set well… And this could be for both teachers and students. For teachers, of course, the monitoring itself is something they have to consider. So they have always to follow up with different groups and/or even individual works, which will require excellent effort from teachers. (T1)*

Infrastructural Challenges

Lacking the physical resources needed for AMA-based learning seemed to have reflected negatively on students' efforts and the time put into learning. The infrastructural readiness on campus was believed to be insufficient, which forced students to either use or buy their own gear. When asked about the disadvantages to the AMA environment, one teacher responded:

> *I think it comes from the limitations of the institution and the system itself. So we have large classes, small classrooms, the setting of the classroom is not appealing at all, it's not inviting at all - moving those desks or chairs to create groups takes time. Quite often you come to the lab, and there is no internet or half of the computers are not working. So it comes kind of with the infrastructure. So I think the institution itself would need to have a good system to introduce this kind of learning. (T2)*

This was also corroborated by findings from students.

> *Sometimes we experienced challenges, such as the lack of devices for all students, or the student working in a single device and then experiencing some technical issues. We hope they get updated or renewed. (S14)*

The fact the SGP projects were conducted outside the class seemed to have pushed students to transcend the infrastructural limitations and seek alternatives elsewhere.

> *We faced these problems, and yes we managed to overcome them, we had to create our private environment, by using alternatives...What I am saying is that the learning environment is an obstacle that can be overcome. (S19)*

While students managed to do achieve the goals with the resources available around them, they could have saved valuable learning time and improved the quality of learning had a proper physical environment been provided.

> *I feel the most significant factor is the environment created for learning, whether regarding peers, teachers, the tools we are going to use, even the psychological factors. Its significance for me lies in the fact that if the appropriate environment was created, learning effort will be saved, or the effort put into learning will not be wasted. (S19)*

Education System Challenges

The challenges posed by the education system were rather implicit, but their implications were highly relevant to how students perceive their roles and why they view AMA-based learning in a positive light. For instance, interviewees believed the way the educational system enculturates didactic instruction (e.g., rote learning, teaching for the test), teacher dependence (e.g., teacher-centric pedagogies, limited independent learning), and rigid curricula structures (e.g., prioritising content coverage over learning) had implications on how learners perceived their roles.

> *…they still behave like kids here. And this is what I don't really like, I mean, sometimes you don't feel like you're dealing with adults. (T2)*

> *From the very earliest stage as teachers in schools, if we are giving them enough exposure, to inculcate in our students independent learning, then probably at a college level it won't be as challenging. But probably they're just starting. And as I have told you, the textbooks, the way we are given the curriculum, it is so confining that we need to finish those instead of making them really learn; we need to cover content. (T3)*

Students also seemed aware of these shortcomings.

> *We are coming from schools, everything was made ready for us, everything, sometimes even exam questions are leaked, so everything was ready… that's it, you can't discuss this, you can't argue with the teacher. (S17)*

> *Some students are used to being dependent on others, so it would be difficult [for teachers] to deal with such students... [regarding] instructing them, allowing them to be responsible and self-confident… (S8)*

These findings are significant because students in HE are expected to possess certain abilities and aptitudes just because they have joined an HEI. However, considering their former biases could be helpful in understanding the implicit factors that influence their performance in AMA learning.

Sociocultural Challenges

Considering that the AMA environment engenders open-ended learning and PBL, findings suggest these may not work if they involve mixed-gender projects, which is a possible scenario in certain circumstances. The culture of gender segregation could also be manifest in female students refusing to be showcased in video products and even refusing to work with boys. Such cultural restrictions can influence AMA environments. While some students regard these reactions as individual preferences, others believed this was a result of sociocultural values and dispositions.

> *The cultural interference could mean some female students feel quite shy being the centre… They are of the type that is not willing to confront guys because the culture has forced them to act this way. (S7)*

> *This is a big issue… because we know, coming from an Islamic culture and environment, that gender plays a role; males are separate from females. (S10)*

The findings also revealed certain negative dispositions toward the trial-and-error approach to learning. When asked whether providing an environment that tolerates mistakes worked well with students, one teacher responded:

> *I don't know if it comes with the culture where they're so scared of making a mistake or failing… I can never understand why students are cheating here on the exams. (T2)*

Interestingly, these findings substantiate the hold of the culture of getting-it-right rather than failing and learning from mistakes, which could have negative implications should students approach AMA-based learning with the same mindset.

5.3.6 Data Analysis of The Two-Part Qualitative Data Validation: One-To-One Interviews and the Focus Group

Data from the two-part validation phase were analysed to validate the qualitative findings from interviews and reflective journals and to verify the conclusions derived from analysis, as represented by the thematic scheme, code system, and analytical framework. The findings are organised according to two main parts of validation.

The first part included one-to-one interviews with participants with the aim of verifying if the analysis made to their scripts (in terms of coding) and the interpretations of their views and opinions (as represented in the thematic analysis) were accurately captured and represented. Overall, the analysis revealed a consensus among participants regarding the accuracy of researcher analysis and interpretation based on the validation of their coded segments and the coding scheme, suggesting the researcher's account matches their views and opinions and what they intended to communicate.

> *Looking at the segments, I can tell that mostly you have captured the keywords that I have stressed in the interview we had, and I can see you almost have transcribed all that we have discussed, starting with the bio, my own previous experience with the multimedia authoring, talking about modelling. Also, you have stressed the importance of the provision of different case studies to students just to narrow their focus, and to let them better understand the circumstances in which they can employ such approaches of learning, like the implementation of the podcast as an example. Moving to that, I can also tell you have clearly highlighted our conversation in relation to exploring different tools, equipment, software, moving to talk about the challenges, the project-related challenges that students might face, and then talking about the steps of doing the whole project. (T1DV)*

> *…going through the code that the researcher did, I think that most coding does reflect my opinion or the things I meant to say. So for example, I have used the previous knowledge to do my project or to do the podcast. Here also for the challenge, there are challenges that [are] related to me, as based on a challenge. There are also challenges that [are] related to the technology or to the equipment that I used. There are also challenges that [are] related to the place, for example, there were some noises. There are other opinions regarding feedback, as I did ask my friends and my family, about what they think about what I did. So yeah. The researcher has reflected what I meant to say. (S1DV)*

> *I have gone through the analysis, and I think it matches all my ideas and words, and everything it's like what I say. And it is clear. (S2DV)*

> *I can conclude that I would definitely agree with all what you have stated here, and it does reflect my own opinion... I really need to congratulate you on the way how we structured it here. Very well organised, and it does reflect all my thoughts, experience, and opinions. (T1DV)*

Participants were then consulted about whether their views regarding AMA-based learning were persistent, or whether they wanted to add additional details they had not covered before (now that they had reviewed their scripts), or even modify their views. The findings revealed a few additional ideas that participants wanted to add, as outlined below.

> *So the idea of podcasts purely needs to be linked into the pedagogy and students need to see the presentation of it within the curriculum itself. (T1DV)*

> *…we always need to consider the intellectual property, so strategies on how [students] can ensure performing rights in recorded materials... copyright laws really need to be stated here and clearly highlighted to students right away from the very beginning so that when we use others' information, we know how to acknowledge them. I am certain that our students are really good at using the proper tools to acknowledge resources in the written format, but with audio and video format? I'm not really sure about this. (T1DV)*

In fact, the issue of copyright was actually addressed in the analysis in relation to 'teacher facilitation', particularly in the project delegation phase where task requirements and expectations had been communicated clearly to students. This is what T1DV later emphasised.

> *…the issue of copyright needs to be raised, and students' awareness needs to be raised at some point… The teacher is the one who should stress on this point at the very beginning, but then the follow-up stage will need to ensure that students are aware, and they try their best to maintain copyright. (T1DV)*

Another participant wanted to correct a piece of information she shared earlier, namely regarding the book club podcasts they created for extracurricular activities by elaborating on the range of topics they covered.

> *Just a very simple thing about what I said, or my opinions about Mirsaal experience, which is about novel experiences. No, it's not about just a book that we read, it's also about a problem, or approach to a problem we can*

> *criticise, or we can talk about. So yes, the podcasts we did here [were] not all the time about a book that we have read before. It is more than this. (S2DV)*

However, it seems S2DV mistakenly took the word 'novel' in the theme 'transferability to novel experiences' to mean focusing on novels, which promoted the elaboration on the range of themes the book club podcasts covered.

The third participant modified her view regarding expanding AMA-based learning to other modules in the programme, to which she objected, saying it would be hard for students.

> *I really still hold the same, or similar views, except for one opinion, which is that we should allow doing podcasts or similar practical projects for other [modules]. In the interview, I said that it should not be done in the rest of the courses because it'll be hard for the students. But nowadays, no! I think they should do it for other courses to allow students to go through this experience, allow them to adapt to it. …instead, for example, putting the project as homework, maybe I can give students time during the lesson, or during the lecture, to do their work. So, that will allow them time to practice, to search, or to explore the programmes, and to do their work if, for example, at home or at college they have other works to do. So that's from my point of view. (S1DV)*

The second part of the validation phase included a follow-up focus-group discussion, in which participants worked together to review and discuss the themes, sub-themes, and codes, starting with the six enabling factors of AMA-based learning and their subsumed categories, and then the six key challenges surrounding AMA-based learning and their subsumed categories. This helped validate and reinforce the researcher's analysis and interpretations of data as conceptualised in the thematic scheme.

> *So basically, looking at the enablers "creating the conditions for learning", that's what you like, ignited, which include the conductive to learning bits in your teacher learning rules course. The "compatibility of the curriculum and pedagogy, the assessment", it will all come to that; the" infrastructural readiness", "Safe learning atmosphere", I would also definitely. "Errors are not punished", "Making mistakes is part of learning". Definitely. The "emotional intellectual support". And then we have the "supporting documents". (T1DV)*

> *I would really start looking at the personal challenges. Probably S2FG and S1FG might like, contribute as well. Okay. So you have "heavy task demands"; "time-consuming"? I think one reason for the time-consuming because it was new… I*

> *have probably received many requests, or students are different, like phases requesting additional time to submit the task. Then "mastering the software". Apparently, I mean, at least at the level of my sections, we only refer to some free websites like Audacity and other ones, which were not very challenging. They were challenging, but not really very challenging to students. This is what I noticed recently. "Causes pressure for learners". Yes. One reason for that is because it was a bit new experience for them. In my case, at least, requires lengthy exposure of course, yes, "step by step", definitely. And "follow up from teacher". "Overwhelming at earlier stages", Yes, because there was a much like to acquire at the very beginning, considering the technical stuff and the knowledge about podcast itself and linking it to pedagogy. (T1DV)*

Upon validating how findings were hierarchically conceptualised, this is what one participant said:

> *I totally agree with it. And I think it is clear and organised. So to me, I don't know. I can't add anything. It is very clear and organised. (S2DV)*

When asked how they would do the analysis differently, one participant had this to say:

> *I can see that you have structured this way, like pedagogical challenges, technical challenges, and then... Yeah, I would definitely agree with that. I mean, the way how it is structured really stimulates different ideas in the right place. But really, it might differ according to the purpose of why we are doing the analysis in the first place. (T1DV)*

When challenged as to whether the researcher's account (in terms of codes, themes, thematic categories, thematic framework) was believed to be fair, two participants noted:

> *I think yes. I don't know. I can't find a reason to say it's not fair. (S2DV)*

> *Yes, I think that is well organised and well detailed. I cannot add anything. (S1DV)*

Another proposed to analyse students and teachers' outcomes separately, given they are the main units of analysis:

> *I think the mind map in general, if I were the researcher, I will make it instead of inhibitor and enabler, I will make them according to teacher and students because I think teachers and students are the basic [units], and then the challenge and the things that come under them. So, for example, the challenge*

> *parts or other things, I can put them under students, and I can put them also under the teacher. So that's what I think. (S1DV)*

The third participant took a middle position.

> *Personally, I think it can be what S1DV said, but what you did, I think, is more suitable because it is more general. And after that, we can categorise everything under it. (S2DV)*

T1DV seemed, eventually, to also draw to this opinion.

> *For me, I would keep I would rather keep it this way. I would like the way how it is structured and the way how and the information that it reflected it. Like I can tell that mostly it shows things from a teacher's point of view, particularly the areas related to pedagogy. (T1DV)*

The above findings summarise the key validation procedures and outcomes of the research conclusions by the research participants, which served as a form of member-checking and helped increase confidence in findings and enhance their trustworthiness.

5.4 Methodological Triangulation: Converging Quantitative and Qualitative Findings

Both quantitative and qualitative findings were significant and helped answer the research questions. While quantitative and qualitative findings used different conceptual schemes, the former was informed by classifications in the empirical and theoretical literature, while the latter was informed by inductive-deductive themes emerging from the data. The findings revealed that these classifications greatly overlap, as mapped out in Table 5.4. All the questionnaire items (n=55) were found to align with the six overarching themes (i.e., 'creating the conditions for learning', 'relevant learning', 'flexible & iterative learning', 'active & independent learning', 'effective learning', and 'transferable learning'). Some questionnaire items were also found to fit under multiple themes.

The quantitative data did not overtly address AMA challenges but used a five-point Likert scale to denote disagreements. However, it was the qualitative findings that were majorly insightful in this respect in that they addressed broader areas than could be accounted for by the quantitative data (indicated by greyed cells), and therefore rendered more comprehensive coverage.

Table 5.4. Mapping the Overlap between Qualitative Themes and Quantitative Items

Qualitative themes denoting enabling factors		Questionnaire items
Themes	**Sub-themes**	
1. CREATING THE CONDITIONS FOR LEARNING	1.1 Aligning curricula/pedagogy/assessment	
	1.2 Promoting physical environment	
	1.3 Promoting safe learning atmosphere	Items 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4
	1.4 Providing supporting docs	Item 3.1.1
	1.5 Teacher facilitation	items 3.1.1, 3.1.2, 3.1.3, 3.1.4
	1.6 Promoting incentives	
2. PROMOTING RELEVANT LEARNING	2.1 With personal preferences/styles/interests	Items 2.3.1, 2.4.1
	2.2 With HE pedagogy& practice	
	2.3 With authentic/real-life/sociocultural context	Item 2.4.1
3. PROMOTING FLEXIBLE & ITERATIVE LEARNING	3.1 Promoting process learning through trial & error	Items 3.2.3, 3.3.3
	3.2 Promoting discovery learning	Items 2.3.5, 3.3.1, 3.3.2
	3.3 Promoting problem-solving	Item 1.1.4
	3.4 Promoting critical thinking	Item 1.1.3
	3.5 Promoting flexible & personalised approaches/strategies to learning	Items 2.3.4, 3.3.4
	3.6 Promoting knowledge building	Items 1.5.3, 2.2.1, 2.4.4
4. PROMOTING ACTIVE & INDEPENDENT LEARNING	4.1 Promoting accountability	Item 2.3.8
	4.2 Self-direction/instruction	Items 2.1.4, 2.3.3
	4.3 Self-regulation	Items 1.2.1, 1.2.2, 1.2.3, 2.1.1, 2.1.4, 2.2.3, 2.3.6, 2.4.5, 2.4.7
	4.4 Self-reflection	Items 1.3.1, 1.3.2, 1.3.3, 2.1.2, 2.1.3, 2.2.3, 2.4.5, 3.3.3
	4.5 Promoting interaction & collaboration inquiry	Items 1.6.1, 1.6.2, 1.6.3, 2.3.7, 2.4.4
5. PROMOTING EFFECTIVE LEARNING	5.1 Promoting self-awareness	Items 1.1.2, 2.3.2
	5.2 Promoting enhanced learning outcomes	Items 1.1.1, 2.2.2, 2.4.2, 3.3.2
	5.3 Promoting praxis	Items 1.5.1, 1.5.2
	5.4 Promoting motivational/emotional growth	Items 1.4.1, 1.4.2, 1.4.3, 2.2.4, 2.4.7
	5.5 Enhances creativity	Items 1.1.5, 2.2.1, 2.4.3, 2.4.5
	5.6 Builds learner capability	Item 2.4.6
	5.7 Promoting diverse outcomes	
	5.8 Nurturing individuality	
	5.9 Enhancing efficiency	
	5.10 Improving achievement	
6. PROMOTING TRANSFERABLE LEARNING	6.1 To novel & future learning experiences	
	6.2 To wider contexts	
	6.3 To future employment	

Overall, qualitative findings generated 12 overarching themes, six denoting enablers of AMA-based learning and six denoting perceived challenges and suggestions to overcome them (in Figure 5.2). A key finding was these themes held across the qualitative findings for the five

research questions, but to varying degrees. While all the 12 overarching themes emerged in the analysis of findings for the second and third research questions, they were less consistent in the findings of the first research questions, and its two sub-questions 1.1, and 1.2, where only a few themes occurred. This is because the first question and its two sub-questions were based specifically on engagement in AMA production, while the second and third questions were general in scope. Overall, this suggests the thematic scheme is consistent for the analysis of AMA-based learning, which reflected positively in the consistency of the interpretation of findings.

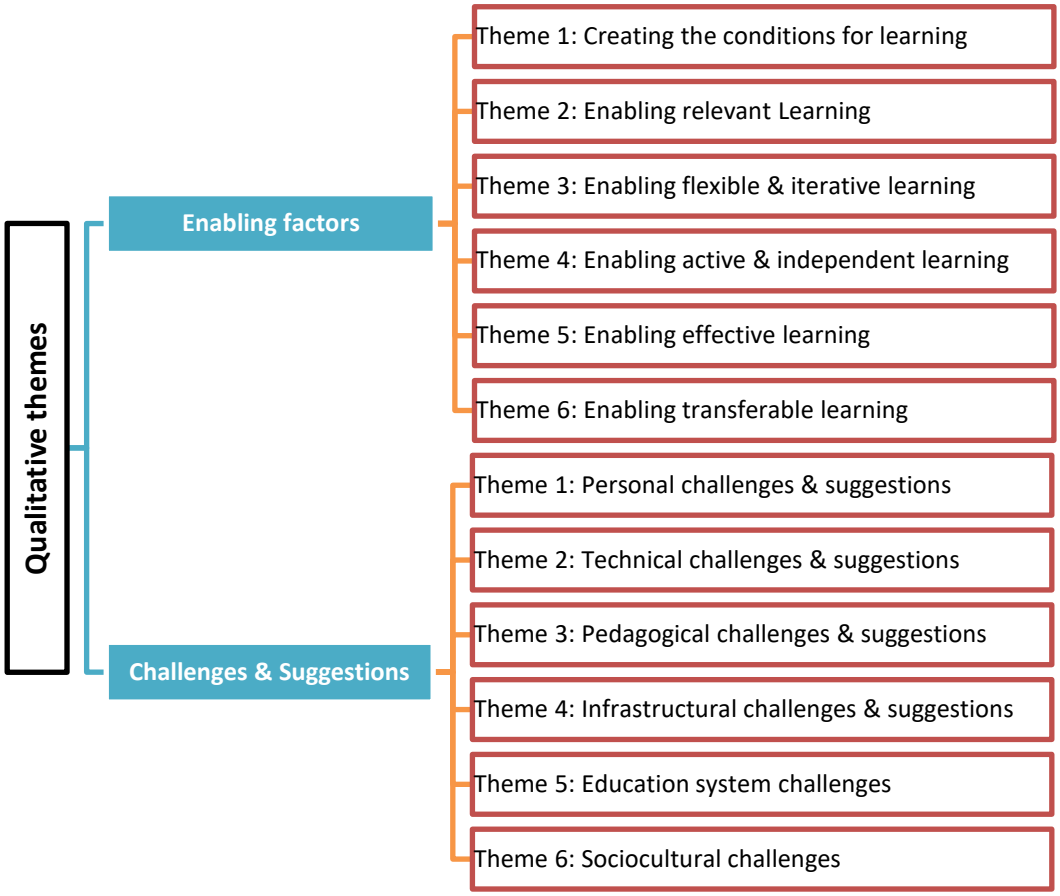


Figure 5.2. Overarching Qualitative Themes

5.5 Chapter Summary

Both quantitative and qualitative methods were used to answer the research questions to fulfil the aims and objectives of this thesis. Findings from numerical data confirmed findings from the conceptual and empirical literature in that SGP yielded significant positive results from this context of investigation in relation to the (a) AMA engagement dimensions, (b) the pedagogical principles of AMA-based learning, and (c) the design principles of AMA environment. The qualitative methods, by contrast, sought to provide an in-depth understanding of AMA-based learning through extensive semi-structured interviews, student reflections, and a two-part data

validation phase. The deductive-inductive data analysis approach led to the emergence of twelve major themes: Six outlining the enabling factors, while the other six outlining the challenges of AMA-based learning and suggestions to overcome them. These twelve themes jointly help define and conceptualise an emergent model for AMA-based learning derived from the case of SGP. This is further explicated in the next chapter.

Chapter 6 Discussion of Findings

6.1 Introduction

The overall aim of this research study was to explore AMA-based learning as a pedagogical approach in the context of IELTE in Oman in relation to three core areas: AMA engagement, AMA pedagogy, and the AMA learning environment. A major motivation for this research was to understand the implications of AMA-based learning in this context and, therefore, fill gaps in research regarding AMA-based learning engagement, pedagogy, and environment in the context of IELTE in Oman. A second motivation was to provide an operationalised model for AMA-based learning from the perspective of Papertian constructionism considering research gaps in this area of inquiry. Most significantly, this study was motivated to fill a gap in orienting frameworks for AMA-based learning, ones which are contextually relevant and suitable for uptake in HE pedagogy in Oman.

This chapter aims to interpret and discuss these aims in the light of the study's findings. It starts with comparing and contrasting quantitative and qualitative datasets (section 6.2), followed by a detailed discussion of the themes emerging from the findings, which continuously interacts with data, theory, and research (section 6.3). This is then used as a basis for revisiting the conceptual framework and proposing an AMA-based learning model grounded in the study's findings (section 6.4).

6.2 Comparing and Contrasting Quantitative and Qualitative Findings

As outlined in the previous chapter, both the quantitative and qualitative findings were both helpful in answering the research questions, but to varying degrees. The quantitative data covered 13 major themes, collapsed under three overarching themes of 'AMA engagement', 'AMA pedagogy', and 'AMA environment'. By contrast, the qualitative data analysis showed the emergence of around 33 sub-themes denoting AMA-based learning enablers, collapsed into six overarching themes: 'creating the conditions for learning', 'enabling relevant learning', 'enabling flexible & iterative learning', 'enabling active & independent learning', 'enabling effective learning', and 'enabling transferable learning', in addition to 26 sub-themes denoting challenges and suggestions, also collapsed into six overarching themes: 'personal challenges', 'technical

challenges, ‘pedagogical challenges’, ‘infrastructural challenges’, ‘education system challenges’, and ‘sociocultural challenges’.

Overall, the findings of qualitative analysis provided deeper insight into AMA processes, design factors, and contextual influences since they drew from the actual experiences of the study’s participants and the different conditions that surrounded AMA implementation and outcomes. These aspects were also useful to the researcher and helped broaden the initial theoretical premise the study was based on, that is, the conceptual framework. This is because they encapsulated both explicit and implicit factors relevant to the understanding of AMA-based learning in the Omani context and generated deeper insight compared to the quantitative data.

Qualitative findings from academics and students both provided insight into the different areas of inquiry. While both accounts were complementary, their depth varied, proving each perspective was unique and therefore essential to understanding the various implications of AMA-based learning as experienced and perceived by each perspective. This is further substantiated below.

6.2.1 Findings from the Academics’ Data

Findings from the academics’ data provided better insight into facilitating and overseeing the implementation of AMA-based learning. Regarding quantitative findings, there were few instances where academics’ data were less positive in comparison to students’ data, such as in relation to metacognitive engagement (item 1.2.2) and reflective engagement (items 1.3.2, 1.3.3). This is partly because the academics had access to both learner performance and the final outcomes, and could therefore compare between the two. Where students were more positive they engaged metacognitively and reflected on their work, but the academics were less inclined to agree since the final outcomes were still dominated by errors, some of which could have been easily rectified had students invested more time and conscious effort. Qualitative data sheds better light on this.

In the majority of cases, however, the findings from the academics’ data were more positive in comparison to students’ data, such as in relation to affective engagement (items 1.4.1, 1.4.2) and social engagement (items 1.6.1, 1.6.2, 1.6.3). Qualitative findings were more informative regarding this, showing the academics’ emphasis on the positive role played by affective engagement, such as the excitement for the AMA approach and the sense of pride and accomplishment it injected (T.2, T.3). As to social engagement, it seems the academics based this on their observation of class performance throughout the project-initiation phase, where

students collaborated on analysing examples and cases and discussed different aspects of AMA. It is also possible that the students viewed this in association with the AMA experiences, which were individual projects.

Furthermore, the academics were more positive regarding the ways learning-by-doing facilitated active learning engagement and reflection about learning (items 2.1.1, 2.1.2). Since this approach is less studied in this context, it is possible that some students struggled with it, especially considering the different technical challenges they faced. For some, however, there was evidence of deep engagement and reflection, which the qualitative findings revealed, noting this was a preferred learning style compared to conventional lecturing. Academics were also more positive about the ways the construction of artefacts fostered productive learning and deeper understanding (items 2.2.1, 2.2.2). It is not clear from the data if reference to productive learning was understood as intended. The qualitative data seem to also corroborate this, showing an enthusiastic agreement that students became more knowledgeable about their topics. Additionally, academics were more positive that student-centred learning fostered personal learning, applying thinking styles, and discovery learning (items 2.3.1, 2.3.4, 2.3.5). One teacher (T.3) was more definite in this regard, noting that previous experience showed students met these objectives. Another teacher (T.2), however, was less confident about this, basing her own judgement mainly on the poor quality of final outcomes, and yet she acknowledged the lack of time as an inhibiting factor for realising these objectives. Evidence also shows the academics to be more positive than students about ICTs inciting creativity, knowledge construction, and active and reflective learning (items 2.4.3, 2.4.4, 2.4.5). While the qualitative findings revealed that students were more enthusiastic about the constructive role of ICTs, it is possible that students' views were more divergent owing to their differences in ICT acceptance.

The academics' views were also more positive regarding their role in facilitating learning, enabling self-learning, encouraging self-responsibility, and enabling collaborative inquiry (items 3.1.1, 3.1.2, 3.1.3, 3.2.4). It seems students were less inclined to accept this role, noting that teacher reliance was part of how they have been enculturated. Findings from the qualitative data corroborate this, suggesting broader issues contributing to less learner-centric and more teacher-centric pedagogies. These were not limited to the present context, but to the broader educational and sociocultural expectations relevant to Oman. Furthermore, evidence suggests the academics were more positive about the ways the AMA atmosphere facilitates student-centric learning (item 3.2.1), believing students will gradually develop the habits of self-direction, self-reliance, and accountability (T.1). There was also a more positive view among academics regarding the ways

PBL encourages the creation of connections among knowledge and deeper engagement in learning (items 3.3.2, 3.3.3). It seems teachers were at a better place to determine how this works given the elaborate and interdependent steps involved in this approach.

As to qualitative findings, the academics were more informative regarding several pedagogical considerations concerning AMA-based learning implementation, particularly concerning the alignment with constructivist philosophies, adapting curricula and assessment, and readiness to adopt the AMA approach. Their views were grounded in current practice and reflect thoughtful insight as to how AMA-based learning could stretch the learning paradigm in the current context, while simultaneously posing challenges to the current provision schemes. The academics' views were thorough with regard to the different phases of facilitation and intervention in the initiation, direction, and evaluation phases. At the initiation phase, for instance, the role of the academics was noticeable in providing the necessary lead for students and detailing the learning procedures, such as providing background revision (e.g., literature, case studies), modelling (e.g., workshops, collaborative groupwork), and delegating the project (e.g., requirements, rubrics). The direction phase included various forms of support (e.g., stimulation, validation, approval), follow up, and assistance. The final phase included evaluating learner performance, overall experience, and goal achievement. It was interesting to find that teachers were willing to provide additional chances for students to improve their work, which was valued for encouraging quality outcomes.

Findings from the academics' data were also useful for acknowledging the reform perspectives grounded in the limitations of current pedagogies. These views were especially informed by their experience in Omani HE. One teacher (T.3) acknowledged the need to adopt a nonconformist agenda to be able to facilitate more successful AMA-based learning, for which the current system is not well-equipped, nor is it ready for large scale implantation. Another teacher (T.2) acknowledged the need for teachers to encourage and be accepting of learner voice, such as welcoming their ideas and suggestions and accommodating them. The third teacher (T.1) proposed introducing newer forms of assessment, such as observation and documentation, but these, T.1 argued, require a policy-level change to achieve congruence and sustainability.

6.2.2 Findings from the Students' Data

Findings from the students' data were more enlightening in relation to AMA experiences, especially when they took place beyond the classroom. Quantitative findings revealed overly positive views regarding AMA engagement, pedagogy, and environment design principles. Regarding AMA engagement, students were more positive that AMA enhances metacognitive

engagement compared to the academics (item 1.2.2). It is not clear why the academics were less inclined to think this was the case, but one teacher (T.2) justified it in relation to some outcomes lacking depth. This teacher was especially critical of how some students seemed to be unconcerned about submitting quality work, noting they just wanted it out of the way. Furthermore, while students believed AMA facilitated learning from mistakes (item 1.3.3), teachers were less inclined to agree with this. They acknowledged the final submissions had many language errors. One teacher (T.1), however, was of the opinion students did well within their linguistic competence and they developed error-noticing even when they failed to rectify these errors. Additionally, while academics were positive that AMA enhanced social engagement, students were less confident that it did so (items 1.6.1., 1.6.2., 1.6.3). This discrepancy was interesting because it reflects a discrepancy in reference, that is, the academics were referring to social engagement prior to AMA production, while the students were referring to the actual production process which was individual-based.

Another discrepancy was found in reference to learning-by-doing (item 2.1.1). The students are believed to have misinterpreted the reference to 'learning through senses' as denoting behavioural engagement. The academics' views were more positive in this regard since they were clear about the reference. Furthermore, the students were less positive that artefact construction promoted productive learning and deeper understanding (items 2.2.1, 2.2.2). In fact, the qualitative data were highly enthusiastic in comparison. Concerning student-centred learning, the students' data showed less conviction, in comparison to the academics, that it encouraged relevant learning, applying thinking and learning styles, and active engagement in discovery learning (items 2.3.1, 2.3.4, 2.3.5). While the qualitative findings were extremely positive in this regard, it is possible that variance in learner experiences, degrees of familiarity with the approach, preference for this style, learner-competency levels, and task iteration were responsible for such discrepancies in their views.

There is also a discrepancy in relation to AMA engagement, with findings suggesting that students were less inclined to favour teacher facilitation (items 3.1.1, 3.1.2, 3.1.3, 3.1.4). While academics acknowledged the significance of enabling student-centric learning, knowledge construction, learning ownership and accountability, and collaborative inquiry, students were less upfront about this, suggesting that they demanded more structure, follow-up, and validation. These demands were attributed to the influence of teacher-dependence and top-down cultures, suggesting that they were ill-prepared for the AMA approach and lacked confidence to do things their own way. This of course contrasts with the qualitative findings, which showed enthusiastic

advocacy for enabling learner-centric approaches and strategies to sustain self and lifelong learning. Concerning the learning atmosphere, the findings from the students' data were less positive that it encouraged student-centred learning, with a mean difference of a little over one (item 3.2.1). This contradicts the qualitative findings, which were unanimous that the AMA atmosphere did in fact encourage student-centred learning. The fact that AMA projects were conducted beyond the classroom contributed to this discrepancy in opinion. It seems that students felt the atmosphere factor was lacking, and therefore it is possible they could not see how it materialised in relation to their experiences. Finally, students' views were less positive regarding PBL enabling the formation of connections among knowledge and encouraging reflective learning (items 3.3.2, 3.3.3). This is possibly owing to the nature of AMA as a project-based approach, which is largely undermined in the IELTE programme apart from on the EduTech module. Projects often take the form of written assignments. While the qualitative findings revealed excitement for AMA projects, students were generally less exposed to them and seemed to lack sufficient experience and knowledge of their implications for their own learning.

While the quantitative findings from student data were generally positive, the qualitative findings were more critical, and many findings seemed to contrast with those revealed by the quantitative data. This criticality revealed significant accounts concerning participants' experiences and perceptions of AMA in relation to this context, and the broad and implicit influences on the implementation of AMA-based learning, which could not be apparent from other viewpoints. One such contribution concerns the ways AMA factored broad aspects of learner engagement in the task, inclusive of the planning, self-management, and self-regulation procedures which influenced students' successful progression in AMA projects. Analysis revealed diverse accounts regarding how students approached AMA projects, indicating that personal choice and learning preferences played a big role in how they steered the whole experience. This, however, factored differently in the overall experience, that is, some students believed this approach was motivating and complemented their agentic style, while few found it worrisome and demanding, citing their learning history, the novelty of the approach, and teacher dependency as contributing to this conclusion.

Another significant contribution concerns understanding the different implications of the AMA learning process and the broad range of outcomes it promoted. Students' findings were more enlightening in this regard and contributed to a better understanding regarding how AMA could address various competencies, skills, and forms of knowledge. They were especially helpful when discrepancies arose, such as when teachers (T.2) believed students expended minimal effort and

submitted poor quality work. Findings from the students proved the opposite, showing the AMA-production phases involved lengthy iterations and extensive efforts, but fell short due to technical difficulties and time-limitations. There was evidence that some students surpassed task expectations, indicating they cared greatly about the quality of their outcomes, even at times at the expense of other modules. One such case involved interviewing an expert from the United States, and with the time difference, the interview was recorded individually and then edited in the form of an interview. In such a case, the teacher had no access to, or awareness of, the lengthy efforts entailed in achieving such an outcome. Most teachers based their evaluation mainly on the final outcomes, as well as from anecdotal evidence from consultation and the assistance sought by students. The students' data seemed to bridge this gap in teachers' knowledge and beliefs concerning the actual efforts exerted on task. It also lent a critical insight into the competency-related struggles students faced and suggested ways to address them.

In addition to the above, findings from students' data provided a realistic account of the different challenges surrounding AMA planning and implementation. While the academics managed some pre-emptive measures, the findings revealed far greater influences than the academics could account for. These were especially relevant to learner readiness and preferences (S.5, S.6, S.8, S.9, S.10, S.11, S.12, S.14, S.18, S.19, S1G1RJ, S11G1RJ, S12G1RJ, S21G2RJ), attitudes towards the AMA approach (S.5, S.6, S.7, S.9, S.10, S.13, S.14, S.15, S.17, S.18, S10G1RJ, S21G2RJ, S27G2RJ), unexpected task demands (S.5, S6G1RJ, S10G1RJ, S19G1RJ), institutional and infrastructural readiness (S.4, S.8, S.14, S.15, S.19, S15G2RJ, S24G2RJ), influence of conventional pedagogical schemes (S.3, S.4, S.6, S.8, S.9, S.10, S.11, S.13, S.17, S.19), teachers' readiness and skills (S.3, S.18, S5G1RJ, S13G1RJ, S20G1RJ), the role of social support (S.8), external pressures from other modules (S.4, S.6, S.16, S.17), among other things. Some of these challenges were directly responsible for students' successful progression in the task, while others were implicit. Some interesting criticality was revealed in the findings in relation to how PBL provided a better measure of effort compared to testing (S.4, S.7, S.14). It was clear how the AMA experiences fuelled students' optimism about widening PBL and adopting it in place of traditional testing. It was interesting to see how AMA-based learning injected a sense of criticality in how students appraised the different pedagogical approaches which helped them realise PBL's broad range of benefits in comparison to conventional approaches. This criticality was in fact extended to the whole education system (S.4, S.5), suggesting it has contributed to enculturating them to specific ways of knowing and disregarded their preferences. These examples suggest significant implications for the planning and design of AMA-based learning in the Omani context, with

attention to policy enacting (as represented by viewpoints of academics) and policy experiencing (as represented by students).

6.2.3 Few Broad Conclusions

A few key conclusions could be drawn about both quantitative and qualitative findings. Firstly, the quantitative findings seemed to be generally consistent with findings in the relevant literature and, therefore, they confirm the positive outcomes of AMA-based learning in the areas they measured. These findings indicate a positive tendency among IELTE students and academics' perspectives and views regarding AMA engagement, pedagogy, and environment design principles. This is reflected in relatively high mean values, which were close in range. Table 6.1 illustrates the computed mean values for the different variables and their respective categories as generated by SPSS.

Table 6.1. Computed Variable Means.

Quantitative areas	Quantitative themes	Mean value per sub-theme	Mean value per area	Mean value for whole instrument
AMA engagement	Cognitive	4.0857	4.1492	4.0982
	Metacognitive	4.1964		
	Reflective	4.0893		
	Affective	4.1250		
	Behavioural	4.4940		
	Social	3.9048		
AMA pedagogy	Learning by doing	4.0500	4.1245	
	Artefact construction	4.1205		
	Student-centred learning	3.9523		
	ICT-mediated learning	4.3673		
AMA environment	Teacher facilitation	3.8616	3.9985	
	Atmosphere	3.9687		
	PBL	4.1652		

Secondly, while quantitative findings were helpful in confirming and/or rejecting specific aspects in relation to AMA engagement, pedagogy, and environment design principles, it was the qualitative findings that were most helpful in outlining the implications of the different phases of AMA production and the roles played by students and academics in typical AMA experiences. While this contextualisation is essential over theoretical claims and assumptions, it also provides a

better appreciation of AMA-based learning in terms of the conditions surrounding implementation, potential challenges, and contextual factors that have a direct and/or indirect bearing on the experience. Indirect influences were most interesting in the findings, and they included aspects concerning creating the conditions for learning (e.g., alignment between pedagogy and assessment demands, incentive systems), the negative influences of the Omani education system (e.g., enculturating didactics, existing biases toward teacher-centric strategies), and several implicit contextual influences (e.g., cultural barriers, lack of community support). Their significance lies in how they provide a contextualised view of AMA-based learning relevant to the Omani context. This is especially of interest to policy makers, middle managers, curriculum designers, and educators as they provide them with a better understanding of the implicit influences likely to facilitate or hamper any AMA-based learning design and implementation efforts in Omani HE.

Thirdly, it was qualitative findings that were mainly helpful in identifying challenges and issues with AMA-based learning, many of which were relevant and significant for this context. Most quantitative findings generated positive tendencies, with considerably fewer cases of disagreements with areas propounded by the literature (see Appendix L for examples). However, the qualitative findings revealed highly relevant and more comprehensive challenges to AMA-based learning compared to those found in the reviewed literature, which makes them quite significant considering the gaps in local research and practice. This gives the study's findings significance in contributing a solid understanding and appreciation of the different factors and influences relevant to AMA-based learning planning, design, and implementation.

These were the main areas of significance in reconciling quantitative and qualitative findings, and they complement this study and contribute to answering the different research questions.

6.3 AMA-Based Learning in Relation to Findings: Addressing Emerging Themes

This part discusses the study findings based on a synthesis of the twelve themes emerging from the qualitative data, which established the analytical framework developed for data analysis and discussion. This discussion contextualises the different implications of the twelve major themes and situates them within both the quantitative and qualitative findings, the relevant research literature, and theory. These themes allow for a comprehensive interpretation of the enabling factors and challenges central to AMA-based learning in the context of investigation. Overall, they

help to answer the major research question driving this investigation: **How do students and academics evaluate authoring multimedia artefacts (AMA) as an approach to learning in the context of IELTE in Oman?**

6.3.1 Theme 1: Creating the Conditions for Learning

The theme 'Creating the conditions for learning' outlines important considerations for successful facilitation of AMA-based learning and the design principles that underpin it, taking into consideration contextual realities and imperatives. The theme was recurrent across the qualitative findings, particularly concerning AMA pedagogy and environment design principles, which suggests its significance as an overarching theme for the successful design and implementation of this approach. Remarkably, the theme seems perfectly in line with Papert's prescriptions of constructionist learning. The work of Papert (especially Harel & Papert 1990; Papert, 1971, 1980, 1987, 1999; Stager, 2001, 2005, 2013) devotes considerable attention to outlining the conditions needed to enable productive constructionist learning. Papert's driving philosophy, coupled with his progressive education views provide significant attributions of the key enabling factors that help nurture and sustain productive learning, which include, inter alia, the provision of authentic tools, free interaction and exploration, and intellectual and emotional support.

Where the alignment considerations are concerned, findings suggest the need to rethink educational practice and introduce pedagogical and assessment methods compatible with this approach, including minimising teacher-centric practices, transcending didactics, using alternative assessment (e.g., exhibition, observation, documentation), and ensuring consistency in practice across the programme. These areas are equally emphasised in the theory of constructionism. Papert's approach has aimed to repurpose everything around creating an environment conducive to productive learning, and his work on the CLL provides an example for the creation of productive learning environments for constructionist learning (see Papert, 1980, 1987, 1999; Stager, 2001, 2005, 2013). According to this study's findings, these considerations must be prioritised for the successful facilitation of student-centric learning.

Creating a suitable physical environment is emphasised both in the study findings and the relevant literature. For Papert, interacting with the physical affordances of the social environment (e.g., in terms of tools, artefacts, objects) is significant and a precursor for engagement and meaning-making, and the poor supply of such physical affordances could inhibit meaning-making (Papert, 1980). Free interaction and experimentation with tools align with the constructionist

agenda, which prioritises concrete learning and tinkering (Ackermann, 2001; Papert, 1993). The findings, however, suggest that the learning environment in this setting was not fully optimised for AMA-based learning, and this was reflected in either technology avoidance or a minimal use of technology. It was interesting, however, to find that most students resorted to using their own devices and gear. This coping mechanism suggests that students contributed to the success of AMA-based learning because of their access to personal gadgets, which helped them fulfil the basic requirements of the task. Even so, the findings suggest a better infrastructural and technological setup (e.g., a recording studio, quality headphones) is needed to improve the quality of AMA learning and productions. Providing quality equipment and production gear would have benefited the students and helped immerse them in a more authentic experience. It would not only inject a sense of professionalism, but it would have also minimised unnecessary disruptions and the submission of poor quality outcomes.

Creating an emotionally and intellectually-supportive and safe learning atmosphere to help students proceed confidently through their learning was another significant finding. The findings indicated that the AMA projects enabled a trial-and-error approach to learning where students were encouraged to try out different strategies, learn from mistakes, experiment and explore on their own, consult online sources, and apply their own choices and preferences. These approaches seemed to help reduce their anxiety and increase their confidence and motivation. These measures are likewise consistent with the thinking of Papert (1980) who advocated the need to enable students in constructing their own knowledge structures with minimal teacher intervention, where the impetus for intervention should be decided by the requirements of the task (e.g., when they go off task) or by the needs to plant constructive elements in the inquiry (e.g., giving suggestions, providing tips to maximise rigour). These also align with the experiential learning principles of Itin (1999) and Knowles (1980), whose propositions emphasise the necessity of ensuring learners' physical and emotional safety.

The findings also revealed that teachers' facilitation was fundamental for preparing students for this undertaking and expanding the potential of their learning outcomes. Lack of prior AMA experience created a sense of loss and frustration for many students at different points throughout the experience, and this is consistent with findings by Dale and Povey (2009). This is where intellectual and emotional support, follow-up, and assistance became most useful, as the findings suggest. It seemed that teacher training and self-learning with YouTube tutorials were essential in the initial phases. Naqvi (2015) similarly acknowledges the significance of providing expert training in AMA production. The findings suggest that, while the teachers initially played a

limited role (e.g., introducing, training, modelling, and explaining project requirements), they played a significant role in providing assistance, encouragement, and approval when required. The findings also revealed instances where students sought validation concerning their progress. Some consulted their teachers after each major phase to ensure they were on track and to avoid doing irrelevant work. A few demanded stricter teacher monitoring because they were not used to such flexibility, and so felt less confident to take risks. In fact, the unfolding of the AMA experience seems consistent with Papert's convictions regarding teacher intervention. Papert does not dismiss teacher intervention because he considers it necessary to support students in building their intellectual structures, providing validation and encouragement (Papert, 1980), helping in unobtrusive ways (Harel & Papert, 1990), and helping students overcome their fear of learning and negative self-image (Papert, 1980). The literature also reiterates the need to enable interaction, collaboration, and negotiation among students (Stager, 2001, 2005, 2013), as well as to encourage self-management, self-direction, and self-responsibility for learning (Kafai, 2005).

A very interesting finding pertained to the role of incentives or incentive systems. None of the literature reviewed touched on this point nor addressed its role as an enabling factor. Kudos (a software for points accumulation) seemed to be not only a genuine approach but also a strongly acclaimed addition. Students talked about the excitement generated by this idea and spoke fondly of the competitiveness it injected for doing quality or additional work, which can eventually be reimbursed for marks or transferred to other students. Considering Kudos worked so effectively in this context, it is safe to claim that incentive systems can enhance students' enthusiasm, motivation, and competitiveness in constructionist learning. It can also enhance social cohesion in the learning experience and build a sense of community among the learners, knowing they have a way to assist each other. It proved to be rewarding in this case.

Overall, the above components explain the major findings concerning the requirements for creating the conditions suitable for AMA-based learning. They prove consistent with Papert's work and thinking about constructionism, as well as with the principles of experiential education outlined by Itin (1999) in which experiential education is viewed as an overarching philosophy for the design of learning environments, pedagogical enactment, and learning experiences.

6.3.2 Theme 2: Enabling Relevant Learning

A major finding concerned the perceived relevance of AMA-based learning to learner styles, HE pedagogy and practice, and real-world practices. Relevance in the context of the study's findings refers to the personal, pedagogical, and/or contextual relevance of AMA-based learning. These

aspects of relevance are credited for their significance in enhancing learners' motivation and the learning experience. Papert (1980) emphasised the role of supplying contextual materials relevant to the intellectual development of learners. In fact, his work with Logo reflected an interest in creating a native learning environment for learning math (i.e., Mathland) parallel to the one in which learners learn a native language. Furthermore, the experiential learning literature (Kolb, 1984) establishes that the relevance of learning to real-life purposes drives the learning intentions of adults. This is also consistent with the study findings, where students acknowledged the value of AMA in building their competency and preparing them for their future teaching careers.

Although AMA projects were relatively new to students, the findings indicated that the skills and learning approach (e.g., learner agency and autonomy, ICT literacy) meet their preferred learning styles. These findings are also recognised in many studies (Bartle et al., 2011; Dale & Povey, 2009; Forbes & Khoo, 2015). Likewise, Papertian constructionism maintains that attending to learners' preferred styles can significantly enhance personal relevance, personal identification, and personally meaningful learning (Papert, 1980, 1999; Stager, 2001, 2005).

Although the findings indicated both the relevancy and currency of AMA to the HE pedagogy and practice, its comparative absence from the current setting raises questions. AMA continues to remain of marginal use in this programme, being mostly limited to the EduTech module. As the review indicated, the educational culture in place remains didactic in orientation and follows highly structured curricula (Al-Issa, 2005, 2011), and this poses challenges to introducing learner-centric pedagogy and project-based assessment at a larger scale. Disruption of traditional models has been rather slow, even though it is supported by the progressive orientation of the revised educational philosophy goals and objectives (see Education Council, 2017). Nonetheless, the findings indicate that AMA-based learning aligns with how HE pedagogies should prepare students for today's educational context since the literacy skills it nurtures are in line with the global educational landscape. Accordingly, the findings suggest more work is needed to integrate this approach across the programme of study, as emphasised by S1DV in the data validation phase.

The findings also revealed that AMA-based learning complements learning in the wider sociocultural context, which enhances its authenticity claims. This is consistent with Papert's (1980, 1987) thesis, which emphasises drawing on cultural resources and appropriating contemporary knowledge and tools from the surrounding environment to facilitate meaning-making and knowledge-building. All the reviewed literature on SGP also seems to presume its congruence with the contemporary pedagogical and cultural landscape.

6.3.3 Theme 3: Enabling Flexible and Iterative Learning

'Flexibility' and 'iteration' were central to the AMA experience, as the findings indicated. It was clear from qualitative findings that AMA afforded an open-ended, discovery-based approach to learning where learners had complete flexibility with regard to their approach to learning and the strategies to use. Student participants indicated multiple iterations of trial-and-error and production and re-production, suggesting the process was not linear but involved iterative cycles of learning, re-learning, fixing, and improving different areas of their work. Similarly, emphasis on 'process' was central to Papertian constructionism. Papert's renowned advocacy for tinkering and bricolage underscores how process-based learning affords the building and refinement of knowledge structures (Alimisis & Kynigos, 2009; Papert, 1971, 1980), experimentation with knowledge (Resnick & Rosenbaum, 2013; Stager, 2001), and adaption, rearrangement, and negotiation with knowledge (Turkle & Papert, 1992). However, such approaches to learning seem to be greatly undermined in the Omani context, given the prevalence of rote learning, teaching for the test, and teacher-centric pedagogies (Al-Issa, 2005, 2011).

As indicated in the findings, having the teachers act as facilitators and intervening only when required enabled a learner-centric approach to learning discovery. These findings are consistent with findings from the literature on SGP in relation to how AMA leads to learning discovery (Cane & Cashmore, 2008; Nie et al., 2008; Resnick & Rosenbaum, 2013), problem-solving (Forbes, 2015; Khoo et al., 2013, Reyna & Meier, 2018), and knowledge-building (Dale & Povey, 2009). This is also consistent with Papert's (1980) constructionist approach which emphasises the importance of providing a discovery-rich environment, open-ended and discovery-rich inquiry, and free interaction with tools and learning objects (Harel & Papert, 1990). The findings suggest that this also had implications for enabling personalised approaches and strategies, which were afforded by the ill-defined and open-ended nature of the AMAs. For instance, some students resorted to the segmentation of their recordings to help them deal with specific recording issues. This suggests they had complete control over the learning process and direction. This approach to experimentation with learning aligns with Papert's tinkering (or bricolage) approach, which stipulates allowing learners to have access to tools to facilitate learning mastery and acquisition (Papert, 1980; Resnick & Rosenbaum, 2013) and allowing them to exercise their doing and thinking (Harel & Papert, 1990). A valuable premise of tinkering, according to Harel and Papert (1990), is that it nurtures cognitive flexibility as well as persistence in learning, and these factors were also reported in the present study. The findings indicated that AMA enabled learners to apply their thinking in response to the different requirements of production.

An important finding concerns how the AMA approach highlighted the significance of knowledge building. The AMA projects encouraged students to seek additional resources to fill gaps in their knowledge and skills. A number of strategies were adopted in this regard, including watching online tutorials, consulting websites, consulting peers, consulting the teacher, and even experimenting with the different areas of production. Similar findings are reported by Nie et al. (2008) where the experience encouraged independent learning towards meeting defined goals.

Overall, these findings substantiate how AMA-based learning advanced process-based learning and enhanced knowledge-building among students. These insights are significant in the context of learner-centric pedagogies, and particularly so when viewed from the perspective of constructionist learning.

6.3.4 Theme 4: Enabling Active and Independent Learning

This theme indicates that the nature of learner participation in AMA experiences was characterised by dynamism and autonomy. Different agentic aspects were revealed in the findings, including learner responsibility, self-direction, and self-regulation, which reflects the richness embodied in AMA-based learning and how it attends to agentic participation in learning. These aspects are significant in constructionist theory. Papert emphasised the need to create the conditions for students to assume ownership and self-manage and direct their own learning (Kafai, 2005), which expounds his constructivist motivations. The same conditions are central to the learning assumptions of learner-centric theories (Knowles, 1984). As discussed in Chapter Three, Knowles's andragogy builds on the inherent proactivity of adult learners with regard to their intents and the management of their learning. Heutagogy (Hase & Kenyon, 2000, 2007) takes this even further, arguing for the need to enable learners to self-determine their own learning.

The relevant literature recognises the value of AMA-based learning in promoting responsibility and independent learning (Kafai, 2005; Nie et al., 2008; Sadik, 2008). Many authors (Resnick & Rosenbaum, 2013; Stager, 2005) emphasise the need to encourage learners to explore new paths and rethink their strategies and approaches. This is endorsed by the study's findings, which revealed evidence of various forms of self-direction and self-regulation (e.g., planning, scripting). Students seemed positive that AMA encouraged them to not only to apply their own choices but also to do things their own way. Overall, the findings confirmed that the AMA experience helped students set goals, plan the learning process, self-regulate, and self-manage their performance and achievement of the goals. Similar findings are reported by Forbes (2015), Lee et al. (2008),

McLoughlin et al. (2006b), Papert (1980), Reyna and Meier (2018), and Simsek (2020). For instance, McLoughlin et al. (2006b) found that podcasting helped students enhance their knowledge of plans and goals, which indicated reflection on the task, use of self-regulatory strategies, and knowledge of task requirements. Also, McLoughlin et al. found that students were able to determine the degree of task completion. This is also consistent with Papert's view regarding the importance of enabling relevant and personal learning (Harel & Papert, 1990) to help learners relate better to tools and people (Papert, 1980).

Although the findings confirmed the value of active engagement in the experience and learning through the senses, the researcher assumes that the students misunderstood the reference to 'learning through senses', which was meant to refer to behavioural engagement. This reference to behavioural engagement aligns with the experientialist approaches which acknowledge the value of sensory experiences in reinforcing learning. It also aligns with Turkle and Papert's (1990) reference to 'closeness to objects', which denotes active involvement with tools and materials from the surrounding environment to aid meaning-making. Notwithstanding this misunderstanding regarding the reference to senses, the findings confirmed that the AMA experience enabled students to actively manage, direct, and regulate their learning. These elements are inherent in discovery-based learning, such as in the case of AMA, because it prioritises agentic participation and learner autonomy. Metacognitive participation and agency are likewise emphasised in the experiential learning literature (Ord, 2012) as well as the SGP literature (Dale & Povey, 2009; Forbes, 2015; Nie et al., 2008). This is also true in the context of constructionist learning, where Papert (1980) has sought to empower self-directed inquiry to enable learners to learn through a cycle of self-direction and trial-and-error. While the findings also revealed aspects of interaction among learners before production, they suggest that individual SGP projects were not very helpful in identifying learning cooperation during production, unlike those reported by Forbes and Khoo (2015) in which students cooperated in creating podcasts. Their findings showed that collaborative podcasting developed various cooperative learning outcomes.

The podcasting experience in this study was an individual task and took place outside class meetings. For this reason, it was hard to establish how the experience contributed to collaboration on the task. The findings reflected forms of collaboration outside the task (e.g., exchanging ideas, seeking clarification, seeking assistance from teachers and peers), but not on the task itself. Collaborative SGP would have been more enlightening in this regard. In fact, most studies (Kemp et al., 2012; Lee et al., 2008; Nie et al., 2008) report findings from collaborative, not

individual, SGP and therefore endorse AMA learning for promoting collaboration, negotiation of meaning, and sharing. This is not to deny that the study findings acknowledged these in relation to AMA pedagogy and environment, but they were less obvious concerning AMA engagement.

6.3.5 Theme 5: Enabling Effective Learning

One major study finding concerns the effectiveness of AMA experiences in enhancing the quality of the learning process, outcomes, and learner engagement and motivation. AMA showed evidence of deep approaches to learning since it involved extensive intellectual effort, active forms of engagement, as well as critical, metacognitive, and reflective learning. McGarr (2009) also associated AMA with the creative use of technology, which identifies the creation of artefacts with promoting deeper learning and contributing to effective, stronger, and positive impacts.

A key finding indicated AMAs enabled self-discovery, particularly concerning learners' self-efficacy beliefs and learning needs, which is consistent with findings from the SGP literature (Chan et al., 2006; McLoughlin et al., 2006b). The findings indicated students discovered new aptitudes they never knew they had. This finding is significant because it reflects how empowering the experience was for students. It not only contributed to students enjoying and appreciating the experience but a few students also transferred it to their reading club in the form of book-review podcasts. Teachers also reported aspects such as confidence and pride about the AMA achievements. Papert's (2000) "idea power" overlaps with this premise given Papert's interest in creating the conditions that would allow learners to flourish and invent new and powerful ideas. The study's findings seem to contribute to this area.

Another aspect of effectiveness emphasised in the findings was associated with a deeper knowledge of the topic and enabling memorable learning. Students seemed to have developed a better grasp of the topic and tools because they drew on multiple sources to reinforce their learning. This aligns with findings by Bartle et al. (2011), Cane and Cashmore (2008), Dale and Povey (2009), Frydenberg (2008) and Nie et al. (2008). Lazzari (2009), for instance, found podcast creation motivating for students who wished to develop a better grasp of the themes they selected.

Promoting applied and practical learning was also characteristic of the AMA approach. This factor was highly reinforced in the constructionist learning literature (Ackermann, 2001; Papert, 1980; Turkle & Papert, 1990) due to the significance given to concrete learning. The findings suggest that students were able to develop technical and technological skills and apply different learning

strategies. This resonates with Khoo et al.' (2013) study findings where SGP enhanced technological skills and confidence. The findings indicated that the mediation of ICTs encouraged student interaction with different tools, equipment, and software to aid their production. Similar findings are reported in Forbes (2015). In a context heavily weighed by information delivery and cognitivist approaches, these findings seem valuable, not only for promoting concrete learning (i.e., tinkering) but also for encouraging behavioural engagement in the learning process. This helps advance concrete learning as well as constructionist pedagogies in the HE context in Oman.

Promoting affective outcomes was another strength of AMAs, particularly in relation to enhancing learners' motivation, interest, enjoyment, satisfaction, and empowerment. Excitement generated by the undertaking because of its novelty was one reason. This concurs with findings from Dale and Povey (2009) that "the practical application of creating the podcast increased motivation to engage in the activity" (p. 121). Similarly, Nie et al. (2008) found that students' interest was increased because of discovering a new modality and working with the software. Burt (2008) also has found that seeing others podcasting was motivating for students to do the same. This finding is also reiterated in Young and Rasinski (2013). Likewise, Forbes and Khoo (2015) have found that learner knowledge-skill confidence was enhanced as a result of SGP, while Naqvi (2015) has found that SCDV projects increased motivation and enjoyment and created a sense of pride and achievement among students. Reyna and Meier (2018) report similar findings from SCDV.

Furthermore, AMA seemed to promote creativity, creative expression, innovative thinking, and nurturing talents. This was highly rated in the quantitative findings, which is noteworthy. Similar findings confirm the role of creativity in SGP (Dale, 2007; Dale & Povey, 2009), SGDV (Naqvi & Al-Mahrooqi, 2016) and digital storytelling (Simsek, 2020). While Beynon (2017) and Stager (2007, 2008) associate ICTs with promoting creativity, Paavola and Hakkarainen (2005) associate it with the broader 'knowledge-creation' approach. In the same vein, Papert is of the view that knowledge-production experiences facilitate the articulation of students' views (Papert, 1971) and encourage self-expression, problem-solving, and thinking about learning (Papert, 1980; Stager, 2005).

Attention to nurturing learner capability was similarly confirmed by the findings. Views were generally positive regarding the ways AMA contributed to cultivating mastery and competence in relation to communicative, technological, and technical skills. Many acknowledged that the AMA projects enabled them to develop several skills, which were believed to be transferable for immediate and future use. This high regard for technological skills and confidence is consistent

with the literature of SGP (Cane & Cashmore, 2008; Chan et al., 2006). Promoting capability has been greatly emphasised in educational reform in Oman, which makes it a significant finding.

Interesting insights were uncovered by the study's findings in relation to promoting individuality, diverse outcomes, efficiency, as well as improving achievement. Promoting individuality is an interesting implication of AMA projects, especially when viewed in the context of mainstream education cultures. AMAs seemed to afford students opportunities to display their individuality, identity, and unique productions. This is because the students approached the AMA projects with their own preferences and interests, and this contributed to diverse outcomes. Some students considered it significant that their work reflected their own identity and uniqueness as they believed this contributes to personalising learning as well as enhancing competitiveness among students. This is in line with Papert (1987) who maintains that the goal for education is to foster independence, self-respect, and empowerment. He also emphasises the need to allow students to exercise their doing, learning, and thinking (Harel & Papert, 1990). For many participants, the AMA projects offered a better form of assessment, because projects offer more freedom in learning, allow students to refine and improve their work, and provide a better measure of outcomes, compared to tests.

The above implications make a strong and appealing case for AMA-based learning, especially considering many align themselves with the educational reform goals and objectives in Oman (Education Council, 2012, 2017). This suggests that AMA-based learning can complement the reform efforts and contribute towards realising them.

6.3.6 Theme 6: Enabling Transferable Learning

Some interesting findings were revealed regarding the transferability of AMA to novel experiences, wider contexts, and future employment. As the study findings suggest, transferability of learning refers to the application of new knowledge, strategies, and skills to new situations and/or contexts. Besides honing knowledge and skills, the findings indicated AMA-based learning can enable the transferability of knowledge and skills beyond the immediate learning experience. As noted in the literature review, changing learner expectations and demands play a significant role in the provision of education since many students seem to seek personally satisfying learning experiences and the development of skills demanded by employment (Dale & Povey, 2009). This view is reiterated in the adult learning literature (Knowles, 1980, 1984), wherein adults are seen to value learning that has relevance and application to their immediate personal lives and/or professions. This suggests that these dimensions add value to learning and factor significantly in

students' investment in learning. As a result, the different transferability implications offer ground for claiming the usefulness of AMA-based learning to Omani HE.

Many studies (Cane & Cashmore, 2008; Forbes, 2005) have found that AMA learning helps develop several transferable skills, such as team-working. For Papert (1980), transferability prospects add both purpose and meaningfulness to learning. He emphasises the need to associate knowledge acquisition with recognisable personal purposes because it advances learning embeddedness and encourages different ways to relate to it (Harel & Papert, 1990). This view is consistent with the study findings. Not only did students express a desire to continue with SGP, but many also transferred it to extracurricular activities. The AMA experience seemed to enable them to see its implications for their future careers as well, particularly in relation to instructional strategies and preparing them for what they are expected to do as teachers. In fact, Papertian constructionism is highly consistent with this view since one of its fundamental aims is to bridge school and university learning with outside and real-life learning (Ackermann, 2001). The fact that AMA promotes transferable skills is therefore viewed as appealing in this context. Education policy directives (Education Council, 2017) similarly emphasise the need to promote the skills of life and work, and AMA seems to complement this endeavour.

6.3.7 Theme 7: Personal Challenges and Suggestions

Several challenges emerged from the findings, the most frequent of which were personal (or learner-related) challenges. Lack of prior relevant experience, unfamiliarity with the approach, and preference for conventional approaches seemed to do some students a disservice. The complexities of the task and its heavy demands also raised issues concerning AMA requirements and students' ability to manage them. This was due mainly to the novelty of the approach for many students, especially considering that the whole module was structured around PBL and so to many it seemed overwhelming. This is consistent with the research literature, with Phillips (2017) and Reyna and Meier (2018), suggesting that task novelty has given rise to learner anxiety. Bartle et al. (2011) have also found that while some students found a perfect complement to their preferred learning style in this new approach, others preferred traditional alternatives (e.g., written assignments) over podcasting. The findings indicated that with time students became more familiar and therefore more accepting of the approach, which suggests it is possible that the students' inherent biases towards didactics contributed to their negative attitudes toward AMA learning, especially in the initial phases. The qualitative findings actually confirmed this, showing that anxiety and pressure gradually subsided with time. This is in line with Donaldson (2018), who

notes that unlike informational approaches, constructionist approaches require the embracing of complexity, inter-disciplinarity, and inter-dependency. This is why 'taking time' is a major idea behind the CLL project as it allows students to embrace the multifacetedness of the experience (Papert, 1999; Stager, 2001).

Suggestions from the findings indicated ways that AMA-based learning could be improved. These mainly pertain to intrapersonal effectiveness, such as the need to appreciate the different obstacles throughout the process and to allow more time before they see some positive results. Other findings indicated the significance of self-motivation and adhering to deadlines to sustain learning, rehearsal and practice to improve the quality of outcomes, and consulting experts and peers to improve on outcomes. These aspects align with many studies, such as those of Kafai (2005) and Papert (2000) which emphasise the significance of perseverance to enable productive and meaningful learning.

6.3.8 **Theme 8: Technical Challenges and Suggestions**

Technical challenges were another source of difficulty reported by the participants, and they influenced, both directly and/or indirectly, the quality of engagement and outcomes of AMA experiences. Dealing with the software seemed to pose challenges to many students, indicating that they struggled with software download and file conversion. Even though course instructors helped minimise these issues, for many students it added to their anxiety and they wasted valuable time off the task. Phillips (2017) found something similar, noting that unfamiliarity with technology contributed to students' anxiety and demanded continuing guidance. Reyna and Meier (2018) have also reported technical and emotional challenges associated with student-generated animations.

Further issues emerged concerning the equipment students used in the production, which proved challenging, prompted repetition, or necessitated external assistance. Khoo et al. (2013) similarly found that the AMA projects demanded external support and assistance. This meant more time was wasted trying to get the tools to work properly. Editing seemed to be the most challenging of all. Despite the help of online tutorials, editing was time-consuming, especially within the tight deadline imposed on the students. For instance, there were discrepancies in volume between different segments of the recordings or between speakers, as well as quality issues concerning noise and distortions that demanded more editing time.

These aspects are inherent in constructionist learning experiences. The iterative and open-ended nature of inquiry embedded in constructionist learning is likely to lead to accidental learning. On the one hand, these emphasise tinkering (or bricolage) as a way for learners to approach their learning (Turkle & Papert, 1990) and, on the other hand, they corroborate the trial-and-error basis of process learning. For instance, the process of debugging was central to how the Logo worked as it invited thinking and reflection into what works and what does not (Papert, 1980). Additionally, the literature of SGP (Forbes, 2015; Khoo et al., 2013; Lee et al., 2008; Lonn & Teasley, 2009) and storytelling (Reyna & Meier, 2018) reports similar challenges during production phases. From the Omani context, Naqvi (2015) has reported technical issues with the SCDV projects but did not provide much detail about this. Naqvi and Al-Mahrooqi (2016) found that video production was challenging for students in SCDV projects, but they also noted that students were not provided with training in this area, apart from a short tutorial on the Moviemaker software and another online alternative, namely Xtranormal.

A few suggestions were reported by study participants to help overcome some of these technical obstacles, the most noteworthy of which concerned planning and task implementation. The findings suggest it is better if the AMA projects are collaborative rather than individual, which is consistent with most of the reviewed AMA literature, such as Forbes (2015) and Nie et al. (2008). This suggestion also finds backing in the constructionist learning literature, which emphasises the significance of collaborative inquiry in constructionist learning to enable learners to articulate and negotiate their learning and planning (Harel & Papert, 1990; Papert, 1980; Resnick & Rosenbaum, 2013) and engage in problem-solving (Alimisis & Kynigos, 2009). Similar suggestions are also reported in the literature on podcasting (Forbes, 2015; Khoo et al., 2013; Lee et al., 2008), which suggests that modelling, training, support, and flexible deadlines can minimise the impact of such challenges.

6.3.9 **Theme 9: Pedagogical Challenges and Suggestions**

Several pedagogical challenges were associated with AMA learning, some closely tied with the AMA experiences while others concerned broader contextual factors. The AMA-based learning in this context was perceived to be problematic in relation to managing assessment and feedback. Participants also indicated the difficulty of objectivity in assessing AMA learning. Students reported that since only the final products are evaluated, it was not possible for the teacher to assess the amount of effort put into the task, suggesting some students spent days in production while others took less than a day. They thought it was unfair that their effort was not

acknowledged. Similar concerns are also reported in the local literature of AMA-based learning (Naqvi & Al-Mahrooqi, 2015), citing difficulties with ensuring the authenticity of student outcomes and potential time constraints. While these concerns raise a valid argument regarding students' competency threshold, which varies depending on students' readiness level, the constructivist-constructionist literature acknowledges such differences among learners and, in fact, celebrates such diversity and the different paths the students take in their meaning-making processes (Ackermann, 2001; Stager, 2001). This debate is not elaborated on in the rest of the reviewed AMA literature, but the study findings emphasised it. Probably one of the most interesting findings in this regard addressed an important pedagogical issue in this context regarding the extensive reporting of cheating in the system, citing the lack of a proper monitoring system for plagiarised works as a major challenge to the effectiveness of the AMA approach.

Furthermore, the findings suggest that AMA-based learning could be challenging to teachers because it demands increased effort to deploy, manage, and assess. This can be challenging to teachers' technological expertise and threatening to their traditional role as experts. This is in line with Naqvi's (2015) findings, noting that following up the roles of different group members was difficult for the teacher in SCDV projects. The reviewed constructivist-constructionist literature (Papert, 1980, 2000; Stager, 2001, etc.), however, seems overly focused on nurturing constructive learner-centric inquiries and the disruption of conventional teacher authority rather than, perhaps, delineating what this implies for teachers. While this seems to complement flexible pedagogical designs, such as the case of CLL (Stager, 2001, 2005, 2015), it raises questions concerning its suitability for formal HE schemes which have far more pedagogical restrictions. The findings also suggest that a lack of relevant teacher experience can inhibit the implementation of AMA-based learning. This aligns with Naqvi's (2015) remarks on the reluctance of EFL teachers to introduce technology into the classroom.

Besides these challenges, the findings offered several suggestions for improving AMA-based learning. These include providing modelling, setting flexible deadlines, and analysing samples from former students. Additionally, the findings suggested that more explicit intervention schemes are needed to minimise their negative impact on task implementation. While such intervention schemes may seem to inhibit the problem-solving opportunities inherent in AMA-based learning, they could also generate better quality outcomes. This, however, sits slightly at odds with constructionist learning, which capitalises on ill-defined, open-ended, and discovery-rich inquiry (Harel & Papert, 1990), as well as learning through trial-and-error (Papert, 1980; Stager, 2005). This does not suggest dismissing teacher facilitation, but rather advocating a

minimalist approach to intervention to enable more flexible and personalised learning (Papert, 1999; Stager, 2001).

6.3.10 Theme 10: Infrastructural Challenges and Suggestions

Infrastructural challenges were also frequent in the findings, some of which seemed manageable, but many required institutional-level action. The synthesis of relevant challenges suggests that the physical environment was not sufficiently optimised for AMA-based learning. Access to reliable and fast internet connection and access to YouTube seemed to be the biggest obstacles to students, both on and off-campus. Since AMA involved mainly individual work, YouTube tutorials served as a major source for student learning, particularly in mastering the use of software and some editing techniques. Due to infrastructural limitations, however, students found it difficult to sustain their work and do it on time. This placed a strain on their schedules (e.g., staying on campus longer, staying in a hostel during weekends and holidays) and their budgets (e.g., some had to buy their own gadgets, internet top-up). Such infrastructural challenges are consistent with findings in the AMA literature (Dale & Povey, 2009; Forbes, 2015; Phillips, 2017), suggesting that lack of access to software and hardware and insufficient technical support can be inhibiting factors to productive AMA learning. Despite these shortcomings, the findings revealed that access to personal gadgets helped most students cope with task requirements. Naqvi and Al-Mahrooqi (2016) reported similar coping mechanisms among students in the SCDV projects.

Responding to these challenges, the findings suggest that the institution needs to upgrade its facilities in relation to ensuring the availability of equipment (e.g., recording studio, quality recording gear) and services (e.g., fast and reliable internet network, access to YouTube). While the situation prompted students to adopt coping strategies, it is possible these challenges obscured the value of this approach and diverted students from producing more, and better, quality work.

6.3.11 Theme 11: Education System Challenges

The education system and culture were perceived to present a far-ranging challenge to AMA-based learning. The findings suggest there is limited emphasis on praxis, learner autonomy, student-centred learning, and technology-based learning, and contrastingly more emphasis on fixed delivery schemes, rote learning, testing, and teacher reliance. These findings are consistent with critique in many local studies (Al-Issa, 2005, 2011), as well as with Papert's (1980, 2000) critiques of mainstream practice for prioritising abstract and didactic learning over concrete

learning. In the research setting, the EduTech module seems to be the only module structured around PBL and assessment while the rest are dominated by various forms of testing.

An interesting finding concerned how participants associated the current educational environments and provision schemes in Oman with contributing to the attributes of weak graduates who are unfit for employment. This is consistent with local evidence, such as that of the Graduate Survey Department (2015, 2016) which shows that graduates lack key employable skills (e.g., stress management, social skills, motivation and commitment, autonomy and time-management, analytical skills, problem-solving, creativity), many of which seem to be provided by AMA-based learning.

The findings also indicated that the technical and technological knowledge and the skillset required to facilitate successful AMA-based learning may be lacking among teachers, both in HE and school settings. The findings from interviews and focus group discussion showed it was common for teachers in the college to avoid integrating technology, and this was attributed to infrastructural issues (e.g., unreliable internet) and teacher-related issues (e.g., technological incompetence).

No explicit suggestions could be extrapolated from the findings regarding this theme, possibly due to the fact these challenges are complex and difficult to overcome. Even so, educational reform directives (Education Council, 2017) seem to provide some possible answers. Government spending on education continues to be a priority in the Oman's development plans, including infrastructural upgrading, curricula alignment, and the enabling of progressive agendas.

6.3.12 Theme 12: Sociocultural Challenges

Finally, the sociocultural challenges were quite interesting and inherently context-specific. Together with the educational culture, sociocultural factors provide a better understanding of the governing values characterising the context in question and their perceived interaction with AMA-based learning. These are significant factors when designing and implementing AMA-based learning because they influence both AMA implementation and its outcomes.

Aspects such as lack of community support and cultural sensitivity to AMA are unique and they cannot be understood outside this context. Surprisingly, none of the reviewed AMA-based literature has devoted attention to fleshing out these factors, which suggests they are not perceived to be problematic in western contexts. This makes the sociocultural challenges effectively unique to this context. These challenges may be somewhat sensitive and they are

possibly harder to overcome, especially regarding such issues as mixed-gender group work. This is in line with Emenyeonu (2012) who found that mixed-gender collaborative work could be inhibiting to facilitating student-centred learning in the Omani context. Another example concerned requiring female students to appear on audio and video, which the local literature seems to overlook. One finding from the focus group suggests that more time is needed for people to adopt and accept these roles. Other issues may be more manageable but they require support and encouragement, including rectifying the lack of support for learner autonomy and the lack of appreciation for the learning significance of multimedia authoring. Surprisingly, none of the reviewed local studies on AMA (Al-Mahrooqi & Naqvi, 2014; Naqvi, 2015; Naqvi & Al-Mahrooqi, 2015, 2016) has touched on these sociocultural aspects, which makes this study's findings all the more enlightening.

6.4 Findings and the Proposed Model for AMA-Based Learning

The theoretical and conceptual framework (Chapter Three) provided the orienting work on which this study was based. It was especially helpful in identifying specific areas of inquiry, framing the identification of constructs, and framing the collection and analysis of data. The conceptual framework provided the essential breakdown of key principles of AMA-based learning in their respective hierarchies, indicating how they contribute unique attributions of constructionist learning. Devising the framework responded to gaps in research regarding the paucity of operationalised frameworks for Papertian constructionism, as well as the general paucity of frameworks and models for the systematic implementation and evaluation of AMA-based learning, both in Oman (Naqvi, 2015; Naqvi & Al-Mahrooqi, 2016) and the global context (Kearney, 2009, 2011; Reyna et al., 2017; Reyna et al., 2018b).

Most importantly, the study findings, and most notably the analytical framework developed from the analysis of data, seem to add to and extend the initial conceptual framework on which the investigation was premised. This is because they have generated a much richer account of AMA-based learning, which proved broad enough to subsume all the principles associated with AMA engagement, AMA pedagogy, and AMA environment outlined in the conceptual framework. The study findings therefore allow for revisiting the conceptual framework to propose a more comprehensive, research-informed model for AMA-based learning (AMA-BL for short).

The analytical framework covers three main areas: (1) the enabling factors of AMA-based learning, (2) the challenges to AMA-based learning, and (3) suggestions to overcome these challenges. While the first two areas are clearly distinct, the third area regarding the 'suggestions

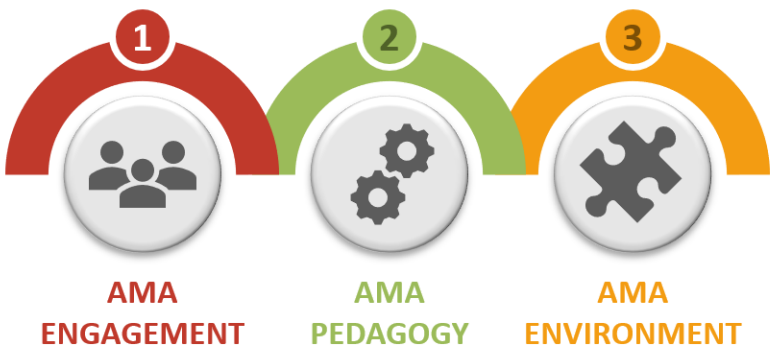
to overcome AMA challenges' can be seen to fit under the first one, particularly in relation to 'creating the conditions for learning'. For instance, the 'personal suggestions' concerning conducting the task (e.g., consulting experts, rehearsal, appreciating the task) fit within the roles of 'teacher facilitation' during project initiation, which includes outlining task expectations. The 'technical suggestions' concerning the software (e.g., using popular software, using software for noise reduction, partitioning the recording) seems to fit under both teachers' role of outlining task expectations and under 'creating a suitable physical environment' for learning. The 'pedagogical suggestions' regarding teacher facilitation and instruction seem to fit under the 'teacher facilitation' roles. As to the module-related subset, it can fit under the 'alignment considerations of AMA-based learning'. Finally, the 'infrastructural suggestions' all fit under 'creating a suitable physical environment' for learning. All these suggestions therefore correspond to 'creating the conditions for learning' as an enabling factor for AMA-BL. Noting how the different suggestions fit under the enabling factors of the AMA-AL model actually helps afford an ecological view of AMA-BL where suggestions are regarded as enabling factors to improve on future iterations of AMA-BL.

Building on the operationalisation of AMA principles in Chapter Three, the revised framework for AMA-BL emphasises three premises: (1) AMA-BL guiding principles, (2) AMA-BL enablers, and (3) AMA-BL inhibitors, as outlined below:

6.4.1 Premise 1: Guiding Principles of AMA-BL

Three guiding principles underpin the design and implementation of AMA-based learning: creating an enabling environment, adopting a suitable pedagogy, and facilitating active learner engagement. These constitute the three salient areas that characterise the constructionist approach of Papert as per the reconceptualisation in Chapter Three, as outlined in Table 6.2.

Table 6.2. Guiding Principles of the AMA-BL Model



1	**AMA Engagement**	Enabling engaged and constructionist learning experiences.

2	**AMA Pedagogy**	Implementing the underpinning pedagogical strategies and approaches to nurture constructionist learning.
3	**AMA Environment**	Creating an environment conducive to constructionist learning.

The enabling environment for AMA denotes the centrality of creating an environment that facilitates constructionist learning, whether this environment is physical or virtual. The central elements that constitute a constructionist environment include (a) ensuring optimum teacher facilitation to maximise learning, (b) creating a safe atmosphere to enable risk-free learner-centric and directed experiences, and (c) enabling PBL to anchor constructionist learning experiences. These elements are precursors for creating an effective environment conducive to learning.

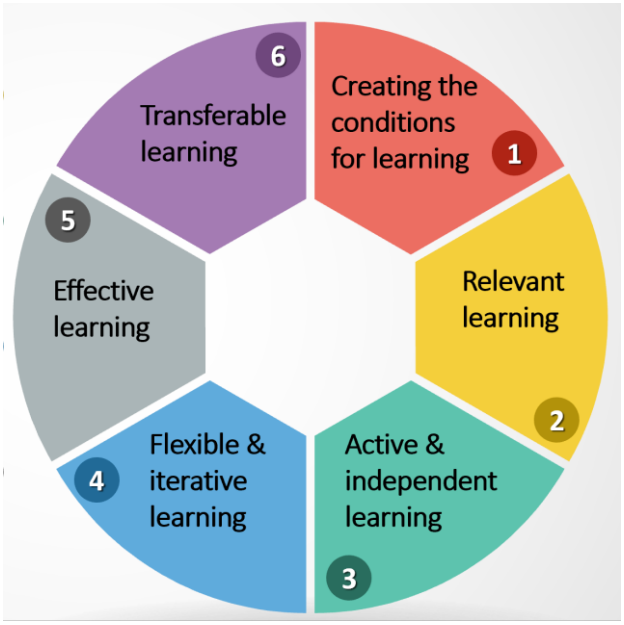
Adopting a suitable AMA pedagogy denotes the key principles central to enacting AMA-based learning, including learning-by-doing, construction of artefacts, student-centred learning, and ICT-mediated learning. The interplay among these elements is key to AMA experiences and they constitute key pedagogical considerations for enabling successful and productive AMA-based learning. These principles are precursors for enabling multifaceted forms of learner engagement.

Finally, engagement in AMA-based learning denotes a multidimensional concept. The study findings revealed a detailed attribution of engagement throughout the different phases of the AMA experience, both from the students' and academics' viewpoints. The detailed account generated by the findings helped identify ways that AMA-based learning can be facilitated and guided, while appreciating the active and iterative nature of AMA-based learning and the scope of the engagement it nurtures for both students and academics.

6.4.2 Premise 2: Enablers of AMA-BL

Six enabling factors emerged from the data concerning the facilitation of AMA-based learning, namely 'creating the conditions for learning', 'relevant learning', 'active and independent learning', 'flexible and iterative learning', 'effective learning', and 'transferable learning'. These factors provide a comprehensive attribution of AMA-based learning and subsume all the themes addressed in the quantitative data. Table 6.3 elucidates these factors, highlighting their implications for facilitating AMA-based learning.

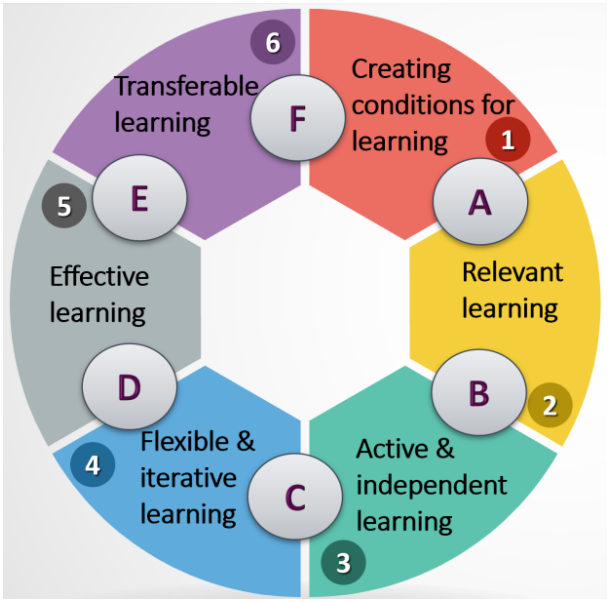
Table 6.3. Enabling Factors of the AMA-BL Model



1	**Creating the conditions for learning**	This factor denotes the key design principles underpinning the facilitation of AMA-based learning, inclusive of alignment considerations, optimising the learning environment, teacher facilitation, among other elements.
2	**Enabling Relevant learning**	This factor denotes several variables that contribute to the promotion of relevant learning.
3	**Enabling active & independent learning**	This factor denotes the nature of learner participation in AMA-based learning, with emphasis on autonomy and agency as key learner attributes.
4	**Enabling flexible & iterative learning**	This factor denotes the nature of learning processes and activities, with emphasis on flexibility and iteration as key task attributes.
5	**Enabling effective learning**	This factor denotes the emphasis on AMA-based learning outcomes, with implications for enhancing learning effectiveness.
6	**Enabling transferable learning**	This factor denotes several variables that contribute to facilitating learning transfer.

Essentially, there is a perceived reciprocal interaction among these factors. Table 6.4 elucidates the significance entailed in their reciprocity by detailing how each links to the ones preceding and succeeding it, and by showing how this reflects on the conceptualisation of the model.

Table 6.4. Elucidating Reciprocity among the Enabling Factors of the AMA-BL Model



A	Designing for AMA-BL necessitates enhancing learning relevance, or otherwise it runs the risk of decontextualising learning from the contexts of use.
B	Relevance of learning creates more motivated learners because they apply themselves and invest in their learning more when they realise its relevance to their personal, social, and professional lives.
C	Flexible and iterative learning facilitates more active learning and autonomous learner engagement in the learning experience.
D	Flexible and iterative learning facilitates more effective learning because it promotes effective outcomes and multifaceted knowledge and skill-building.
E	Effective learning outcomes have a greater likelihood for learning transfer to novel and future contexts and situations.
F	Transferability of learning and the extent it meets internal and/or external demands (e.g., employment) feeds into the educational cycle to ensure the design elements are in tune with those demands.

6.4.3 Premise 3: Inhibitors of AMA-BL

Six inhibiting factors emerged from the data which concern the restrictions to AMA-based learning, namely ‘personal’, ‘technical’, ‘pedagogical’, ‘infrastructural’, ‘educational’, and ‘sociocultural’. These are outlined in Table 6.5. These factors are significant to consider in the context of AMA-based learning since they pose potential threats to the successful implementation of this approach.

Table 6.5. Inhibiting Factors of the AMA-BL Model

1	**Personal challenges**	This factor denotes challenges regarding the individual's readiness and aptitudes.
2	**Technical challenges**	This factor denotes challenges regarding the technical aspects of AMA production.
3	**Pedagogical challenges**	This factor denotes challenges regarding pedagogical implementation.
4	**Infrastructural challenges**	This factor denotes challenges regarding infrastructural preparedness.
5	**Education system challenges**	This factor denotes challenges regarding the wide education system.
6	**Sociocultural challenges**	This factor denotes challenges concerning sociocultural influences.

6.4.4 Key Findings, the Theoretical Framework, and the AMA-BL Model

This AMA-BL model is advanced here as a model for conceptualising the design and implementation of AMA-based learning in Omani HE, suggesting that it is particularly suitable to the IELTE context. In doing so, it provides an orienting model for multimedia authoring practices through the lens of Papertian constructionism, which is currently lacking in the literature of constructionism, by operationalising its design elements and highlighting its implications for practice in Omani HE.

Overall, both the findings from this study and its conclusions prove consistent with the underpinning theoretical framework, suggesting that AMA-based learning (and SGP in particular) advances the learning principles underscored by the constructivist-constructionist literature

(Dewey, 1938; Kolb, 1984; Lewin, 1951; Papert, 1980, 1987, 1993, 1999, 2000). Not only does the AMA-BL model establish the centrality of experiential engagement in nurturing deep learning and effective meaning-making, but it also emphasises experience as a precursor for reflection, conceptualisation, and application. The findings indicate that AMA production was primarily learner-centric and learner-directed since students managed and steered the experience on their own from start to completion, which suggests active and reflective engagement and sustained effort to meet end goals. The findings also suggest that teacher facilitation enabled students to assume complete responsibility for their learning, which factored significantly throughout the progression of the AMA projects and into the final outcomes. The structuring of the AMA projects, coupled with teacher support and encouragement, seemed to encourage students to examine newer strategies, construct knowledge, and persist to meet stated objectives. Overall, the AMA experience nurtured constructivist learning, advanced knowledge construction, and emphasised the significance of ICT-mediation to working, thinking, and maximising learning. Additionally, the findings suggest that AMA-based learning reinforced different aspects pertaining to learning effectiveness and therefore led to deeper and better learning gains. These aspects are similarly highlighted in the literature of constructionism (Stager, 2001, 2005, 2008, 2013; Papert, 1980, 1993, 1999, 2000). The AMA-BL mode therefore seems to embed the roles of both students and teachers, which resolves one weakness found in the SGP literature (Reyna & Meier, 2018).

Since the AMA-BL model is informed by theoretical and empirical research, it can provide significant implications for the planning, designing, and implementation of AMA-based learning. Its major strengths are attributed to outlining various key enablers for facilitating AMA-based learning, as well as outlining potential inhibitors to constructionist learning relevant to the Omani HE context by setting realistic expectations concerning the explicit and implicit factors likely to influence the planning and implementation of AMA-based learning. Overall, the framework attributes an ecological view of the implications of AMA-based learning and the requirements for facilitating a more systematic AMA-based learning engagement, pedagogy, and environment.

6.5 Summary

This chapter discussed the overall findings of AMA-based learning drawing on the quantitative and qualitative data. It postulated that both quantitative and qualitative findings greatly overlap. A synthesis of findings was then presented according to major themes, which interacted with the research questions, theory, and relevant literature. The twelve emerging themes and their correspondence with quantitative findings provided (a) a more comprehensive picture of AMA-

based learning and its different implications, and (b) a systematic approach as to how they fit into a comprehensive model of AMA-based learning. The next chapter addresses the study's conclusions, implications, and recommendations.

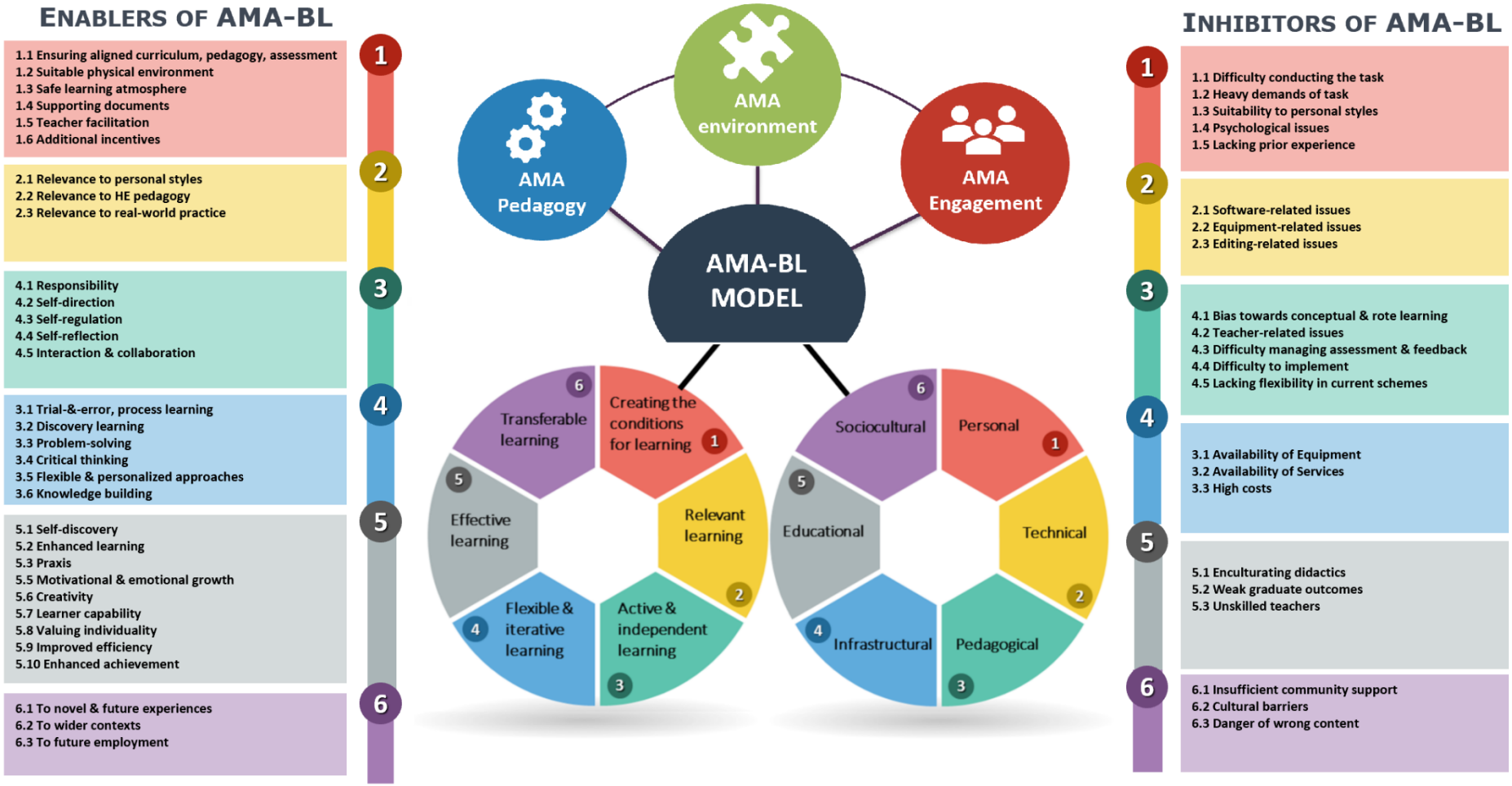


Figure 6.1. Proposed AMA-BL Model

Chapter 7 Conclusions, Implications and Recommendations

7.1 Introduction

This PhD thesis explored AMA-based learning, as represented by the case of SGP, in the context of IELTE in Oman through the lens of Papertian constructionism. The questions were designed to understand the pedagogical implications of AMA engagement, AMA pedagogy, and AMA environment design. Using quantitative and qualitative data, the study elicited the perspectives of both students and teachers regarding these areas in order to understand the different implications of AMA-based learning as a constructionist approach to learning and ultimately to propound a model for AMA-based learning design and implementation, considering the gaps in research.

Adopting Papertian constructionism as a theoretical and conceptual model provided an added significance in light of the insufficient association between the theory and AMA-based learning, as well as the insufficient models and frameworks derived from the theory. The thesis aimed to address both gaps by conducting an in-depth account of AMA-based learning and, consequently, contributing an AMA-BL model grounded in study findings.

This chapter begins with a summary of the key findings and then outlines the major study contributions, their implications for theory and practice, the study's limitations, and it makes recommendations for future research.

7.2 Summary of Key Findings According to Research Questions

The present study aimed to contribute to existing research on AMA-based learning, and SGP in particular, an area under-researched in the HE context of Oman. Overall, the findings revealed significant and comprehensive attributions of AMA-based learning in relation to AMA engagement, AMA pedagogy, and AMA environment, along with the different challenges associated with each area and some suggestions to overcome them. Considering that AMA-based learning is still in its early developments in Oman (Naqvi & Al-Mahrooqi, 2015, 2016), this study extends the existing knowledge of this approach and establishes a foundation of research underpinned by Papert's theory of constructionism in the Omani context. As discussed above, these findings are generally consistent with theory (i.e., Papertian constructionism) and the AMA-based learning literature reviewed in Chapters Two and Three. Nevertheless, the findings present

pioneering evidence of SGP in the research context. They also contribute to the current literature by focusing on three major areas of inquiry, adopting Papert's constructionism, and developing a model for AMA-based learning. A summary of the key findings is provided below per research question.

7.2.1 RQ1: How do students and academics evaluate learner engagement in AMA-based learning?

Research on AMA engagement across educational disciplines and contexts reveals significant educative gains, as well as challenges associated with AMA-based learning. There is, however, a lack of consensus regarding the 'engagement' construct, how it is theorised, and how it is operationalised (Reyna & Meier, 2018). These claims are also relevant to this context of investigation, as only four relevant research studies (i.e., Al-Mahrooqi & Naqvi, 2014; Naqvi, 2015; Naqvi & Al-Mahrooqi, 2015, 2016) have been located and these are drawn from undergraduate engineering contexts, focus on SGDV, and are underpinned by different theoretical models. This limited evidence underscores a need for more research on this area, particularly so as to understand and operationalise AMA-based learning engagement and its broad implications. This is because existing local evidence is interested only in the implications of AMA for specific aspects of engagement, rather than in developing a framework and model for AMA-based learning design and implementation.

The study's findings, by contrast, provide more comprehensive attributions of engagement compared to the local literature and, consequently, they provide compelling evidence for how AMA engagement can be understood and operationalised. Findings from both the quantitative and qualitative methods suggest AMA experiences were highly engaging and appeared to engage students in a range of aspects. Not only did the findings reveal highly positive views regarding the multifaceted dimensions of engagement (i.e., cognitive, metacognitive, reflective, affective, behavioural, and social), they also indicated that the process-based approach of AMA highlighted varying degrees of influence among these aspects of engagement throughout the production phases.

It was clear from the findings that AMA learning stipulated several design considerations for successful facilitation, which underscores the role teachers played in managing and overseeing this approach. These had significant implications for how learners engaged and the extent to which they engaged in learning. These aspects are seen to be in line with research and theory. For instance, Papert's theoretical contributions devote considerable attention to creating the

conditions for productive learning, outlining the various elements that contribute to more effective constructionist learning.

As for the implications for process learning, the AMA experience encouraged flexible and iterative approaches to learning. A large part of it involved discovery learning and knowledge-building, where students self-explored and experimented with the tools and their functionalities, as well as building deeper knowledge of the topic and the tools by consulting a range of sources. This suggests that AMA production demanded active involvement and autonomy throughout the process, as substantiated by the amount of self-direction, self-regulation, and self-reflection students exercised. Some interesting findings concerned how AMA contributed to enhancing self-discovery and learner motivation. It was perhaps most enlightening to find that AMA experiences enabled students to discover some new aptitudes and abilities they never knew they possessed. This had motivational and empowering effects on many of them. Several students even transferred their knowledge and skills to novel experiences within the HEI, such as creating book-review podcasts for the reading club.

These aspects of engagement bring most of the study findings in line with the relevant literature on AMA, as well as with Papert's constructionist approach, especially regarding non-linear, iterative, exploratory, and discovery-based learning (Papert, 1980, 1987, 2000), and personal and concrete approaches to learning (Kafai, 2005; Papert & Harel, 1991; Turkle & Papert, 1990, 1992). In fact, the richness and scope of engagement in AMA suggested by the findings broadly highlights the effectiveness of the AMA-based learning and its rich implications for empowering more productive and effective learner engagement. Perhaps the constructionist perspective has enabled a better appreciation of the scope of engagement in such a learning approach. The systematic approach for elucidating and reconceptualising this theory helped substantiate this claim.

7.2.2 RQ1.1: What challenges do students and academics associate with AMA-based learning?

Although AMA challenges are reported in the literature, little is known about how these challenges play in the context of HE in Oman, particularly in IELTE. The local literature on AMA (Al-Mahrooqi & Naqvi, 2014; Naqvi, 2015; Naqvi & Al-Mahrooqi, 2015, 2016) reports comparable challenges with SCDV, particularly with regard to scripting, time management, group-work management, and video creation. However, these findings are informed by experimental designs. The study findings, by contrast, are informed by a fixed programme of study built around PBL, which helps reduce potential biases caused by the enthusiasm for the task or the frustration

caused by it. Considering students in this context engage in authoring various artefacts (e.g., interactive presentations, google tools, online courses), their views about AMA-based learning can be considered much more informed and established.

The study findings revealed a wide range of challenges associated with SGP, which helped provide a detailed characterisation of the challenges associated with the different phases of production, as experienced and perceived by the students and academics. From the perspective of the students, the findings revealed that AMA experiences had variable impacts. The complexity of the AMA experience posed challenges concerning project management and students' perseverance to meet deadlines and avoid burnout. The relative novelty of SGP and a lack of relevant experiences contributed to this, suggesting that students lacked self-efficacy and confidence in directing, conducting, and managing the AMA approach, particularly in the earlier stages. Technical challenges attributed to technical glitches, technological complexity, and poor-quality equipment were also somewhat constraining. Some students devoted additional time learning how to use the software and trying several alternative devices, which added to their anxiety, frustration, and confusion and pushed them to seek assistance from teachers and peers. The HEI was also reported to lack the proper facilities needed to facilitate productive and successful AMA learning.

The teachers' perspective was equally illuminating regarding the role of facilitation, particularly when concerning the relevant measures and interventions needed to direct, facilitate, and sustain the AMA experience. This perspective contributed more depth to the often implicit forms of planning involved in the task. The study findings revealed various forms of project-initiation (e.g., instruction, modelling, delivery), project-direction (e.g., intellectual, physical, and emotional support, follow-up, assistance), and project-evaluation measures (e.g., grading considerations, giving alternative chances, learning from experience). While both theory and global literature shed light on similar challenges, the relevant local literature is limited in this regard. Only two studies (Naqvi, 2015; Naqvi & Al-Mahrooqi, 2015) report on teachers' perspectives, which enables this study's findings to contribute to advancing scholarship in this area by contributing a comprehensive attribution of the planning and the support and intervention measures necessary for facilitating AMA-based learning.

7.2.3 RQ1.2: What suggestions do students and academics propose to overcome these challenges of AMA-based learning?

The findings revealed several coping strategies as well as suggestions to minimise and overcome the challenges inherent in AMA experiences. Considering the daunting nature of the task requirements and the lack of prior experience, the findings suggest students responded

differently to the challenges they encountered, some being more independent than others. For some, consulting internet sources boosted their self-learning, filled their knowledge gaps, and minimised teacher-dependency and direction. Others demanded more support from their teachers and peers throughout the production phases. This is because they were under-skilled for such an open-ended and flexible approach, considering they have been reared through heavy structuring and strict teacher guidance. Some also sought different forms of teacher validation to ensure their work met task expectations. It was interesting, however, to find many of these challenges subsided over time, suggesting that students gained confidence in their knowledge and abilities the more they devoted time to plan, edit, improve, and perfect their products. Some of these findings fall in line with the literature, particularly regarding students learning to deal with problems of AMA production (Naqvi & Al-Mahrooqi, 2016) and seeking peer and teacher support (Naqvi & Al-Mahrooqi, 2016). The coping strategies reported in the findings also established a positive view regarding the role of learning autonomy in shaping the development of the task. Furthermore, the findings shed a favourable light on the role played by personal gadgets in facilitating and sustaining AMA-based learning, despite the infrastructural deficiencies in the HEI.

In response to these challenges, findings revealed several strategies which could improve the quality of students' work while increasing their efficiency. Key suggestions include consulting experts, attempting rehearsal and practice, dividing the recording into parts, and persevering through the process. These draw on the participants' own experiences because they either found these to work for them or concluded these would have enhanced their work, especially after having tried different strategies and alternatives. Some of these suggestions are consistent with relevant literature, such as regarding providing more structure, expert training, and support schemes (Naqvi, 2015; Phillips; 2017).

Additionally, the findings revealed that a structured intervention scheme, extensive modelling, and allowing more time could enhance the quality of AMA-based learning experiences. While many challenges seemed to subside over time, especially those associated with psychological tensions, technical upskilling, and task complexity, the findings suggest these factors could have helped familiarise students with the arduous nature of AMA-based learning, especially considering they lacked relevant experiences. These findings parallel Naqvi's (2015) propositions for improving SGDV in the context of undergraduate engineering in Oman.

Technical and infrastructural suggestions were also proposed. Key suggestions include providing a dedicated recording studio and quality equipment. Overall, these demands fall in line with theory regarding providing the resources that resemble those found in authentic real-life contexts (Papert, 1980; Resnick & Rosenbaum, 2013) and creating access to educational objects and

materials to aid working and thinking (Papert, 1980; Stager, 2005). This suggests more effort is required by the institution to optimise the infrastructural demands of the AMA learning environment.

7.2.4 RQ2: How do students and academics evaluate the pedagogical approach of AMA-based learning?

The four pedagogical principles underpinning the AMA approach, namely learning-by-doing, artefact creation, student-centric learning, and ICT-mediated learning, were viewed positively with regard to their contribution to achieving relevant and meaningful learning, flexible and iterative learning, active and independent learning, enhanced and effective learning, and transferable learning. The implications of these elements are central to Papert's constructionist theory and parallel those advocated by adult learning theorists (Knowles, 1980, 1984) and experiential learning theorists (Kolb, 1984). They become especially meaningful in the context of lifelong learning and nurturing the skills of life and work, which is consistent with the education policy principles and objectives in Oman (Education Council, 2017). Unlike other relevant research conducted in Oman, this study aimed to explicitly examine these four pedagogical principles of AMA-based learning and consequently it revealed deeper and more comprehensive insights regarding these areas of pedagogy.

The study findings acknowledged the multifaceted value of learning-by-doing in enhancing personally relevant and meaningful learning, promoting learning responsibility and persistence, encouraging deeper understanding, building learner capability, and enabling transferable skills. These findings align with Papert's emphasis on concrete learning and the significance of tinkering in supporting meaning-making (Papert, 1971, 1980), facilitating experimentation and exploration (Resnick & Rosenbaum, 2013), and facilitating acquisition and mastery (Papert, 1980). These findings become important, especially considering the limited research on AMA-based learning in Oman.

Artefact creation was also viewed with optimism, and it was most notably associated with enabling self-discovery of dormant aptitudes, promoting motivation and empowerment, enhancing creativity and talents, as well as promoting the transferability of knowledge and skills. These interesting findings are noteworthy, especially in an educational context that downplays knowledge-creation approaches to learning, such as AMA-based learning. While other relevant research in Oman addresses many of these areas, particularly in relation to promoting motivation (Naqvi, 2015; Naqvi & Al-Mahrooqi, 2016) and creativity (Naqvi & Al-Mahrooqi, 2016), the study findings contributed more depth and breadth to these concepts.

Student-centric learning was similarly viewed positively, especially when compared with the dominant didactic and teacher-centric pedagogies. The findings suggest students assumed responsibility, worked autonomously, and engaged deeply with knowledge and the activity. These findings are consistent with the assumptions of constructionist theory (Harel & Papert, 1990; Papert, 1980) and findings in the SGP literature (Forbes, 2015; Nie et al., 2008).

Finally, the findings were generally favourable regarding ICT-mediated learning and its implications for facilitating knowledge-building, enabling active involvement, enhancing positive attitudes to learning, and complementing learner styles. These findings correspond to Papert's (1980) view of the role of ICTs in mediating and enhancing learning and thinking and empowering creative expression. This is also consistent with the literature of SGP, which emphasises the role ICTs play in promoting technical knowledge and skills (Forbes, 2015; Khoo et al., 2013; Lazzari, 2008) and engagement with materials (Dale & Povey, 2009).

Several challenges, however, were raised concerning existing curricula and institutional preparedness, as well as the pedagogical and self-efficacy of both learners and academics in complying with the demands of AMA-based learning. These challenges chiefly present a number of conflicts, such as those between the demands of AMA pedagogy and the traditional pedagogical thinking dominant in the context; between the prevalence of didactic approaches as opposed to learner-centric pedagogies; between the needs to interact and engage with tools and the limited availability and access to facilities; between the need for flexible approaches to learning and the rigid and timebound nature of curriculum and instruction; between wider integration of AMA-based learning and the limited competence among students and academics; and between embracing and empowering AMA-based learning as opposed to the implicit sociocultural barriers inhibiting its uptake. These issues question the validity of existing support schemes for facilitating constructionist learning. They also reaffirm Papert's (2000) progressive views about educational reform.

7.2.5 RQ3: How do students and academics evaluate the learning environment of AMA-based learning?

The roles of teacher facilitation, creating a suitable learning atmosphere, and PBL yielded generally positive views from participants, which substantiates their significance in the design of AMA-based learning environments. These environment design principles identify complementary requirements corresponding to the role of expert intervention, provision of a supportive and friendly environment for learning, and the nature of learning activities, respectively. They are

central to the thesis of both Papert and Knowles as to the physical and psychological requirements for conditioning the classroom environment.

According to the study's findings, teacher facilitation seemed to promote active and independent learning, flexible and iterative learning, and more effective learning outcomes. However, this area had the lowest mean value of all categories, which indicates the persistence of the traditional teacher role as an authority figure. The findings indicated that inherent biases for didactics, lack of relevant experiences, and negative self-efficacy beliefs contributed to this negative view.

With regard to the AMA atmosphere, findings were positive in that it encouraged students to learn, try out different strategies, and learn from mistakes. The AMA experiences seemed to encourage safe learning and self-learning and nurtured a constructive view of the role of mistakes. These findings are generally in line with theory (Papert, 1980; Stager, 2001) which places the emphasis of the classroom environment on the creation of the conditions for students to learn safely. However, since the AMA task was conducted beyond and outside class meetings, some elements of the learning atmosphere suggested by theory (e.g., providing a supportive and friendly environment) were not perceived to be readily relevant in the students' data, whereas the teachers' data showed its relevance in the early phases of project initiation, along with the different forms of teacher support and encouragement made available throughout the production process. Most research studies on SGP (Dale & Povey, 2009; Naqvi, 2015; Nie et al., 2008) report findings from collaborative podcasts, which show the elements of the AMA atmosphere are more relevant to AMA experiences when compared to the present study. Additionally, tight deadlines and other external pressures negatively influenced the AMA experience, and this led to frustration and anxiety for some students. Phillips's (2017) findings also cited anxiety and time-consumption as inhibiting factors in the AMA experience.

Finally, the findings regarding PBL were noticeably positive, which reflects well on this approach to learning and assessment in comparison to the traditional didactic and testing approach. The project-based nature of AMA was recognised for, inter alia, encouraging learner accountability and self-direction, promoting iterative and flexible approaches to knowledge-building, and promoting deep, enhanced, and creative learning. These strengths are consistent with Papert's thesis and advocacy for open-ended, ill-defined, and non-linear inquiry-based learning (Alimisis & Kynigos, 2009; Harel & Papert, 1990; Stager, 2005).

Nonetheless, several challenges were raised regarding the AMA environment, which seemed to indicate a conflict between the hold and convenience of didactic approaches versus the capacity-building required for the project-based approach. Prevalent educational and pedagogic cultures within the institution, coupled with its poor infrastructural readiness reflected negatively on its

ability to afford a convenient PBL environment, as in providing flexible deadlines, providing access to tools and the internet, and enabling more learner autonomy. These elements seem to be significant design considerations for constructionist learning environments. Unlike mainstream educational cultures concerned with didactic learning and teaching for the test, constructionist learning environments require that such challenges be addressed to maximise the educative gains of constructionist learning.

Overall, the study findings provide greater insight regarding the implications of AMA-based learning for constructionist learning design in the IELTE context in Oman. They also provide significant direction for future research and practice.

7.3 Contributions of the Study

The study makes several significant contextual, theoretical, and practical contributions regarding AMA-based learning design and implementation. It is original in its contribution to knowledge regarding the exploration of AMA-based learning in an under-researched context, contributing an operationalised account of Papertian constructionism, and contributing an AMA-BL model informed by theory and refined by findings. The current state of knowledge in the field is quite limited from this perspective, particularly in the context of inquiry. The present study argues for the need for more research in the field and significantly contributes to the systematic facilitation of this endeavour.

Contextual Contributions

The thesis contributes to current knowledge on AMA-based learning, taking a significant cultural perspective by adopting a multiple-method case study design. Evidence on AMA-based learning is extremely limited in the Omani HE context, and almost non-existent in the case of SGP. Since most of the literature is informed by western and global contexts, this study contributes fresh evidence to the pool of knowledge on embedding AMA-based learning in pedagogy. This contribution is contextually significant as it delineates in-depth pedagogical implications and challenges relevant to this context. Such a critical appraisal of AMA-based learning is helpful for future research into this area, and it provides theoretical and practical implications for policy and practice, particularly regarding the enabling and inhibiting factors surrounding the integration of AMA-based learning in HE pedagogy. These findings could also be useful to the educational contexts in other Arab Gulf countries, given their similar educational, cultural, and policy directions.

Factoring in both students and academics' perspectives helped develop a better understanding of AMA-based learning in relation to three main areas of inquiry. First, the study contributes a micro-level account of AMA-based learning engagement through outlining teacher facilitation phases as well as student production phases, along with the challenges within both these phases. This detailed portrayal of student and teacher experiences has clear implications for pedagogical implementation and professional development. Secondly, the study contributes a meso-level account of key pedagogical principles underpinning AMA-based learning and their perceived challenges. These pedagogical perspectives of learning-by-doing, artefact creation, student-centred learning, and ICT-mediated learning provide a more coherent and refined understanding of embedding AMAs in pedagogy and the conditions surrounding this endeavour. Finally, the study contributes a better understanding of AMA-based learning environment design principles and how they interact when embedded in this approach to pedagogy as viewed by both students and academics.

Adopting a case study design with multiple stakeholders, multiple data-collection methods, and a deductive-inductive approach to analysis enabled the development of a holistic analytical framework for AMA-based learning. Overall, this contribution provides compelling evidence for advancing and embedding constructionist learning in the HE context of Oman. It also advances the knowledge-creation approach as an alternative approach to pedagogy. While the case study design does not allow for generalisability of results, contexts that share similar characteristics (e.g., other HEIs in Oman and Gulf countries) could relate to these findings. Considering that most findings are consistent with the literature and theory enhances their validity and allows for theoretical generalisations.

Practical Contributions

In addition to the contextual contributions, this study contributes a systematic approach to AMA-based learning which culminated in a framework for AMA design principles, grounded in the constructionist learning literature and informed by the study findings. While Papertian constructionism is well documented, little attention has been given to providing an operationalised model to easily embed it into the curriculum, especially when considering its breath, scope, and implications. This is where this study attempts to make one of its major contributions by offering a systematic reconceptualisation of the theory and a corresponding framework. It finally proposes an AMA-BL model to inform pedagogical design and implementation in the Omani context. The model, however, cannot be considered a whole-programme planning model as it falls short of providing instructions regarding evaluation plans, assessment, and other organisational components relevant to academic programme planning.

Theoretical Contribution

In terms of the existing literature, this study contributes fresh evidence of AMA-based learning from the Omani HE context through the lens of Papertian constructionism. Little is still known about AMA-based learning and the knowledge-creation approaches in HE pedagogy, and therefore the study adds to current knowledge (i.e., Al-Mahrooqi & Naqvi, 2014; Naqvi, 2015; Naqvi & AL-Mahrooqi, 2015, 2016) by contributing additional fresh insights from a new context (i.e., IELTE), adopting a new design (i.e., case study), and exploring a new artefact (i.e., SGP).

Furthermore, the model expounded from the study's findings embeds the teacher and student roles, thereby overcoming the gaps in limitations in the frameworks for AMA-based learning in other research (Naqvi, 2015; Naqvi & Al-Mahrooqi, 2016; Reyna & Meier, 2018). It also outlines key principles underpinning AMA-based design from the perspective of Papert's theory of constructionism, a perspective currently undermined in AMA research.

Thirdly, this study extends Papertian constructionism as a theoretical lens for AMA-based learning into the field of language education, including IELTE. In this regard, it provides an operationalised framework for Papert's theory and one which could enhance its integration to HE pedagogy. While this theory is often used as a theoretical perspective in many fields of study (e.g., Mathematics education, science education, programming, robotics), it is less common in the field of IELTE.

The study also extends Papertian constructionism as a theoretical lens for AMA-based learning, and in particular SGP. Generally, very little of the literature on SGP is framed by Papert's constructionism, despite its implications for all the fields pertaining to artefact creation. The study therefore contributes to filling this gap and reinforces the robustness of Papertian constructionism as a theory for AMA-based learning.

7.4 Implications for Practice and Theory

Implications for Practice

There is currently a gap regarding contextually informed frameworks for utilising ICTs to empower knowledge-creation and constructionist learning in the Omani HE context. Considering this gap, this study articulates a rationale for a knowledge-creation approach with constructionist underpinnings, coupled with a framework for AMA-based learning to facilitate its integration into HE pedagogy.

The proposed AMA-BL model provides an operationalised view of AMA-based learning in relation to its overarching design elements. From the policy and institutional perspectives, the AMA-BL model could help provide a rationale for the integration of the constructionist pedagogy and

knowledge-creation approach. The guiding elements of the AMA-BL model provide a focus at the level at which this framework operates, that is, environment design principles, pedagogical design principles, and learner engagement principles. These salient principles could help policy makers make decisions regarding enabling constructionist learning and embedding it into the curriculum. Similarly, understanding the enabling factors of the AMA-BL model could provide the necessary understanding for both policy makers and HEIs regarding key design considerations, the nature of learner participation, the nature of the learning process, the nature of effective outcomes, as well as the challenges surrounding AMA-based learning. This understanding is essential for appreciating the enabling factors for AMA-based learning and understanding how it can be facilitated while maintaining both rigour and effectiveness of outcomes. Additionally, understanding the AMA-BL inhibitors could help provide the understanding of the direct and indirect influences surrounding AMA-based learning implementation in the Omani HE context. This knowledge could help with planning for AMA-based learning and minimising the challenges that are likely to inhibit or disrupt embedding this approach into HE pedagogy. Overall, these three premises of the AMA-BL model could provide a rationale for alignment between curricula and educational policy directives in Oman, especially considering that the framework emphasises many areas central to educational reform such as those related to enabling constructivist pedagogies, project-based learning, and learner autonomy (Education Council, 2017).

From the educator/practitioner perspective, the AMA-BL model could help educators to understand both the enablers and inhibitors of AMA-based learning. This knowledge is essential when integrating AMA in pedagogy, particularly in relation to creating the necessary conditions for learning. It could also help in understanding the requirements needed to embed AMA-based learning within existing curricula, with attention to creating a culture conducive to learning, introducing new role dynamics for both teachers and students, and optimising the physical and psychological environment necessary for AMA-based learning.

Secondly, the framework could help educators value the significance of learning relevance as an empowering factor to enhance learner engagement and learning value. Understanding the various forms of relevance can help to position learning beyond the immediate demands of curricula and enhance the perceived value the AMA-based learning offers to students in the broader context of personal development.

Thirdly, the AMA-BL model could help educators understand the different aspects of learner engagement in AMA-based learning, with attention to promoting accountability, self-direction and regulating of learning, and self-articulation, as well as recognising the roles and responsibilities of educators and students in sustaining effective learning. This understanding is

essential for an appreciation of the nature of learner participation and how it links to broader programme goals. This becomes even more necessary in the context of educational reform in Oman because educational policies seem to prioritise more active learner participation, as outlined in their advocacy for constructivist pedagogies.

Fourthly, the AMA-BL model could also help educators understand the requirements of AMA-based learning as an open-ended process of learning and re-learning and, consequently, plan for various forms of support schemes to facilitate optimum student-centred learning, without compromising quality and rigour. This knowledge is significant not only for identifying the various requirements of the process (e.g., in terms of knowledge-building, trial-and-error, problem-solving, critical thinking) but also for recognising the role of tools as pedagogical agents for mediating, expanding, and refining learning. This stipulates the significance of enabling learners to adopt more personalised approaches and strategies and helping them arrive at their own conclusions. These elements have implications for more effective and reinforced knowledge- and skill-building.

Fifthly, the AMA-BL model could help educators plan for effective learning outcomes by emphasising the chief elements of effective learning, which are also reiterated in the relevant research literature and theory. Parallel to constructivist-constructionist traditions, the AMA-BL model underscores the advancement of deep learning, capability-building, praxis, creative learning and motivational growth. It also advocates key constructivist principles regarding the nurturing of individuality, promoting talents, and promoting diverse outcomes. This knowledge is essential for pedagogical design and implementation. Such knowledge also can address areas of alignment with the reform and policy directives in Oman.

Finally, the AMA-BL model can provide insight into prioritising learning that has transferability to other contexts and experiences. This knowledge becomes significant in the HE context of Oman since educational policy directives strive to align HE outcomes with employment demands. This suggests that learning transferability not only aims to prolong learning value but also to impart the knowledge and skills to relevant contexts of use.

From the student perspective, the AMA-BL model can help students to understand (1) the necessary conditions and expectations of facilitating their learning; (2) the relevance of learning to their personal, academic, and future endeavours and the importance of examining their choices and preferences in relation to AMA-based learning; (3) the nature of their roles and responsibilities to enable them to navigate the AMA experiences consciously and successfully; (4) the requirements of the learning experience, its expectations, and the type of engagement

required of them; (5) the elements of effective learning and what to aim for to achieve this; and finally (6) the transferability potentials of AMA-based learning beyond the immediate module.

Implications for Theory

Regarding the Implications for theory, this study provides a detailed account of the design of AMA learning environments, AMA pedagogy, and AMA engagement. This description revealed elaborate attributions of the factors surrounding and influencing AMA-based learning design and implementation in the IELTE context in Oman. Both direct and indict factors were described in sufficient detail to provide a transparent ascription of the circumstances surrounding the case under study. Therefore, both the positive gains and challenges are enlightening in addressing and advancing AMA-based learning in Omani HE.

While the study findings are largely consistent with theory and literature, they provide fresh and illuminating evidence which extends the existing knowledge of AMA-based learning in Oman and fills gaps in research in the IELTE context. They reinforce the desirable learning implications of AMA-based learning by extending their validity to the local context. They also provide revealing evidence regarding the case of utilising ICTs to empower a knowledge-creation approach.

On a larger note, constructionist pedagogies are not sufficiently addressed in the local literature, with considerably limited research having been conducted on constructionist approaches, Papertian constructionism, and AMA-based learning. This is surprising given the emphasis of educational policy (Education Council, 2012, 2017) on nurturing constructivist pedagogies and constructivist learning environments. Fortunately, the study findings respond to many of these objectives, such as in relation to nurturing constructivist learning, adopting student-centric approaches, promoting learner responsibility and autonomy, and promoting creativity and problem-solving. The present study contributes significant insights regarding designing, implementing, and nurturing AMA-based learning and increasing its acceptance into HE pedagogy in Oman.

7.5 Reflection on Study Limitations

This study had several limitations. Many contextual limitations could have influenced the perspectives of participants and therefore the findings. The relative newness of the AMA approach and its positioning within a conventional educational setting might have positively influenced participant perspectives, resulting in overwhelmingly positive reactions. While care was taken to obtain balanced views, it is possible that the enthusiasm for (or frustration with) the approach yielded slightly biased views. A second potential influence could be attributed to the

pedagogical schemes in place. Critiques of the Omani education system suggest that most students reject the informational and teacher-centric modes of instruction and, therefore, the AMA approach seemed to provide a more appealing alternative. By contrast, some participants mentioned having been enculturated (hence predisposed) to teacher-centric and information-delivery approaches, which could have potentially influenced their rejection of alternative approaches, including AMA-based learning.

Some methodological limitations could also be identified. There are conceptual limitations regarding the areas of inquiry. Many other principles of AMA-based learning environments and pedagogy were not factored into this study. As a result, this study should only be considered significant in relation to the specific principles it explored. Furthermore, only three teacher participants took part in this study, which could have influenced the average results in favour of student views. It is difficult to draw a balanced comparative view from three participants, and therefore the study would have benefited from more teacher participants, even from alternative settings. Also, the sample group of teachers is skewed towards those who have prior AMA-based learning experience, and therefore this sample is not representative of all IELTE teachers. More generally, the sampling was based on availability and participant willingness, which could have influenced the generation of even better study outcomes. Furthermore, while the questionnaire instrument generated a high internal consistency value of Cronbach's alpha, wider validation measures could have enhanced its validity claims. This may include testing the instrument with more than one sample and comparing the internal consistency measures thus obtained. Essentially, the study findings are significant, but the case study design does not allow for generalisability of results, although contexts that share similar characteristics (e.g., other HEIs in Oman and the Gulf) could benefit from these findings. Considering that the findings are consistent with the literature and theory enhances their validity and allows for theoretical generalisation.

7.6 Recommendations for Future Research

Several recommendations can be made to help extend and build on the study findings. These pertain to AMA as a pedagogical approach, Papertian constructionism as an underpinning framework for AMA-based learning, and the alignment between AMA, Papertian constructionism and educational policy in Oman.

The study findings are significant in the context of constructionist learning and attribute to AMA-based learning theoretical and empirical soundness, particularly in the HE context of Oman. However, there is a need for further research on AMA-based learning given the paucity or even absence of research literature on student-generated artefacts in Oman. Besides this study, the

existing local literature only points to the use of SGDV in the context of undergraduate engineering programmes. Addressing broader forms of AMAs, both as an individual and collaborative practice, in various educational contexts (e.g., undergraduate, postgraduate) and programmes (e.g., science, business, tourism) will contribute richer insights into the broader implications of AMA-based learning, inform pedagogical practice, and pave the way for wider integration into HE pedagogies.

More research is also needed in Oman HE to understand the implications of Papert's theory for the design of learning environments, facilitating student-centric pedagogies, and facilitating productive learner engagement. Perhaps alternative pedagogy and environment design principles need to be considered. Overall, future research needs to consider ways this theory can advance our understanding of other forms of AMA-based learning (e.g., student-generated e-books, comic books, short films, infographics), different programmes (e.g., science education, media), different contexts and settings (e.g., post-graduate programmes, schools).

To complement this study's findings, it would be useful to research the alignment between the pedagogical implications of Papertian constructionism and the educational policy goals and objectives more closely and establish frameworks and models for pedagogical design, practice, and assessment. The implications from the study findings, along with the proposed AMA-BL model, seem consistent with the education policy directives. This area warrants further research.

The literature on the design of authentic learning environments informed by Papertian constructionism also appears to also be limited. It would therefore be helpful to address how the theory contributes to this area. This becomes especially significant in the light of the growing interest in enabling constructivist environments and constructivist learning in Oman.

In the light of the COVID-19 pandemic, it would also be timely to explore the implications of AMA-based learning for distance and online instruction and develop appropriate models to complement AMA design, implementation, and assessment. Such frameworks would help educators in designing AMA tasks and assessment rubrics and in identifying the needs for training and support.

7.7 Concluding Remarks

This case study adopted a constructionist learning lens to explore AMA-based learning in the context of IELTE in Oman with the aim of understanding students and academics' experiences, views, and perspectives of AMA engagement, AMA pedagogy, and AMA environment and their implications for student learning and pedagogical design and implementation. The study

addresses gaps in the research and practice regarding AMA-based learning in an under-researched context, along with gaps in operationalised frameworks for framing AMA-based learning implementation.

Essentially, the study contributes to current knowledge about AMA-based learning, and SGP in particular, by operationalising a framework for the constructionist theory, outlining various pedagogical implications for AMA-based learning, and contributing a model for AMA-Based learning design and implementation. The findings of this study are significant in the context of embedding technology into pedagogy and facilitating constructionist-constructivist pedagogies.

The study reveals key enablers for AMA-based learning, namely 'creating the conditions for learning', 'promoting relevant learning', 'promoting active and independent learning', 'promoting flexible and iterative learning', 'promoting effective learning', and 'promoting transferable learning'. It also reveals the 'personal', 'technical', 'pedagogical', 'infrastructural', 'educational', and 'sociocultural' factors which inhibit AMA-based learning. Collectively, these factors outline key considerations for the facilitation of AMA-based learning.

These insights are derived from educators and students, whose voice often goes unheard in policy planning. The study therefore contributes voices from the field that policy-makers will find useful. The findings will also advance the understanding of policymakers, educators, and students regarding the status quo of AMA-based learning, its implementation, and its challenges. I am confident these contributions will establish a basis for my future research directions and will hopefully inspire fruitful collaborations and projects within and beyond my affiliate institution.

Constructivist learning will expand further in Omani education considering its reform initiatives and orientations. Educators and course designers will need to find ways to facilitate constructivist learning environments and approaches to empower student-centred pedagogies, deep and engaged learning, and effective outcomes. This study contributes to this endeavour and the AMA-BL model can support the systematic integration of constructionist and AMA-based learning into HE pedagogy.

Appendix A Details on Setting and Study Phenomenon

1. Overview

This section describes in detail the context of the programme in which the phenomenon is taking place (i.e., Bachelor of Education programme in English Language and Literature, B.Ed. for short), as well as describes the phenomenon of investigation (i.e., AMA), particularly in the context of the Educational technology (EduTech) module. These contextual derails are aimed to afford a better understanding of the context and the phenomenon and the contextual realities that influence and determine them.

2. The context of B.Ed. programme

The first part provides detail on the context of the B.Ed. programme, with emphasis on 1) programme vision, mission, and goals, 2) defined graduate attributes, 3) programme structure, and 4) assessment scheme.

2.1 Vision, Mission, and goals of the B.Ed. programme

The vision, mission statement and goals are necessary attributes that frame how the programme operates. The B.Ed. programme's vision seems to capitalise on the centrality of professional development through aiming "…for a faculty that is an active part of the Omani and global education community …[through]… provide[ing] the support to teachers to further their professional development and through this aid in the higher for our students" (Programmes and Degree Plans, 2014). As to the mission statement, the B.Ed. in IELTE programme aims to "…prepare academically and educationally qualified teachers to teach English in Omani schools. It also aims to provide a well-resourced English Language learning environment for students to graduate as professionally qualified for the job market and be prepared to take their place as key players in advancing the future of Oman" (Programmes and Degree Plans, 2014). As noted, while the vision statement emphasises local and global community engagement and promoting professional development, the mission statement emphasises the provision of qualified English teachers for the needs of local employers, and the provision of an ideal learning environment that would facilitate their employment and meet national targets.

Furthermore, B.Ed. in IELTE programme's goals (Table 1) represent such aspects as ensuring the quality of graduate attributes that match employment needs (goals 1, 2, 6), further education (goal 3), quality provision and practice (goal 4), service language education (goal 5), faculty professional development (goal 7), infrastructure readiness (goal 9), pedagogical efficacy (goal 10), total-quality development (goal 11), and enhancing systemic functioning (goal 12). However, some of these goals look rather broad and require further unpacking (e.g., goals 4, 8, 10, 12). Further, there is no specific articulation of any underpinning learning framework which frames and guides the processes of instruction, learning, assessment and outcomes (cf. goal 10). Also, these goal statements establish no direct linkage to the principles and objectives explicated in the document of philosophy of education, and therefore one is forced to work out the connections for oneself. Furthermore, no details are provided as to how the department aims to translate policy framings of the Philosophy of Education into measurable and achievable learning outcomes.

Table 1. Goals of the B.Ed. in the IELTE programme

Goals

- **To provide students with a comprehensive grounding in English language education to support their future careers.**
- **To graduate professionally qualified and trained teachers as key players in advancing the future of Oman.**
- **To afford the opportunity for Omani students to pursue their studies internationally.**
- **To provide an international standard and quality of education to the students of the Sultanate of Oman.**
- **To train English literate IT and Business graduates.**
- **To provide a professional faculty of teachers and lecturers.**
- **To provide delineated lines of professional development for faculty members.**
- **To provide relevant and professional assistance to students in the pursuit of their studies.**
- **To provide a 21st century technology classroom.**
- **To provide a sound pedagogical base to the English Language Programme.**
- **To continue to develop all facets of the department, faculty and the teaching progress to afford students and faculty members alike with an international environment.**
- **To continue to explore external Oman and international connections and associations designed to further enhance current and future English language programmes.**

2.2 Graduate attributes of B.Ed. in the IELTE programme

Explicated graduate attributes for the B.Ed. in IELTE programme show emphasis on preparing knowledgeable and skilled graduates. As Table 2 shows, the graduate attributes range in relation to the spectrum of mastery, nature of skill, learner attributes and foci, showing a total of 10 goals (See OAAA, 2014; Department of English Language and Literature, 2018). They address such competencies as self-efficacy, cognitive and critical thinking competence, communicative competence, technical competence related to knowledge of English and use of technology, social skills, professional conduct and accountability, and problem-solving skills.

Table 2. Graduate attributes of B.Ed. programme

Graduate attributes
• **Graduates possess good self-management skills, are aware of their own personal strengths and weaknesses in the English language and are able to learn autonomously and work independently.**
• **Graduates are able to critically analyse, synthesise, appraise, interpret and evaluate information from a multitude of sources and perspectives in order to understand the intricacies of the English language, linguistics, and pedagogy, as well as to contribute to the formulation of new knowledge in these fields.**
• **Graduates are able to accurately and effectively communicate, articulate, and present sound and well-structured arguments and ideas in English in oral, visual, and written form for different purposes and different audiences.**
• **Graduates are able to appropriately use technology, as well as different learning strategies, in both teaching and learning.**
• **Graduates are able to think critically and apply their linguistic and pedagogical knowledge and skills to help establish creative and innovative learning environments.**
• **Graduates are able to perform well as team workers, possess good interpersonal skills, and show appreciation for planning, sharing and working towards common goals and objectives.**
• **Graduates possess a thorough and in-depth knowledge and understanding of the English language, linguistics, and literature, as well as of educational issues and teaching practices, and can apply said knowledge and skills in an EFL classroom in culturally relevant and innovative ways.**
• **Graduates are able to conduct themselves ethically and professionally, being aware of relevant codes and practices in teaching and learning.**
• **Graduates are proficient in written and spoken English, as well as in research methodology, and can, as a result, engage in research projects and make presentations in this language.**
• **Graduates are able to identify problems in educational settings and to work on solving them both independently and in collaboration with others.**

Major emphasis appears to be placed on (1) developing the integrated growth of learners in relation to learning values and skills, life and work skills, lifelong learning, etc.; (2) providing the right environment to help students succeed, particularly in relation to infrastructural readiness, qualified cadre, faculty professional development, and ongoing programme reviews; and (3) improving pedagogical efficacy, (General Secretariat of the Education Council, 2017; Programmes and Degree Plans, 2014). The quality factors establish a designated path for educational reform priorities

and directions relevant to this educational context. As such, such emphasis also aligns with the intent of this research study and provides the justification for the exploration of AMA by helping uncover aspects that surround its pedagogical implications.

2.3 Structure of B.Ed. in IELTE programme

Rustaq College of Education is one of the latest additions to the Omani HEIs, having its conversion from Rustaq College of Applied Sciences to Rustaq College of Education been approved by the Ministry of Higher Education to be enforced starting in the academic year 2017/2018 (Directorate General of Colleges of Applied Sciences, 2017). However, the B.Ed. in IELTE programme has been running since its establishment in 1987 (Programmes and Degree Plans, 2014). This teacher preparation programme was founded to satisfy major stakeholder demands (i.e. Ministry of Education) for qualified English teachers to join the local Omani schools. Considering this, a committee was formed during 2002-2003, with the participation of the Academic Council and Colleges' Council, and members from key educational providers in Oman, to identify programme underpinnings and outcomes, and consequently prepare a study plan for the B.Ed. programme.

The designed programme is laid out in a total of 132 credit hours (see Table 3 for the degree plan), with four main components broken into: 1) specialisation (83 credit hours), 2) educational (25 hours), 3) practicum (16 hours) and 4) cultural (8 hours) (MOHE, 2006/7). Unfortunately, ever since its establishment, the programme has not undergone review or accreditation. In fact, this raises a number of questions in relation to the efficacy of the programme in light of changing dynamics of the employment market and the dropping rate of graduate employability and performativity in the labour market (cf. Graduate Survey Department, 2015, 2016; Oman Mubasher, 2016). Moreover, the requirements of teaching in the context of the Ministry of Education in Oman (i.e. major stakeholder) have also changed, evidenced by the fact that the Ministry of Education has recently demanded an IELTS score of 6.0 and a candidacy test as prerequisites for securing employment. This proves the employment market for which the programme has been designed to cater for has evolved, while the B.Ed. programme has remained mostly unchanged to adapt to the evolving employment requirements.

Table 3. Degree plan for the B.Ed. in ELT programme

Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP1224	Listening and Speaking	3	2	2	Foundation Year	**1**
COMP2001	Introduction to Computer 1	2	1	2	Foundation Year	
ENSP1122	Advanced Writing 1	3	2	2	Foundation Year	
ENSP1121	Advanced Reading and Vocabulary	3	2	2	Foundation Year	
ENSP1123	Grammar and Usage 1	3	2	2	Foundation Year	
ENSP1212	Phonetics and Phonology	3	2	2	Foundation Year	
		17	11	12		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP1225	Advanced Writing 2	3	2	2	**ENSP1122**	**2**
ENSP1226	Grammar and Usage 2	3	2	2	**ENSP1123**	
COMP2002	Introduction to Computer 2	2	1	2	**COMP2001**	
ENSP1111	Introduction to Linguistics	3	2	2		
ENSP2151	Literature 1	3	2	2		
EDUC 600	Educational Foundation	3	3	-		
		17	12	10		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP2113	Morphology and Lexical Semantics	3	2	1	**ENSP1111**	**3**

ENSP2228	Report Writing	2	2	-	**ENSP1225**	
ENSP3127	Reading in Applied Linguistics	3	2	1	**ENSP1111**	
ENSP3134	Reading and Writing Skills development	3	2	2		
PSYC210	Educational Psychology	2	2	-		
ISLM4405	Islamic Culture	2	2	-		
Arab2003	Practical Arabic Language Skills	2	2	-		
		17	14	4		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP2114	Syntax and Structural Semantics	3	2	1	**ENSP2113**	**4**
ENSP3135	Vocabulary and Grammar Language Skills Development	3	2	2		
ENSP4152	Children's literature	3	2	2		
HIST1008	Oman Across History	2	2	-		
CURR107	ELT Methods in Teaching	3	3	-		
CURR088	Educational Technology Using IT	3	2	2	**COMP2002**	
		17	13	7		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP2232	Initial Literacy Skills Development	3	2	2		**5**
ENSP4221	Advanced Listening Comprehension	2	1	2		
ENSP4222	Creative Writing					
ENSP4223	Debating and Communication					
ENSP3228	Error Recognition and Correction	3	2	2		
EDUC800	School Management	2	1	2		
CURR170	Practicum 1	3	0	6	**CURR107**	
ENSP4245	ELT School Curriculum Analysis	2	1	2		
PSYC250	Assessment	3	3	-		
		18	10	16		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP2215	Language Acquisition	3	2	1		**6**
ENSP3211	Psycholinguistics	2	1	2	**ENSP1111**	
ENSP3212	Sociolinguistics					
ENSP3213	Discourse Analysis					
ENSP3133	Oral/Aural Language Skills Development	3	2	2		
PSYC240	Developmental Psychology	3	3	-		
CURR180	Practicum 2	3	0	6	**CURR170**	
Curr108	Classroom Research and Teacher Development	3	3	0		
		17	11	11		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP2231	Communicative Language Teaching Development	3	2	1	**CURR107**	**7**
ENSP3241	Language Through Stories	3	2	2		
ENSP3116	General Translation	3	2	1		
ENSP4251	World Literature	2	1	2	**ENSP2151**	
ENSP4252	Literature 2					
ENSP4253	Contemporary Literature and Poetry					
CURR190	Practicum 3	5	0	10		
		16	7	16		
Course Code & No.	**Course Title**	**Credit Hours**	**Theory**	**Practice**	**Prerequisites**	**Semester**
ENSP4143	Differential Learning and Independent Learning Strategies	3	2	2		**8**

PSYC4138	Research Methodology and Statistics	2	1	2		
ENSP4142	Language Through the Arts	3	2	2		
CURR200	Practicum 4	5	0	10	**CURR190**	
		13	5	16		

2.4 Assessment scheme

As detailed in Table 4 below, both formative and summative Assessment standards and practices are used in the B.Ed. English programme, with final exams worth 50% in all modules except for one. The distribution of the remaining 50% is allocated to continuous assessment, with mid-term examinations and classroom tests in the lead amounting to 50% in two modules, 40% in twenty-four modules, 30% in one module, 25% in six modules, 20% in three modules, 15% in four modules, and 10% in EduTech. Secondly, participation seems to be allocated a grade worth 10% in twenty-eight modules. Thirdly, six modules allocate 10% for continuous assessment without any specification as to the type of items to be used. Fourthly, only three modules include a report or written assignment element, allocating 20% each, while the third modules allocated 10% (i.e. EduTech). Fifthly, some modules make use of microteaching, with one module allocating 20% for it, one module allocating 15% and four modules allocating 10%. Sixthly, presentations also seem present in the continuous assessment scheme in a total of eight modules. One module allocates 20% for group presentations, three modules allocate 15% for individual presentations, one module allocates 10% for individual presentations, two modules allocate 25% and 20% jointly with a research project without specifying a clear-cut breakdown, and finally the EduTech module does not allocate any points for presentations. Seventhly, as to research projects, a total of six modules include it, two modules allocating 25%, one for a group and another for an individual research project, one module 15% for group research, one module allocating 10% for an individual research project, and two include it in a joint grade with a presentation worth 25% in one module and 20% in another. Finally, four modules offer practice or a practical element. The EduTech module allots 70%, another 30%, and two allocate 20% for the practical component.

Table 4. Breakdown of assessment types and weights of the B.Ed. in IELTE programme

Exams	**Allocation percentage**	**Number of modules (out of 41)**
Final exams	50%	40 (except for EduTech)
Continuous assessment exams	50%	2
	40%	24
	30%	1
	25%	6
	20%	3
	15%	4
	10%	1 (EduTech)
Class participation	10%	28
Unspecified continuous assessment	10%	6
Report	20%	3
	10%	1 (EduTech)
Micro-teaching	20%	1
	15%	1
	10%	4
Group presentations	20%	1
Individual presentations	15%	3

	10%	1
Presentations jointly with a research project	25%	1
	20%	1
Research projects (written)	25%	2
	15%	1
	10%	1
Practical projects	70%	1 (EduTech)
	30%	1
	20%	2
Blog entries	10%	1 (EduTech)

Having addressed the context of the B.Ed. in the 3IELTE programme, the next part details the phenomenon under investigation, that is, AMA in the context of B.Ed. programme, as represented in the EduTech module.

3. AMA in the context of EduTech module.

This part aims to provide a general view regarding the module, its requirements, and the assessment scheme.

3.1 Overview of module

The EduTech module (CURR088: Educational Technology Using IT) is offered in the fourth academic semester, often in the Spring semester. Students take this module as a degree requirement, proceeded with a pre-requisite which serves as an introduction into basic computing and is offered as a college requirement.

The EduTech module was redesigned in Spring 2014 and has been on offer since. With the new layout, this module emphasises student-centric learning, skill-building, and hands-on learning as foundational components to learning and assessment design. There is also an emphasis on nurturing various forms of individual and collaborative learning, as well as active learning skills. Through PBL, students get to produce various digital artefacts in varying levels of sophistication as indicators of learning competence and goal achievement. Such artefacts include producing individual and collaborative podcasts, producing dynamic presentations through Prezi and PowToon, designing various google applications, and, finally, creating a fully fleshed online course. There is a different assessment scheme for each artefact, and some of these artefacts are produced individually while others are collaborative.

3.1 Assessment scheme

As to the breakdown of assessment, the continuous assessment is worth 70% of the overall grade and 30% to the final assessment. Continuous assessment comprises five mini-projects (worth 40%), written reports (worth 10%), online quizzes (worth 10%), and five blog entries (worth 10%). As to the final assessment, students are expected to design an online course, fully structured and constructed in terms of content, assessment schemes, syllabi, choice of materials, delivery style, and the choice of an online-based course management system. This is detailed in Table 5.

Table 5. Breakdown of assessment types and weights of the EduTech module

Week	**Topics**	**Assessment type**	**Assessment Weight**
1 + 2	Overview of Computer-assisted language learning (CALL)	Reflective journal	2%
3		Reflective journal	2%

	Designing for a distributed learning environment	Collaborative survey design, administering, data collection, and analysis	10%
4+5	Google applications	Creating Google Apps	10%
		Reflective journal	5%
6+7	Podcasting	Online quiz	2.5%
		Solo and interview podcasts	10%
		Reflective journal	2%
8+9	Prezi and Powtoon	Online quiz	2.5%
		Collaborative Prezi and Powtoon	10%
		Reflective journal	2%
10+11	Massive Open Online Courses (MOOCs)	Online quiz	2.5%
		Report	5%
		Reflective journal	2%
12+13	Learning Management Systems (LMSs)	Online quiz	2.5%
14+15	A final project	Creating an online course	30%

3.3 The case of podcasting

Table 6. Breakdown of assessment types and weights of the EduTech module

Podcasting 10%		
Type	**Rubric**	**Breakdown**
Solo podcast	LENGTH The podcast is expected to be approx. 5 minutes long. VOICE QUALITY Your podcast is supposed to be grammatically error-free and well presented EFFORT Based on the effort you put in, you will receive credit. This includes sound effects, introductions and closing, and maybe mid-breaks CHOICE OF TOPIC The topic you choose is expected to be of interest and stimulate the listener.	1 1 2 1
Interview podcast	LENGTH The podcast is expected to be approx. 5 minutes long. VOICE QUALITY Your podcast is supposed to be grammatically error-free and well presented. EFFORT Based on the effort you put in, you will receive credit. This includes sound effects, introductions and closing, and maybe mid-breaks. CHOICE OF TOPIC The topic you choose is expected to be of interest and stimulate the listener.	1 1 2 1

References

Department of English Language and literature. (2018). Retrieved 24 November 2019, from https://sites.google.com/cas.edu.om/rus-dell

Appendix A

Programmes and Degree Plans. (2014). Retrieved 24 November 2019, from https://rustaq.cas.edu.om/Pages/Programs-and-Degree-Plans.aspx

Appendix B Eight Key Ideas behind Constructionism

Papert's work was heavily influenced by his first-hand experience in the CLL, a facility established in the Maine Youth Centre to offer constructionist-based learning to at-risk teens (Stager, 2005). Considering these students were disadvantaged in the traditional curricula (i.e., classified as learning disabled), the CLL offered an alternative model radically different from mainstream classrooms and aimed to involve these students in personal and collaborative, long-term inter-disciplinary projects where they had to demonstrate their learning in the form of artefacts. This productive learning environment manifested engaged approaches to learning wherein students engaged in rigorous learning, developed positive behaviours, and developed their self-esteem (Stager, 2005).

Papert provided a description of the key ideas underpinning CLL, which translated into (what many scholars refer to as) the 'eight powerful ideas' of constructionism (Stager, 2007, 2005; Martinez & Stager, 2013). These ideas are explored below in detail and positioned in the relevant literature.

1. Learning by Doing

> *The first big idea is learning by doing. We all learn better when learning is part of doing something we find really interesting. We learn best of all when we use what we learn to make something we really want. (Papert, 1999)*

The first big idea reinforces Papert's emphasis on tinkering (or bricolage) and learning through active experimentation and hands-on experiences. Papert (1993) argued for reinstating concrete learning and placing it on equal footing with abstract and formal learning, which complements his approach of externalising learning in the form of tangible artefacts. This emphasis on applied learning and practical application is congruent with many experientialist-pragmatist learning accounts (e.g., Dewey, Kolb, Lewin). In the same manner, constructionism advocates learning through direct experience, tinkering, invention, and hands-on projects (Stager, 2013). Papert emphasised the significance of learning through active experimentation and construction of tangible artefacts of personal relevance. Implied here is the idea that active engagement in doing something of interest adds a personal dimension to learning. It kindles passion, emotional investment, and meaningfulness to the learning experience.

2. Technology as a Building Material

> *If you can use technology to make things you can make a lot more interesting things. And you can learn a lot more by making them. (Papert, 1999)*

Papert argued for the significance of ICTs in mediating learning because he believed these tools have the potential to transform thinking and learning (Papert, 1980; Singer, 1982). For Papert, ICTs make a constructive medium that can enable children to do and make things. "Through crafting… tangible artefacts, learners actively engage with the knowledge base as they explore needed information and make the knowledge their own through reflection and practical application" (Kafai & Resnick, 1996). In this regard, computers seem to facilitate active, self-directed, discovery-based learning experiences (Papert, 1984), and such a process teaches children to 'learn how to learn' (Papert, 1980, 1986). In the context of Logo, Papert (1980) was interested in having students programme the computer and, in teaching the computer how to think, they come to learn how to think themselves. Coupled with free interaction with the tools and open-ended inquiry, ICTs help provide access to abstract concepts and ideas and engage with them in concrete ways (Harel & Papert, 1990; Papert, 1980), and offer much more contextualised and authentic outcomes for learning.

3. Hard Fun

> *We learn best and we work best if we enjoy what we are doing. But fun and enjoying doesn't mean 'easy'. The best fun is hard fun. (Papert, 1999)*

Constructionist learning assumes not only intellectual but also affective engagement so to ensure the learning experience is both personally relevant and meaningful (Kafai & Resnick, 1996; Papert, 1986). Papert argues that "…people learn better when are having fun, and are doing something they care about" (Bruckman, 1999, p. 77). Suggested here is the idea that fun implies an interest in the subject at hand. However, fun is not a goal for the learning task, but rather a driving force to fuel people's desire to learn. Adding a level of challenge (i.e., hard fun) is believed valuable in promoting higher levels of learner engagement, especially in areas that learners are passionate about and interested in (Papert, 1996).

4. Learning to Learn

> *Many students get the idea that 'the only way to learn is by being taught'. This is what makes them fail in school and in life. Nobody can teach you everything you need to know. You have to take charge of your own learning. (Papert, 1999)*

For students to take charge of their own learning requires a supportive environment that prepares them to assume ownership and responsibility for their own learning. This can be achieved by allowing students to explore, experiment and make connections among different areas of knowledge (Papert, 1993). This, according to Papert (1980), helps make learning more personal and allows learners to enact their personal learning styles. Papert (1993) also argued this is more effective since "the best learning takes place when the learner takes charge" (p. 24). A primary goal of the CLL project was to develop the habits, attitudes and sense of self needed to be a disciplined and successful learner (Stager, 2013).

5. Taking Time

> *The fifth big idea is taking time – the proper time for the job. Many students at school get used to being told every five minutes or every hour: do this, then do that, now do the next thing. If someone isn't telling them what to do they get bored. Life is not like that. To do anything important you have to learn to manage time for yourself. This is the hardest lesson for many of our students. (Papert, 1999)*

Papert emphasised the importance of having learners learn to self-direct their own learning. However, for this to happen requires appropriate learning experiences to facilitate this learning capacity. Affording students open-ended projects where they construct artefacts is likely to achieve this, according to Papert. The process of constructing artefacts can provide "…a cycle of self-directed learning, an iterative process by which learners invent for themselves the tools and mediations that best support the exploration of what they most care about" (Ackermann, 2001, p. 4). Papert's advocacy for constructionism, rather than instructionism, caters chiefly to improving learners' capacity to self-manage their learning. In this context, open-ended projects are argued to be more valuable than bite-sized learning opportunities offered by mainstream education. This is because open-ended projects afford learners "time to think, to dream, to gaze, to get a new idea and try it and drop it or persist, time to talk, to see other people's work and their reaction to yours" (Papert & Harel, 1991, p. 4). They also afford personal, intellectual, and emotional engagement (Johnson, 2014), and allow for "personal appropriation and expression of personal intellectual style" (Harel & Papert, 1990, p. 23). Further, they afford immersive learning that can enable deeper understanding and appreciation of complex processes and problem-solving. It is through sustained inquiry that students have opportunities to self-direct their learning and self-manage their time.

6. Freedom to Get Things Wrong

> *You can't get it right without getting it wrong. Nothing important works the first time. The only way to get it right is to look carefully at what happened when it went wrong. To succeed you need the freedom to goof on the way. (Papert, 1999)*

Here Papert stresses the importance of providing a safe atmosphere for students to construct, reconstruct and refine their learning (i.e., iterative processes of learning), without being weighed down by the sense of right or wrong or the need for precision (Papert, 1993). Central to the thesis is learning from one's mistakes, which offers opportunities for refining thinking and (re)aligning actions and goals. Iterative learning also allows for emergent thinking to happen, which establishes the significance of partial understandings and partial knowledge throughout the process of learning (Papert, 1993). For Papert, ICTs offer an alternative model of iterative learning and emergent thinking (especially evident in the case of programming which involved students in fixing programming bugs). As objects to think with, ICTs provide learners with rich opportunities to learn, make mistakes, and relearn from mistakes. This, however, requires an appropriate learning environment that tolerates trial and error. A major design principle underpinning CLL was to ensure "…the working of the learning environment should be sufficiently flexible not only to change to take account of experience but also to give students a genius sense of participating in its creation" (Stager, 2013, p. 488).

7. Do Unto Ourselves What We Do Unto Our Students

> *Do unto ourselves what we do unto our students. We are learning all the time. We have a lot of experience of other similar projects but each one is different. We do not have a preconceived idea of exactly how this will work out. We enjoy what we are doing but we expect it to be hard. We expect to take the time we need to get this right. Every difficulty we run into is an opportunity to learn. The best lesson we can give our students is to let them see us struggle to learn. (Papert, 1999)*

Teachers and educators play an important role in bridging students to the arduous nature of learning, in which learning is viewed as a constructive struggle. They should provide the type of atmosphere that tolerates mistakes and encourages using them as a locus for development. As facilitators, educators ought to set an environment of authentic, participatory, reciprocal, and constructive inquiry. Students need to be encouraged to assume ownership and responsibility for their own learning, which involves providing the conditions that enable them to self-manage and self-direct their learning (Kafai, 2005). It is better when a knowledge culture is developed where

the emphasis is on social collaboration and social construction of knowledge, and where educators and students can work as partners (Papert, 1993).

8. A Digital World

> *We are entering a digital world where knowing about digital technology is as important as reading and writing. So learning about computers is essential for our students' futures BUT the most important purpose is using them NOW to learn about everything else. (Papert, 1999)*

In this world of knowledge economy, ICTs Provide a platform for advancing knowledge building and meaning-making. ICTs can serve as tools to work and think with, tools to create projects, and a medium of expression (Papert & Harel, 1991; Papert, 1993). Most importantly, they provide the context for constructionist learning through which students can participate in the construction of what is new. One aspect that distinguished the CLL project from any previous implementation of constructionism was "…the central place of computing, the emphasis on construction, and an ability to build the entire 'school' to reflect those goals" (Stager, 2013, p. 488). As stager (2001) notes, ICTs afford the knowledge and skillset necessary for students to make a contribution to society, a practice especially revenant in this 21st century.

The eight ideas of constructionism emphasise some core areas that underpin Papertian theory of constructionist learning. These do not represent discrete but rather overlapping and complementary areas, and therefore seem to reinforce core beliefs behind his philosophy and design principles of the constructionist approach to learning. For instance, in the discussion of computer as a building material (i.e., idea 2), Papert notes how this tool affords students the ability to explore, experiment and make connections, and therefore enables them to learn how to learn and self-direct their learning (i.e., idea 4). Similarly, Papert emphasises the significance of affording students a safe atmosphere to make mistakes and learn from those mistakes (i.e., idea 6), and the idea that open-ended projects afford iterative cycles of learning and relearning (i.e., idea 5). These examples show the overlap among the eight key ideas underpinning the CLL.

Appendix C Aspects of Learner Engagement

Review of relevant literature revealed different aspects of engagement afforded by constructionist learning. These are elucidated in Table 1 drawing on theoretical and empirical literature on constructionist learning and empirical literature on constructionist and AMA-based learning, particularly the case of podcasting (Chapter Two).

Table 1. Engagement dimensions from the relevant theoretical and empirical literature

Levels of engagement	Their implications on enhancing learning
Cognitive	• ICT can facilitate new possibilities for thinking and growing cognitively (Papert, 1993). • ICTs have the potential to enable reflective and self-conscious thinking processes (Papert, 1980). • Creation of artefacts represents sophisticated understanding and creative thinking (Stager, 2005). • Effective technology implementation increases student learning, understanding and achievement, and supports the development of critical thinking and problem-solving skills (Pitler et al., 2007). • Digital technologies can promote critical thinking, creativity and problem-solving skills (Beynon, 2017). • Problem solving can lead to greater intellectual development and engagement (Stager, 2005). • Student-created podcasts enhanced understanding of topic (through broadening knowledge of the topic, linking info with previous knowledge, and viewing information from different perspectives through opinion sharing) (Nie et al., 2008). • Student-created podcasts promoted a deeper understanding of the material (Bart et al., 2011). • Student-created podcasts develop critical thinking skills and technology skills; it enhances their understanding of the material (Frydenberg, 2008). • Student-created podcasts enhanced understanding of the material (Lazzari, 2008). • Student-created podcasts encouraged students to engage with theoretical materials and subject matter (Dale & Povey, 2009).
Metacognitive	• When students take charge of their own learning, they construct, reconstruct, and refine their knowledge and thus learn how to learn (Papert, 1980, 1993, 1999). • Student-created podcasts encouraged students to engage in metacognitive reflection and they were engaged in learning how to learn (Forbes, 2015). • Through engaging in authoring podcasts, students identified areas of skill deficit and developed self-regulatory strategies as well as reflective and Metacognitive thinking (McLoughlin et al., 2006a). • Students showed a high level of engagement in the podcasting project (Lazzari, 2008).
Reflective	• ICTs afford learners iterative learning and learning from their mistakes (Papert, 1980, 1993). • ICTs have the potential to enable reflective thinking processes (Singer, 1982). • Student-generated podcasts helped students reflect and improved their metacognition (McLoughlin et al., 2006a). • Student-generated podcasts enable students to reflect on their own learning thru listening and improving their oral performance (Huann & Thong, 2006). • Student-generated podcasts enable students to reflect on their own learning through listening & improving their oral performance (Hargis & Wilson, 2005, in Nie et al., 2008). • Student-created digital stories were found effective in engaging medical students with reflective practice (Murray & Sanders, 2007, in Nie et al, 2008). • Podcast design, recording and editing developed reflective learning skills (Lazzari, 2008). • Engaging in digital storytelling shows that students engaged in deep thinking and reflection (Sadik, 2008).
Affective (or emotional)	• ICTs facilitate new possibilities for thinking and growing emotionally (Papert, 1980, 1993). • Constructing artefacts helped engage at-risk teens in rigorous learning, developed positive behaviours, and developed their self-esteem (Stager, 2005). • Using ICTs in learning emphasises the affective aspects of learning in the assimilation of knowledge (Beynon, 2017). • Student-created podcasts were found successful in enhancing motivation and commitment for IT students (McLoughlin et al., 2006a).

Appendix C

	• Student-created podcasts had a motivational benefit and increased the interest of psychology students who participated in creating and listening to podcasts from discussion of questions from fellow students (Nie et al, 2008). • Student-created podcasts motivated students who were otherwise disengaged (or disinterested) (Pegrum et al, 2014). • Through digital storytelling, students' motivation, engagement and enjoyment increased (Sadik, 2008).
Behavioural (or physical)	• Student-created podcasts facilitated learning technical skills, including operating software, solving problems in relation to editing the podcasts, and perseverance (Forbes, 2015). • Student-created podcasts facilitate the use of self-regulatory strategies and learning about podcast editing (McLoughlin et al., 2006a). • Student-created podcasts afforded students new expertise in podcasting technology and editing using Audacity (Nie et al., 2008). • Student-created podcasts involved critical thinking skills and technology skills (Frydenberg, 2008). • Student-created podcasts were useful in acquiring multimedia skills and competence (Lazzari, 2008). • Student-created podcasts enhanced students' technical skills and technical confidence (Khoo et al., 2013).
Social	• Construction of artefacts facilitates social and socio-constructivist knowledge-building (Papert, 1993). • Effective technology implementation can encourage collaborative learning (Pitler et al., 2007). • Digital technologies can promote such skills as collaboration (Beynon, 2017). • Podcasting can develop transferable team-working skills (Nie et al, 2008). • Student-created podcasts enhance collaboration (Bart et al., 2011). • Student-created podcasts promoted interpersonal engagement, fostered a sense of community for distance learners, and empowered them to express their ideas verbally for an authentic audience and listen to verbal feedback (Khoo et al., 2013). • Student-created podcasts enable sharing understanding, perspective-taking & negotiation of meaning among student producers (Lee, McLoughlin & Chan, 2008). • Student-created podcasts were valuable for practising & enhancing team-working skills (Nie et al., 2008)

Appendix D Ethical Clearance and Permission for Field Work

Approved by Faculty Ethics Committee - ERGO II 31637

ERGOII
Tue 4/24/2018 12:00 PM
To: Alhasani A.S.H. <asha1m15@soton.ac.uk>

Approved by Faculty Ethics Committee - ERGO II 31637

ERGO II – Ethics and Research Governance Online https://www.ergo2.soton.ac.uk

Submission ID: 31637
Submission Title: Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study
Submitter Name: Abdullah Alhasani

Your submission has now been approved by the Faculty Ethics Committee. You can begin your research unless you are still awaiting any other reviews or conditions of your approval.

Comments:

- corrections made

Click here to view the submission

TId: 23011_Email_to_submitter___Approval_from_Faculty_Ethics_committee__cat_B___C_ Id: 19221

asha1m15@soton.ac.uk coordinator

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Appendix D

Approved by Faculty Ethics Committee - ERGO II 31637.A1

ERGOII <ERGOII@soton.ac.uk>
Thu 8/12/2021 4:32 PM
To: Abdullah Alhasani <asha1m15@soton.ac.uk>

Approved by Faculty Ethics Committee - ERGO II 31637.A1

University of Southampton

ERGO II – Ethics and Research Governance Online https://www.ergo2.soton.ac.uk

Submission ID: 31637.A1
Submission Title: Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study
Submitter Name: Abdullah Alhasani

Your submission has now been approved by the Faculty Ethics Committee. You can begin your research unless you are still awaiting any other reviews or conditions of your approval.

Comments:

- Thank you for tending to the matters raised. Approval is granted. Please make the following small amendments before proceeding with the study.

  Submission Questionnaire

  P6 the start date normally needs to be one at least 10 days from today. Given that approval is being granted in this review phase, please adjust the date to tomorrow and do not commence the research before then.

  Ethics form

  Q.8 at bullet 2) change teaches' perceptions' to 'teachers' perceptions'

  Q9. The answer here needs to identify clearly where students, teachers and the policy maker will be approached, as is done in the answer to Q.13.

  Ethics application SDA

  Q.16 please indicate that you understand the necessary responsibilities.

Click here to view the submission

Tkt: 23011_Email_to_submitter___Approval_from_Faculty_Ethics_committee__cat_B___C_ Id: 400501
asha1m15@soton.ac.uk coordinator

Please do not reply to this message as it has been automatically generated by the system. This email address is not monitored.

UNIVERSITY OF Southampton

To whom it may concern

Re: Abdullah Alhasani

This letter confirms that Mr Abdullah Alhasani is a full-time research student within the School of Education at the University of Southampton. This letter confirms that Mr Abdullah Alhasani's intended research study procedures for data and fieldwork are in Oman.

Mr Abdullah Alhasani's proposed study is:

Submission ID: 31637

Submission Title: Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study
Submitter Name: Abdullah Alhasani

The proposed research will adopt a qualitative and quantitative approach with data collected through questionnaires and interviews with teachers and students in Oman. Appropriate ethical protocols will be adopted according to the policies of the University of Southampton.

Yours faithfully

Professor Martin Dyke

Head of Southampton Education School

Southampton Education School

Faculty of Social Sciences, Building 32, Highfield Campus, University of Southampton, Southampton SO17 1BJ United Kingdom Tel: +44 (0)23 8059 5563 www.soton.ac.uk/education

Appendix E Requesting Permission for Data Collection from the Gatekeepers

B.O Box 82

P.C. 112, Ruwi

Ministry of Higher Education, Oman

Phone: 00968 24340580

Fax: 00968 24340578

Dear Dr Abdullah Al-Shibli

Directorate General of the Colleges of Applied Sciences, Ministry of Higher Education,

My name is Abdullah Al Hasani, and I am a PhD researcher at the University of Southampton, School of Education. My research is funded by the Government of the Sultanate of Oman to investigate:

"How do students and academics view authoring multimedia artefacts (AMA) as an approach to learning in the context of Initial English Language Teacher Education (IELTE) in Oman?

This research adopts a case study design with the aim of exploring AMA-based learning in the context of initial English language teacher education (IELTE) from the perspective of students and academics. Rustaq College of Education has been selected as the most suitable setting to help illuminate the phenomenon under study. To help achieve the goals of the study, I request access to students and academics in the IELTE programme at Rustaq College of Education.

The study aims to collect data from a defined sample of participants in the IELTE programme. In the case of student participants, the intended research sample is those enrolled in the Educational Technology module in Spring 2018 and Fall 2018. As to teacher participants, it is only those who have had prior experience teaching the Educational Technology module.

The plan is to conduct semi-structured interviews with participants, in addition to conducting an online questionnaire. The interviews are aimed to elicit personal perspectives and views as to AMA learning experiences in relation to learner engagement, learning pedagogy and learning environment. Specific delineations of each area are aimed to be addressed in detail as informed by the theoretical framework of the study.

The research is not expected to raise any issues of concern nor disrupt routine class sessions. As such, no risks are foreseen to implicate study participants because of participation in this study. Recruitment of participants will be done on a voluntary basis. This study and the collected data will not negatively impact the curriculum as it does not disrupt nor impose any changes to objectives, timing or assessment procedures. As such, it will not overwhelm those who take part in the research.

Appendix E

Collected data will be saved in a password-protected computer storage to protect confidentiality. All references to individuals will be anonymised using a coding system. Participation in the study is voluntary and participants may withdraw from the study at any time without any legal consequences (Participant information sheets (PIS) and consent forms are attached). Furthermore, the study has been approved by the Research Ethics Committee of the University of Southampton, UK (Ethics reference number: **31637**). It is hoped that the outcomes of this study will be of value to educational provision, practice and outcomes in the HE sector, particularly in the IELTE programmes.

Your cooperation is highly appreciated.

Looking forward to hearing from you soon.

Sincerely,

Abdullah Said Hamed Al Hasani

PhD Researcher

Phone: +44-0-7553106278; +968-92156466

Education School

University of Southampton

Southampton, UK

SO17 1BJ

Appendix F Data Collection Approval from the Gatekeepers

Sultanate of Oman
Ministry of Higher Education
Directorate General of Colleges
of Applied Sciences

بسم الله الرحمن الرحيم

سلطنة عمان
وزارة التعليم العالي
المديرية العامة لكليات العلوم التطبيقية

الرقم: 5/6 / 2018/ 511 -صاد التاريخ: 2018/12/25م

المحترم

الدكتور / أحمد بن حميد البادري

عميد كلية التربية بالرستاق

السلام عليكم ورحمة الله وبركاته،،،،

الموضوع: تسهيل مهمة الباحث / عبدالله بن سعيد الحسني

نود إفادة عنايتكم الكريمة بأن الفاضل/ عبدالله بن سعيد الحسني، يقوم بإعداد دراسة بحثية بعنوان:

(Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study)

وذلك ضمن متطلبات الحصول على درجة الدكتوراه من جامعة ساوثهمبتون بالمملكة المتحدة.

عليه يرجى التكرم بتسهيل مهمة الباحث لإجراء هذه الدراسة في كليتكم. علماً بأن البيانات والنتائج المستخلصة سوف تستخدم لأغراض البحث العلمي.

وتفضلوا بقبول فائق الاحترام

سلمى بنت خلفان اليحيائية
مديرة مركز البحث العلمي

المديرية العامة للكليات العلوم التطبيقية
مركز البحث العلمي
سلطنة عمان
وزارة التعليم العالي

نحو تعليم عالٍ ذي جودة عالية يلبي متطلبات التنمية المستدامة

سلطنة عُمان ص.ب: ٨٢ روي - الرمزالبريدي: ١١٢ - هاتف ٢٤٣٤٠٥٨٠ / فاكس ٢٤٣٤٠٥٧٨

Sultanate of Oman, P.O.Box: 82 Ruwi, PC 112, Tel:24340580 / Fax 24340578 www.mohe.gov.om

Appendix F

Sultanate of Oman
Ministry of Higher Education,
Research & Innovation

سَلطنةُ عُمَان
وَزارَةُ التَعليمِ العَالي
والبَحثِ العِلميِّ والابتِكَار

No: D.P.S / 768 /2021
Date: 03/08/2021

To Whom It May Concern

After compliments,

I would like to inform you that **ABDULLAH SAID HAMED AL HASANI (P.No.: 02854163)** is a Student attendant University of Southampton in United Kingdom for his PhD program in Education Research under the title (Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study) please provide him the necessary help and assistant needed to complete his research.

Sincerely Yours,

NAWAL SALIM ALDEHANI
Director in Charge of Postgraduate Studies Department
Ministry of Higher Education, Research and Innovation

نحو تعليم عالٍ وبحث علمي وابتكار بمعايير عالمية من أجل تنمية مستدامة
سلطنة عُمان ص.ب: ٨٢ روي، الرمز البريدي: ١١٢، هاتف: ٢٤٣٤٠٩٠٠
Sultanate of Oman, P.O.BOX: 82 Ruwi, PC 112, Tel: 24340900, www.mohe.gov.om

Sultanate of Oman
University of Technology and Applied Sciences

سلطنة عمان
جامعة التقنية والعلوم التطبيقية

No. الرقم:
DATE: التاريخ:
DATE: الموافق:

To: the Head of Department of English Language and Literature,

We have received a letter from the director of the Scientific Research Centre, indicating that the researcher:

(**Abdullah Said Al Hasani**)

is conducting a study, titled:

(**Examining the Pedagogical, Employment and Policy Perspectives of Authoring Multimedia Artefacts in the Context of Initial English Language Teacher Education in Oman: An Exploratory Case Study**)

As part of the requirements of a PhD in Education degree from the University of Southampton, United Kingdom.

Therefore, kindly do the needful to facilitate the researcher's project in your department.

Kindest regards,

Dr. Ahamed Humid Al - Badri

Dean of Rustaq College of Education

In reference to the attached letter.

ص.ب : ٧٤ ، الرمز البريدي:١٣٣ الخويـر ، سلطنة عُمان ، هاتف: ٢٤٤٧٣٦١١ ، فاكس: ٢٤٤٧٨٤٠١
P.O. Box: 74 Al-Khuwair , Postal Code: 133 , Sultanate of Oman , Tel. : 24473611 , Fax: 24478401

Appendix G Piloting Details of Research Instruments

1. Piloting of Questionnaires

After developing the questionnaire, a pilot was conducted to enhance the reliability and validity of the instrument. In addition to expert feedback, the questionnaire was piloted with a sample of the target population to ensure correct interpretations are made. At the pre-piloting phase, experts and colleagues were consulted and asked to provide relevant feedback on form (i.e., length of instrument, organisation, presentation) and content (i.e., clarity and length of statements, comprehensibility, potential ambiguity of wording). Feedback was used to improve the instrument before the piloting phase.

At the piloting phase, copies of the questionnaire were distributed to a number of students who took this module in the previous semesters and were asked to provide feedback on content and format. Similarly, copies were distributed to some teaching faculty in Rustaq College of Education. Table 2 details the number of those who provided feedback on this phase.

Table 2. Number of participants in questionnaire piloting

Participants	Questionnaire
Teachers (PhD)	1
Teachers (MA)	1
Students	4
Total	6

Feedback obtained from participants went into refining and improving the questionnaire. This consisted of feedback on clarity, redundancy of some ideas, among others. The piloting phase resulted in some of the following modifications:

- a) simplifying some wording (e.g., ICTs, changed to IT or educational technology)
- b) merging some statements, and rephrasing others to minimise redundancy.

c) rephrasing many terms and adding additional information to the statements in the Arabic version of the instrument in order to enhance understanding.

2. Piloting of Semi-Structured Interviews

At this initial phase of piloting, copies of the instruments were both distributed in person as well as emailed to a number of colleagues who work as assistant professors and lecturers in the Ministry of Higher Education. They were asked to provide relevant feedback on form, presentation (i.e., face validity) and content (i.e., content validity). Feedback was collected and used to improve the final instrument.

At the piloting phase, the instrument was piloted with a sample of the target population to obtain further feedback on how they interpret the instrument in terms of content and structure. Table 1 details the response rate of those who participated in the sampling. Interviews lasted on average about forty-five minutes to one hour. All interviews were audio-recorded to allow the researcher deeper familiarity and engagement with data, and afforded opportunity to judge the quality and effectiveness of the interview procedures and outcomes.

Appendix G

Table 1. Number and type of participants in the interview piloting phase

Participants	Interview (English version)	Interview (Arabic version)
Teachers (PhD)	1	1
Teachers (MA)	2	1
Students	5	3
Total	8	5

The piloting phase helped provide a realistic expectation of the interview procedure and the individual items of the instrument. It also provided insight into the suitability of the wording, structure, and organisation of items. The researcher utilised note-taking to jot down keywords and made note of confusing questions or problematic ideas. The piloting phase resulted in some major modifications to many interview questions:

- a) additional probing questions were added to supplement the main questions so to help increase the level of consistency in the data collection phase. More improvising was needed to steer some questions, and thus more probing was needed with some participants;
- b) some modifications were made to the wording of some items (i.e. advocates, changed to encourages); This was more noticeable in Arabic, given the difficulty of choosing accurate equivalences.
- c) redundant questions were merged (i.e., the questions: 'what do you think about learning by doing?', 'How do you think it is valuable to HE learning?', were merged into, 'do you think learning by doing in valuable to learning in Omani HE?'). Additionally, the questions were closely linked to the Omani HE context (for specific reference), rather than left open-ended.
- d) Reordering some items, i.e. moving the second research question (the challenges and coping strategies) from 4th to 2nd position;
- e) some students struggled with providing detailed responses in English. Upon discussion with an expert panellist, a recommendation was made to translate the instrument into Arabic and conduct the interviews in Arabic with students. The second iteration in Arabic proved a better alternative in terms of flow of ideas and exchange;
- f) group and pair interviews proved less effective as participants tended to rely on each other on ideas, repeat similar ideas, felt nervous around each other, and felt they needed more time to express their ideas. Turn-taking was also disorganised and boring for some of them.

Appendix H Participant Information Sheets

1. Participant Information Sheet for Teacher Interviews

UNIVERSITY OF Southampton

Participant Information Sheet for teacher Interviews

Study Title: Examining the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman: An Exploratory Case Study

Researcher: Abdullah Said Hamed Al Hasani
ERGO number: 31637

Please read this information carefully before deciding to take part in this research. It is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

I am conducting this research project for a PhD at the University of Southampton, United Kingdom, and it is funded by the Government of the Sultanate of Oman. The aim of this study is to explore authoring multimedia artefacts (AMA) as a learning approach in the context of initial English language teacher education (IELTE) from the perspective of students and academics. AMA stands on the idea that learners learn better by engaging in a process of creating multimedia artefacts to demonstrate their learning acquisition. The overall aim of this study is to inform pedagogical practice and educational reform processes currently underway in Oman.

Why have I been chosen?

In order to achieve the aims of the study, I would like to know your own views as an IELTE academic towards AMA. Special emphasis is to be given to the implications of AMA to three areas: (1) learning engagement, (2) learning pedagogy, and (3) learning environment. These areas are important to elicit from a teacher perspective in order to understand how teachers valuate this learning approach, its perceived usefulness and relevance to learning in higher education. Therefore, you have been selected to participate in this study because you are an expert in your field and because your views are valuable to enrich the understanding of this area of practice.

What will be required of me to participate?

A number of relevant questions will be addressed in the interview. You are expected to consider all questions carefully and provide your honest input in response to each question. There are no right or wrong answers. The interview is expected to last around one hour. Please note that the interview will be audio recorded and your answers will be used for the purpose of this research.

Are there any risks involved?

Note that this research project is committed to abide by the Data Protection Acts of the University of Southampton. No potential risks are foreseen regarding your participation and shared views. You also have the right to refuse to answer any question and withdraw from the interview at any time. The information you contribute will be anonymized and protected to help maintain the confidentiality of the data. All data will be stored in a password protected computer, and only the researcher will have access to the true identity of participants.

Should you decide to take part in this research, kindly fill in the consent form and then return it to me so I can sign it. Should you request a copy for your personal records, I will be happy to provide you with one. Do not hesitate to contact me for further details at any time. In case of emergency, concern or complaint, kindly contact the Research Integrity and Governance Manager (+44 (0) 2380 595058, rgoinfo@soton.ac.uk).

Thank you for taking the time to read the information sheet and considering taking part in this research.

Yours sincerely,

Researcher: Abdullah Said Hamed Al Hasani

Email: asha1m15@soton.ac.uk

Phone: (+44) 0-7553106278

2. Participant Information Sheet for Student Interviews (Arabic & English versions)

UNIVERSITY OF Southampton

معلومات للمشاركين في المقابلات الشخصية (للطلاب)

عنوان الدراسة: بحث المنظور التعليمي لصناعة المحتوى في سياق برامج تحضير معلمي اللغة الانجليزية في سلطنة عمان: دراسة حالة استكشافية

الباحث : عبدالله بن سعيد بن حمد الحسني

رقم تصريح البحث: 31637

فضلاً إقرأ هذه المعلومات قبل أن تقرر المشاركة في هذا البحث. إذا قررت المشاركة سيطلب منك التوقيع على نموذج الموافقة المرفق

ما هو هدف البحث؟

أقوم بهذا البحث كمتطلب من دراستي للحصول على درجة الدكتوراة من جامعة ساوثهامبتون ببريطانيا، وهو ممول من حكومة سلطنة عمان. تهدف هذه الدراسة الى التعرف على المنظور التعليمي لصناعة المحتوى كأسلوب من أساليب التدريس في سياق برامج تحضير معلمي اللغة الانجليزية، وذلك من وجهة نظر الأكاديميين والطلبة. تتمحور فكرة التعليم عن طريق صناعة المحتوى في أن الطالب يتعلم بشكل أفضل متى ما انخرط في عملية صناعة المحتوى، ويكون بمثابة الدليل على عملية التعلم. وتتطلع الدراسة إلى تحقيق فهم أفضل للواقع الحالي لهذا الأسلوب من أساليب التعلم، حيث سيسهم في تغذية واقع التدريس الحالي وعمليات الإصلاح التعليمي القائمة حاليا في عمان.

لماذا تم اختياري للمشاركة في هذا البحث؟

من أجل تحقيق الأهداف المرجوة من هذه الدراسة، أرغب في معرفة رأيك كطالب في برنامج بكالوريوس اللغة الانجليزية تجاه صناعة المحتوى في اطار العملية التعليمية. سيتم التركيز بشكل أساس على صناعة المحتوى استنادا لثلاث محاور : (1) التفاعل في العملية التعليمية التي تدور على صناعة المحتوى، (2) منهجية التعلم عن طريق صناعة المحتوى، (3) البيئة التعليمية التي يدعمها التعلم عن طريق صناعة المحتوى. لا بد أن تستقصى هذه المحاور من وجهة نظر الطالب لفهم كيف يقيّم الطالب هذا الأسلوب من أساليب التعلم، والفائدة منها، وعلاقتها بالتعلم في السياق الجامعي. لهذا، تم اخيارك للمشاركة في هذه الدراسة كأحد المختصين في مجال البحث، ولأن آرائك ذات أهمية وقيمة في إثراء نتائج هذا البحث.

ماذا تتطلب مني المشاركة؟

ستطرح عليك مجموعة من الأسئلة، وسيطلب منك الإجابة بما تراه بصدق وصراحة على كل سؤال، مع العلم بأنه لا توجد إجابة صحيحة وأخرى خاطئة. يتوقع أن تمتد المقابلة لما يقارب الساعة الواحدة. أعلم أنه سيجري تسجيل المقابلة، ونحيطك علماً بأن كافة المعلومات التي ستقدمها لن تستخدم لغير أغراض هذا البحث.

هل هناك أي مخاطر تنتج من جراء مشاركتي في هذا البحث؟

مشروع الدراسة هذا محمي بشروط وقوانين البحث العلمي وحماية المعلومات بجامعة ساوثهامبتون، لذلك لا يتوقع أن تنتج أي مخاطر جراء مشاركتك ومشاركة آرائك في موضوع البحث. لك الحق في رفض الإجابة على أي من الأسئلة، وحق الانسحاب من المقابلة في أي وقت تريد. من أجل حماية الخصوصية، سيتم حفظ البيانات في وحدة تخزين كمبيوترية مشفرة بأرقام سرية، وسيكون بمقدور الباحث فقط الاطلاع على هوية المشاركين.

إذا قررت المشاركة في هذا البحث، فضلاً إملأ نموذج الموافقة المرفق، وسأوقعه وأعطيك نسخة لحفظها في سجلاتك الخاصة. إذا كان لديك إستفسار، لا تتردد بالتواصل معي عن طريق البيانات أدناه. في حالة الطوارئ، بامكانك التواصل مع المدير المعني بإدارة ونزاهة البحوث +44 (0) 2380 595058, rgoinfo@soton.ac.uk.

شكرا على تفضلك بالمشاركة وإثراء هذا البحث.

مع خالص التحايا،

الباحث: عبدالله بن سعيد بن حمد الحسني

البريد: asha1m15@soton.ac.uk

الهاتف: (+44) 0-7553106278

UNIVERSITY OF Southampton

Participant Information Sheet for student Interviews

Study Title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher: Abdullah Said Hamed Al Hasani
ERGO number: 31637

Please read this information carefully before deciding to take part in this research. It is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

I am conducting this research project for a PhD at the University of Southampton, United Kingdom, and it is funded by the Government of the Sultanate of Oman. The aim of this study is to explore authoring multimedia artefacts (AMA) as a learning approach in the context of initial English language teacher education (IELTE) from the perspective of students, teachers, prospective employers and policy makers. AMA stands on the idea that learners learn better by engaging in a process of creating multimedia artefacts to demonstrate their learning acquisition. The overall aim of this study is to inform pedagogical practice and educational reform processes currently underway in Oman.

Why have I been chosen?

In order to achieve the aims of the study, I would like to know your own views as an IELTE student towards AMA. Special emphasis is to be given to the implications of AMA to three areas: learning engagement, learning pedagogy, and learning environment. These areas are important to elicit from a student perspective in order to understand how students perceive this learning approach, and its perceived usefulness and relevance to learning in higher education. Therefore, you have been selected to participate in this study because you are an expert in your field and because your views are valuable to enrich the understanding of this area of practice.

What will be required of me to participate?

A number of relevant questions will be addressed in the interview. You are expected to consider all questions carefully and provide your honest input in response to each question. There are no right or wrong answers. The interview is expected to last from one to one to one and a half hour. Please note that the interview will be audio recorded and your answers will be used for the purpose of this research.

Are there any risks involved?

Note that this research project is committed to abide by the Data Protection Acts of the University of Southampton. No potential risks are foreseen regarding your participation and shared views. You also have the right to refuse to answer any question and withdraw from the interview at any time. The information you contribute will be anonymized and protected to help maintain the confidentiality of the data. All data will be stored in a password protected computer, and only the researcher will have access to the true identity of participants.

Should you decide to take part in this research, kindly fill in the consent form and then return it to me so I can sign it. Should you request a copy for your personal records, I will be happy to provide you with one. Do not hesitate to contact me for further details at any time. In case of emergency, concern or complaint, kindly contact the Research Integrity and Governance Manager (+44 (0) 2380 595058, rgoinfo@soton.ac.uk).

Thank you for taking the time to read the information sheet and considering taking part in this research.

Yours sincerely,

Researcher: Abdullah Said Hamed Al Hasani

Email: asha1m15@soton.ac.uk

Phone: (+44) 0-7553106278

3. Participant Information Sheet for the Two-Part Data Validation Phase Consisting of One-To-One Interviews and a Follow-up Focus-Group

UNIVERSITY OF Southampton

Participant Information Sheet

Study Title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher: Abdullah Said Hamed Al Hasani
ERGO number: 31637

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

My name is Abdullah Said Hamed Al Hasani. I am a student at the University of Southampton, United Kingdom, studying towards a degree of Doctor of Philosophy in Education. This research project is funded by the Government of the Sultanate of Oman and sponsored by the University of Southampton. The aim of this study is to explore authoring multimedia artefacts (AMA) as a learning approach in the context of initial English language teacher education (IELTE) from the perspective of students and teachers. The research aims to elicit participants' experiences, views and perceptions regarding AMA-based learning and the different challenges it raises. The overall aim of this study is to inform pedagogical practice and educational reform processes currently underway in Oman.

Why have I been asked to participate?

You have been approached to participate in this study because of your earlier involvement in this research and because your views are valuable to enrich the understanding of this area of practice. In order to achieve the aims of the study, I would like to involve 3-5 participants in a two-part data validation phase of the researcher's analysis and conclusions drawn from other qualitative data, namely semi-structured interviews and student reflective journals. It is important to validate these conclusions from the viewpoint of study participants to ensure the accuracy of the analysis, to validate the representation of participant opinions and perspectives, and to minimize potential researcher biases.

What will happen to me if I take part?

If you agree to take part, you will be asked to participate in two-part data validation process: (1) a one-to-one interview to check if the researcher's analysis of coded segments in the transcripts matches what you intended to say, really captures your views and opinions, and clearly represents your ideas, as well as to check if your views regarding AMA-based learning are still persistent, whether you need to add additional ideas overlooked before, or whether you need to modify or change your views; and (2) a follow-up focus group discussion with other students and teachers to validate the representation of research outcomes and conclusions by validating the thematic scheme, evaluating the accuracy of the thematic scheme and code system, and challenging the researcher's interpretations by offering alternate accounts.

[Aug 6, 2021] [Version 2] [Ethics/IRAS number *(31637)*]

Therefore, you will be asked to answer a number of relevant questions and you are expected to consider all questions carefully and provide your honest input in response to each question. There are no right or wrong answers.

To help facilitate a productive data validation phase, you will receive in advance copies of coded segments from your previous interview scripts, as well as copies of the interpretations and conclusions drawn from your data as well as the data from other participants. You will need to review these on your own and come to the one-to-one interviews and focus group discussion prepared as to what you think of the researcher's analysis, interpretations, and conclusions drawn from the data.

The one-to-one interviews are expected to last a half hour, while the focus group discussion is expected to last around one hour. Please note that both one-to-one interviews and the focus group discussion will be conducted via a virtual platform, namely Google Meet, and both will be audio/video recorded for analysis purposes. You will be asked to sign a two-part consent form for this purpose. Note that your answers and views will be used only for research purposes, namely, to consolidate and validate study findings.

Are there any benefits in my taking part?

One of the major benefits in taking part in this study is to allow you to share your own voice and have a say regarding the analysis, interpretations, and conclusions made to your data. This can be beneficial for others in terms of improving the understanding and knowledge of AMA-based learning in the Omani context, which could have valuable implications for educational policy and reform.

Are there any risks involved?

Note that this research project is committed to abide by the Data Protection Acts of the University of Southampton. No potential risks are foreseen regarding your participation and shared views. You also have the right to refuse to answer any question and withdraw from the study. The information you contribute will be anonymized so to eliminate identification of individual participants. Data will be stored in password-protected device to help maintain the confidentiality of the data, and only the researcher will have access to the true identity of participants. All participant names will be anonymised, and potential forms of identification will be deleted.

What data will be collected?

As part of the requirements of this research study and to achieve its objectives, you will participate in a two-part data validation phase consisting of one-to-one interviews and a follow-up focus group discussion with other peers and teachers regarding the validation of the researcher's analysis, interpretations, and conclusions made to qualitative data, in which you took part. The researcher will chair the sessions and they will be audio/video recorded to enable deeper analysis and interpretation of data.

The research does not aim to collect any personal or sensitive data from participants. Yet, the data you contribute will be treated with confidentiality during the different phases of the data collection, storage, analysis, and writeup of the final report. During data handling, the consent forms and audio/visual recordings will be saved on a personal password-protected device. Also, personal data and consent forms will be kept separate from non-identifiable data in the phases of analysis. For the analysis and writeup phases, names of participants will be coded to reduce the risk of identification, protect their anonymity, and enhance confidentiality.

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Will my participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

Prior to data collection, issues of potential worry including participant anonymity and confidentiality of data will be communicated both verbally and in written consent forms which they will be required to sign. This will be done in concordance with the Data Protect Act and the ethics regulations of the University of Southampton.

Note that all information concerning participants' identity, such as consent forms and audio/video recordings, will be stored safely in a computer protected device. The recordings will be transcribed and participants' names will be anonymised.

While no guarantees can be offered regarding maintaining the confidentiality of the views shared by participants in front of other members in the focus-group discussion, all focus-group members will be requested to maintain the anonymity and confidentiality of each other's' views, as specified in the participant information sheets.

In relation to data handling, safe storage of collected data will be ensured where only the researcher will have access to the true identity of participants. For external review and member-check validation, as well as writeup of reports, names of participants will be anonymised to minimize the risk of personal identification of individual participants.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide that you want to participate, you will need to sign a consent form to show that you have agreed to take part. If you decide to withdraw, kindly contact me on the contact details below.

What happens if I change my mind?

You have the right to change your mind and withdraw without giving a reason and without your participant rights being affected. However, in accordance with the GDPR exemption for research, if you withdraw from the study it does not mean that I can delete your responses as part of a focus-group discussion because it is impossible to do so in the audio-recorded focus groups. However, I will ignore your responses in the analysis. Please note that the elimination of your data after the submission and publication of the research is not practicable.

If you decide to withdraw, kindly contact me on the contact details below.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly or indirectly identify you without your specific consent.

The data obtained from participants will be analysed, written up, and published as part of a PhD thesis. If you would like to receive a copy of the study results, contact me on the contact details below.

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All Research Data will be stored securely in a durable format appropriate for the type of Research Data in question and stored with adequate metadata and/or documentation to facilitate identification and support effective reuse of Research Data where this is appropriate, all in accordance with best practice in the relevant field of research. All Research Data will be deposited in the Repository held by the University of Southampton.

For data retention, and in accordance with section 7 of the university retention policy, all data should be held for a minimum of 10 years from collection, creation or generation of the Research Data or publication of the research results (whichever is the later) provided appropriate safeguards are in place to protect any personal data necessary to achieve the research objectives contained within it.

All data will be in digitized format and reference to participant will be anonymised. Names of participant will be coded so to protect participants' identity from being disclosed. Access to Research Data during the course of a research project should be restricted to the collaborators on the research project.

Where can I get more information?

In case you have questions after reading this information sheet, kindly reach me at (asha1m15@soton.ac.uk)

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researcher who will do his best to answer your questions.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).
You can also email the supervising committee using the following details: (M.Dyke@soton.ac.uk, J.B.Schulz@soton.ac.uk).

Data Protection Privacy Notice
The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at
http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

[Aug 6, 2021] [Version 2] [Ethics/IRAS number *(31637)*]

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you.

Thank the individual for taking the time to read the information sheet and considering taking part in the research.

Appendix I Consent Forms

1. Consent Form for Teacher Interviews

UNIVERSITY OF Southampton

CONSENT FORM FOR THE INTERVIEW

Study title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher name: Abdullah Said Hamed Al Hasani
ERGO number: 31637

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw at any time for any reason without my rights being affected.	
I understand that my interview will be audio recorded.	
I understand my responses will be anonymised in reports of the research.	
I understand that I may be quoted directly in reports of the research but that my name will not be used nor will any means of identification be used.	
I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of ethically approved research studies.	

Name of participant (print name) .....

Signature of participant.....

Date.....

Name of researcher (print name) .....

Signature of researcher .....

Date.....

2. Consent Form for Student Interviews (Arabic & English versions)

UNIVERSITY OF Southampton

نموذج إقرار بالمشاركة

عنوان الدراسة: بحث المنظور التعليمي لصناعة المحتوى في سياق برامج تحضير معلمي اللغة الانجليزية في سلطنة عمان: دراسة حالة استكشافية

الباحث: عبدالله بن سعيد بن حمد الحسني

رقم تصريح البحث: 31637

بعد قراءة ورقة معلومات المشاركة في البحث، أرجوا التكرم بتعبئة هذا النموذج، وتأكيد الموافقة على كل بند من البنود المرفقة بعلامة (✓)، ثم التوقيع عليه في حالة الموافقة:

لقد قرأت وفهمت ورقة معلومات المشاركة في البحث، وحصلت على الفرصة لطرح أسئلتي واستفساراتي عن الدراسة	
أوافق على المشاركة في مشروع البحث هذا و اوافق على استخدام بياناتي لأغراض هذا البحث	
أتفهم أن مشاركتي في هذا البحث هي تطوعية ولي الحق في الانسحاب في أي وقت دون أن يترتب على ذلك أي حقوق أو متطلبات	
أوافق على أن المقابلة ستكون مسجلة صوتيا	
أوافق على أن نتائج البحث لن تتيح التعرف على هويتي	
أوافق على أن تستخدم بياناتي في أغراض البحث ويتم اقتباس كلامي بما لا يتيح التعرف على هويتي	
أوافق على أن بياناتي سيتم تخزينها في جهاز حاسوبي مشفر، وأنها ستستخدم لأغراض بحوث مستوفية لتراخيص أخلاقيات البحث	

إسم المشارك: .....

توقيع المشارك: .....

التاريخ: .....

إسم الباحث: .....

توقيع الباحث: .....

التاريخ: .....

UNIVERSITY OF Southampton

CONSENT FORM FOR THE INTERVIEW

Study title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher name: Abdullah Said Hamed Al Hasani
ERGO number: 31637

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw at any time for any reason without my rights being affected.	
I understand that my interview will be audio recorded.	
I understand my responses will be anonymised in reports of the research.	
I understand that I may be quoted directly in reports of the research but that my name will not be used nor will any means of identification be used.	
I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of ethically approved research studies.	

Name of participant (print name) .....

Signature of participant.....

Date.....

Name of researcher (print name) .....

Signature of researcher .....

Date.....

Appendix I

3. Consent Form for the Two-Part Data Validation Phase Consisting of One-To-One Interviews and a Follow-up Focus-Group

UNIVERSITY OF Southampton

CONSENT FORM FOR THE DATA VALIDATION PHASE:
Part 1 (Individual interviews)

Study title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher name: Abdullah Said Hamed Al Hasani
ERGO number: 31637
Participant Identification Number (if applicable):

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (*Aug 6, 2021 /version 3*) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw for any reason without my participation rights being affected.	
I agree to take part in the *individual interview* for the purposes set out in the participation information sheet and understand that this will be *audio/video* recorded using the *virtual platform Google Meet*.	
I understand that I may be quoted directly in reports of the research but that I will not be directly/indirectly identified (e.g. that my name will not be used).	

Name of participant (print name).....

Signature of participant.....

Date.....

Name of researcher (print name).....

Signature of researcher .....

Date.....

[Aug 6, 2021] [Version 3] [Ethics/IRAS reference *(31637)*]

UNIVERSITY OF Southampton

CONSENT FORM FOR THE DATA VALIDATION PHASE: Part 2 (Focus Group Discussion)

Study title: An Exploratory Study of the Pedagogical Perspective of Authoring Multimedia Artefacts (AMA) in the Context of Initial English Language Teacher Education (IELTE) in Oman

Researcher name: Abdullah Said Hamed Al Hasani
ERGO number: 31637
Participant Identification Number (if applicable):

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (*Aug 6, 2021 /version 3*) **and have had the opportunity to ask questions about the study.**	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw for any reason without my participation rights being affected.	
I understand that if I withdraw from the study that it may not be possible to remove the data once my personal information is no longer linked to the data.	
I understand that I may be quoted directly in reports of the research but that I will not be directly/indirectly identified (e.g. that my name will not be used).	
I agree to take part in the *focus group discussion* **for the purposes set out in the participation information sheet and understand that these will be** *audio/video* **recorded using the** *virtual platform Google Meet.*	
I understand that my anonymity cannot be guaranteed in *the focus group discussion* **but that any information collected by the researchers will be kept confidential and participants will be asked to keep the discussions confidential.**	
I understand that I must keep the discussions confidential.	

Name of participant (print name).....

Signature of participant.....

Date.....

[Aug 6, 2021] [Version 3] [Ethics/IRAS reference *(31637)*]

UNIVERSITY OF Southampton

Name of researcher (print name).....

Signature of researcher .....

Date.....

Appendix J Qualitative Data Collection Instruments

1. Interview Questions for Academics

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Interview Questions for Teachers

The following semi-structured interview questions have been designed to investigate Omani IELTE teachers' perceptions of experiences in teaching through authoring multimedia artefacts (AMA) in relation to learning engagement, pedagogy and learning environment. It also seeks to identify the challenges posed by AMA-based learning and ways to overcome them. Probing and follow-up questions will be asked to clarify any doubts or ambiguities which may emerge during the interview.

Background questions

- Could you briefly introduce yourself?
- Could you briefly speak about your teaching experience?
- Have you had any previous experiences authoring multimedia artefacts/products (e.g. podcasts/vidcasts, etc.? If so, tell me about these experiences.

Investigating IELTE teachers' AMA experiences.

Theme 1: Learner engagement in authoring multimedia artefact (AMA) experiences

This part aims to explore how AMA experiences engage learners before, during and after the learning process/experience. It also aims to explore the challenges were faced, and the copying strategies to overcome such challenges.

Part 1. Recall of AMA experiences

- Let us recall your experience of authoring a multimedia artefact/product (e.g. podcast)
    a. **Pre-phase** [**Planning stage**]
        1. How did you make students aware of their learning needs and requirements of the project prior to their AMA?
            - Did you provide necessary instruction, resources, etc.?
            - Did students have the necessary skill and knowledge to do the project on their own?
            - How did they choose the topics?
        2. What resources (e.g. tools) & support did you provide students to get them started on their AMA projects? Why?
            - Equipment/ online resources/ social support/ technical support?

    b. **During-phase** [**creation stage**]
        3. What steps did students follow during the creation process?
            - Where did they do the AMA project (venue)? Why?
            - What set did they prepare?
            - How are these steps important to the project?
        ~~4.~~ What help and support did students get during the creation process? How did they impact on the project?
            - Who helped them? Why or why not?

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c. **Post-phase** [**reflection stage**]
    5. After finishing the AMA creation process, did students evaluate their outcome artefacts? How & Why?
        - What technical aspects they evaluated?
        - What linguistic aspects they evaluated?
        - Did they repeat/redo the project? How many times? Why?
    6. Do you think students were emotionally invested in the outcome? How & why?
        - How did they measure it? Did anyone help them evaluate it?
        - Di the outcome have an impact on their personal and academic levels?

Part 2. Challenges to AMA experiences

- Challenges faced with AMA project(s) & ways to overcome them
    7. Did you face any challenges/difficulties with AMA experiences before, during or after the AMA project(s)? can you describe some specific experiences of such challenges.
    8. If so, how did you cope with those challenges? What coping strategies did you use?
    9. What suggestions do you have to overcome such challenges in future AMA projects?

Theme 2: Learning through authoring multimedia artefacts/products (AMA)

This part aims to explore AMA-based learning in relation to four areas:

d. Learning-by-doing (practical learning):

AMA projects involve learning-by-doing or practical learning.

10. Do you think learning-by-doing is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - How do students react to this learning approach?
    - Do we need to introduce more practical learning in Omani HE?
11. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your teaching & students' learning?

e. Authoring multimedia artefacts/products:

AMA projects involve authoring external multimedia artefacts/products.

12. Do you think creating artefacts is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - How do students react to this learning approach?
    - What does it add to learners? to the learning process?
    - Do we need to introduce more of this type of learning in Omani HE?

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13. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your teaching & students learning?

f. Student-centred learning:

AMA projects involve student-centred learning, as well as independent and autonomous learning

14. Do you think student-centred learning is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - How do students react to this learning approach?
    - Do we need to introduce more SCL in Omani HE?
15. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your teaching & students' learning?

g. Learning through computer Technologies (IT & ICT):

AMA involves the use of computer technologies (ITs & ICTs) in learning.

16. Do you think using ICTs is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - How do students react to this learning approach?
    - Do we need more IT-based learning in Omani HE?
17. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your teaching & students' learning?

Theme 3: Learning environment of authoring multimedia artefacts (AMA)

This part aims to explore aspects of AMA learning environment in relation to three areas:

h. Role of the teacher

AMA projects advocate that teachers work only as facilitators, while students should take ownership/responsibility for their own learning.

18. Do you think teachers' role as facilitators is valuable to learning in Omani higher education? Why/why not?
    - Does shifting responsibility for learning to students enhance students' learning in HE? How?
    - How do students react to this approach?
    - Would they be able to rely on minimal teacher intervention?
    - Do we need less teacher-centred approaches?
19. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?

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- Does it create any type of problems to your teaching & students' learning?

i. Learning atmosphere

AMA-based learning encourages creating a learning atmosphere that supports collaboration and independent learning, and allows students to make mistakes and learn from them.

20. Do you think creating such learning atmosphere is valuable to learning in Omani higher education? Why/why not?
    - Does creating such atmosphere enhance student learning in HE? In what ways?
    - How do students receive such approach to learning?
    - Would students be able to manage their own learning?
    - Do we need to expand on such learning atmosphere in HE?
21. Do you think it is disadvantageous to learning in higher education? Why/why not?
    - Does it create any type of problems to your teaching & students' learning?

j. Nature of learning activity

AMA encourages working in extended, open-ended projects and project-based learning.

22. Do you think learning through projects is valuable to learning in Omani higher education? Why/why not?
    - Do open-ended projects enhance student learning in HE? In what ways?
    - How do students receive such approach to learning?
    - Would students be able to sustain project-based learning?
    - Do we need to increase project-based learning?
23. Do you think it is disadvantageous to learning in higher education? Why/why not?
    - Does learning through projects create any type of problems your teaching & students' learning?

- Final comments
  a. Would you like to add any further comments or suggestions?

2. Interview Questions for Students (Arabic & English versions)

أسئلة المقابلة للطلبة

تم تصميم هذه المقابلة لغرض بحث تصورات طلبة اللغة الانجليزية نظير تجاربهم وخبراتهم في مجال التعليم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة فيما يتعلق بثلاث عوامل: 1. بالتفاعل في العملية التعلمية، 2. والمنهج التعليمي، 3. والبيئة التعليمية. وتهدف المقابلة ايضا الى التعرف على التحديات التي يواجهها الطلبة في هذا النوع من الاساليب التعليمية وطرق التغلب عليها.

أسئلة عامة

- *عرف بنفسك!*
- *في أي سنة أكاديمية انت الان؟*
- *هل لديك خبرات سابقة في صناعة المحتوى وإنتاج الوسائط المتعددة (بودكاست مثلا)؟ تحدث عن بعض هذه التجارب.*

استقصاء التجربة الشخصية في التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة

المبحث الاول: التفاعل في العملية التعلمية في التعلم المبني على صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث مدى تأثير التعلم عن طريق صناعة المحتوى على درجة التفاعل الطلابي قبل، وأثناء، وبعد عملية إنتاج وسائط متعددة.

- لنستدعي تجربتك الشخصية في إنتاج وسائط متعددة (مثل البودكاست).

a. مرحلة ماقبل الإنتاج (التحضير والتخطيط)

1. هل كنت على دراية تامة بمتطلبات المشروع قبل الشروع في عملية إنتاج المحتوى (البودكاست)؟
   - هل كنت على دراية تامة باحتياجاتك ومقدرتك التعلمية قبل الشروع في الإنتاج؟
   - هل تم توفير كافة المعلومات والارشادات الضرورية من قبل المعلم؟ هل كانت كافية؟
   - كيف اخترت موضوع المحتوى؟
2. استعنت بأي نوع من المصادر، والادوات، وطرق المساعدة لتعينك على البدء في إنتاج الوسائط (البودكاست)؟
   - لماذا استعنت بها؟

b. مرحلة الإنتاج الفعلي (الشروع في المشروع)

3. ماهي الخطوات التي اتبعتها في عملية إنتاج الوسائط (البودكاست)؟
   - أين تمت عملية الانتاج؟
   - كيف اخترت/تحكمت ببيئة العمل؟
   - هل كانت هذه الخطوات ضرورية بالنسبة لك؟
4. استعنت بأي نوع من المصادر، والادوات، وطرق المساعدة لتعينك على عملية إنتاج الوسائط (البودكاست)؟
   - ما مدى تأثيرها على اكمال مشروعك؟

c. مرحلة مابعد الانتهاء (تقييم المنتج النهائي)

5. بعد انتهائك من إنتاج الوسائط المتعددة (البودكاست)، هل قمت بتقييم جودة المخرج؟ لماذا؟
   - ماهي الجوانب التقنية/الفنية التي قمت بتقييمها؟
   - ما الجوانب اللغوية التي قمت بتقييمها؟
6. صف كيف كان شعورك بالمخرج/المنتج النهائي؟ ما سبب هذا الشعور؟
   - هل لهذا الشعور أثر على المستوى الشخصي او العلمي؟

- التحديات التي واجهتها في صناعة المحتوى وإنتاج الوسائط المتعددة، وسبل التغلب عليها

1

7. هل واجهت اي تحديات أو مصاعب قبل، أو أثناء، أو بعد تجربتك في إنتاج الوسائط المتعددة؟ تحدث عن بعض التحديات/المصاعب.
8. كيف تعاملت مع/واجهت هذه التحديات/المصاعب؟ ماهي الاستراتيجيات التي اتبعتها للتعامل مع هذه التحديات؟
9. هل لديك مقترحات إضافية للتغلب على مثل هذه التحديات/المصاعب في التطبيقات المستقبلية لهذا النوع من التعلم المعتمد على إنتاج الوسائط المتعددة؟

المبحث الثاني: منهجية التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث التعلم عن طريق صناعة المحتوى وإنتاج الوسائط فيما يتعلق بأربع جوانب:

d. التعلم التطبيقي (التعلم بالممارسة)

يُبنى التعليم بواسطة صناعة المحتوى وإنتاج الوسائط المتعددة على التعلم التطبيقي/التجريبي

10. برأيك هل للتعلم التطبيقي/التعلم بالممارسة أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعلم؟
    - هل نحتاج إلى تمكين هذا النوع من التعليم وإكثاره؟
11. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

e. صناعة المحتوى (إنتاج الوسائط المتعددة)

تتضمن مشاريع صناعة المحتوى على إنتاج نماذج محسوسة/مستقلة

12. برأيك، هل للتعلم عن طريق صناعة المحتوى أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعلم؟
    - هل نحتاج إلى تمكين هذا النوع من التعليم وإكثاره؟
13. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

f. وضع الطالب محور العملية التعليمية

تتضمن مشاريع صناعة المحتوى وإنتاج الوسائط المتعددة وضع الطالب محور العملية التعليمية، (بالتركيز عليه، ومنحه الاستقلالية، ومسؤلية عملية التعلم، مع تقليل اعتماده على المعلم)

14. برأيك هل للتعلم الذي يدور حول جعل الطالب محور العملية التعليمية أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعلم؟
    - هل نحتاج إلى تمكين هذا النوع من التعليم وإكثاره؟
15. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

g. التعلم بواسطة تكنولوجيا التعليم

تتضمن مشاريع صناعة المحتوى وإنتاج الوسائط المتعددة استخدام تكنولوجيا التعليم في العملية التعليمية

16. برأيك هل للتعلم الذي يعتمد على استخدام تكنولوجيا التعليم أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعلم؟
    - هل نحتاج إلى تمكين هذا النوع من التعليم وإكثاره؟
17. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

المبحث الثالث: البيئة التعليمية التي يدعمها التعلم بواسطة صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث طبيعة البيئة التعليمية التي تدعم التعليم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة

h. طبيعة دور المعلم

تتضمن مشاريع صناعة المحتوى أن يقتصر دور المعلم في العملية التعليمية على توفير الدعم، والتوجيه والاشراف، وان يكون الطالب في المقابل هو محور العملية التعلمية، وأن يتحمل المسؤلية والاستقلالية في التعلم

18. برأيك هل اقتصار دور المعلم على الدعم و التوجيه له أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعليم؟
    - هل نحتاج إلى تمكين هذا النوع من أساليب التعليم وإكثاره؟
19. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

i. البيئة التعليمية

تتضمن مشاريع صناعة المحتوى خلق بيئة تعليمية تدعم التعلم الذاتي، والتعلم التعاوني/الجماعي، وتمكن للطلاب من التعلم من التجربة والخطأ (trial & error)

20. برأيك هل لخلق مثل هذه البيئة التعليمية أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من البيئات التعليمية؟
    - هل نحتاج إلى تمكين هذا النوع من أساليب التعليم وإكثاره؟
21. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

j. طبيعة نشاط التعلم

تتضمن مشاريع صناعة المحتوى التعلم عن طريق المشاريع، خصوصا المشاريع المطولة

22. برأيك هل للتعلم عن طريق المشاريع أهمية في سياق التعليم الجامعي في عمان؟ لماذا؟
    - أين تكمن أهميته؟
    - ما مدى تقبل الطلاب لهذا النوع من التعلم؟
    - هل نحتاج إلى تمكين هذا النوع من أساليب التعليم وإكثاره؟
23. برأيك، أين تكمن تحديات وسلبيات هذا النوع من التعلم في سياق التعليم الجامعي؟ لماذا؟

- ملاحظات اضافية
  a. هل لديك ماتضيفه في ختام هذه المقابلة؟

Interview Questions for Students

The following semi-structured interview questions have been designed to investigate Omani IELTE students' perceptions of experiences in learning through authoring multimedia artefacts (AMA) in relation to learning engagement, pedagogy and learning environment. It also seeks to identify the challenges posed by AMA-based learning and ways to overcome them. Probing and follow-up questions will be asked to clarify any doubts or ambiguities which may emerge during the interview.

Background questions

- Could you briefly introduce yourself?
- In which academic year are you now?
- Have you had any previous experiences authoring multimedia artefacts/products (e.g. podcasts/vidcasts, etc.? If so, tell me about these experiences.

Investigating IELTE students' AMA experiences.

Theme 1: Learner engagement in authoring multimedia artefact (AMA) experiences

This part aims to explore how AMA experiences engage learners before, during and after the learning process/experience. It also aims to explore the challenges they faced, and the copying strategies to overcome such challenges.

Part 1. Recall of AMA experiences

- Let us recall your experience of authoring a multimedia artefact/product (e.g. podcast)
    a. **Pre-phase** [**Planning stage**]
        1. Were you fully aware of your learning needs and the requirements of the project prior to AMA experiences?
            - Did the teacher provide necessary instruction, resources, etc.?
            - Did you have the necessary skill and knowledge to do the project on your own?
            - How did you choose the topic?
        2. What resources (e.g. tools) & support did you seek to get you started on the AMA project? Why did you seek them?
            - Equipment/ online resources/ social support/ technical support?

    b. **During-phase** [**creation stage**]
        3. What steps did you follow during the AMA creation process? How are these steps important?
            - Where did you do the AMA project (venue)? Why?
            - What set did you prepare?
        4. What help and support did you get during the creation process? How did they impact on the project?
            - Who helped you? Why or why not?

    c. **Post-phase** [**reflection stage**]
        5. After you finished the AMA creation process, did you evaluate the whole outcome? Why/why not?
            - Did you repeat/redo the project? How many times? Why?

6. How did you feel about the outcome? Why so?
    - Was the quality good? How did you measure it?
    - Did anyone help you evaluate it?

Part 2. Challenges to AMA experiences

- Challenges faced with AMA project(s) & ways to overcome them
    7. Did you face any challenges/difficulties before, during or after your AMA project(s)? can you describe some specific experiences of such challenges.
    8. If so, how did you cope with those challenges? What coping strategies did you use?
    9. What suggestions do you have to overcome such challenges in future AMA projects?

Theme 2: Learning through authoring multimedia artefacts/products (AMA)

This part aims to explore AMA-based learning in relation to four areas:

d. Learning-by-doing (practical learning):

AMA projects involve learning-by-doing or practical learning.

10. Do you think learning-by-doing is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - Do we need to introduce more practical learning in Omani HE?
11. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your learning?

e. Authoring multimedia artefacts/products:

AMA projects involve authoring external multimedia artefacts/products.

12. Do you think creating artefacts is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - What does it add to learners? to the learning process?
13. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your learning?

f. Student-centred learning:

AMA projects involve student-centred learning, as well as independent and autonomous learning

14. Do you think student-centred learning is valuable to learning in Omani higher education? Why/why not?
    - How do you judge its value compared to other approaches to learning?
    - Do we need to introduce more SCL in Omani HE?
15. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your learning?

g. Learning through computer Technologies (IT & ICT):

AMA involves the use of computer technologies (ITs & ICTs) in learning.

16. Do you think using ICTs is valuable to learning in Omani higher education? Why/why not?

- How do you judge its value compared to other approaches to learning?
- Do we need more IT-based learning in Omani HE?

17. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your learning?

Theme 3: Learning environment of authoring multimedia artefacts (AMA)

This part aims to explore aspects of AMA learning environment in relation to three areas:

h. Role of the teacher

AMA projects encourage that teachers work only as facilitators, while students should take ownership/responsibility for their own learning.

18. Do you think teachers' role as facilitators is valuable to learning in Omani higher education? Why/why not?
    - Does shifting responsibility for learning to you enhance your learning in HE? In what ways?
    - Would you be able to rely on minimal teacher intervention?
19. Do you think it is disadvantageous/negative to learning in higher education? Why/why not?
    - Does it create any type of problems to your (or other students') learning?

i. Learning atmosphere

AMA-based learning encourages creating a learning atmosphere that supports collaboration and independent learning, and allows students to make mistakes and learning from them.

20. Do you think creating such learning atmosphere is valuable to learning in Omani higher education? Why/why not?
    - Does creating such atmosphere enhance your learning in HE? In what ways?
    - Would you be able to manage your own learning?
21. Do you think it is disadvantageous to learning in higher education? Why/why not?
    - Does it create any type of problems to your (or other students') learning?

j. Nature of learning activity

AMA encourages working in extended, open-ended projects and project-based learning.

22. Do you think learning through projects is valuable to learning in Omani higher education? Why/why not?
    - Do open-ended projects enhance your learning in HE? In what ways?
    - Would you be able to sustain project-based learning?
23. Do you think it is disadvantageous to learning in higher education? Why/why not?
    - Does learning through projects create any type of problems to your (or other students') learning?

- Final comments
    a. Would you like to add any further comments or suggestions?

4. The Two-Part Data Validation Instrument Consisting of One-To-One Interviews and a Follow-Up Focus-Group Discussion

Data Validation Instrument: One-To-One Interviews and a Follow-Up Focus Group Discussion

This conclusion validation instrument has two parts, which include:

1. Initial one-to-one interviews (with the aims of validating the representation of individual views as represented by the coded segments and their consistency), and
2. focus group discussion (with the aims of validating the analysis and conclusions drawn from qualitative findings, e.g., interviews and reflective journals, as represented by thematic mindmap and code system).

Each part serves a key objective in the validation of research outcomes and conclusion, as outlined corresponding each part.

Type of validation	Aims	Research questions
Part A. Initial one-to-one interviews (Sharing of findings based on these specific 3-5 teachers and students)	Follow-up one-to-one interviews aims to check if the researcher's analysis for the coded segments: A) **matches** what you intended to say B) really **captures** your intentions/views/opinions C) clearly **represents** the ideas you intended to communicate. It also aims to check if your views/opinions regarding AMA (or AMA-based learning in general): A) are still the **same.** B) you need to add **additional** ideas you didn't mention. C) you need to **modify** or **change** some of the ideas you mentioned.	1) Judging by the coded segments of your transcript, how accurately was your data analysed/ represented? a. Does the analysis match what you intended? b. Does it accurately capture your opinion/views about AMA? 2) How consistent are your views about AMA (or AMA-based learning) today? (analysis to be based on the thematic Mindmap + code system) a. Do you still hold similar views about: i. AMA engagement ii. AMA pedagogy iii. AMA environment b. Do you want to add something else regarding: i. AMA engagement ii. AMA pedagogy iii. AMA environment c. Have your views since the last interview changed regarding: i. AMA engagement ii. AMA pedagogy iii. AMA environment
Part B. Follow-up focus Group Discussion (Sharing of findings at a general level based on all participants)	Focus group discussion aims to validate the representation of outcomes and conclusions based on all participants by: A) validating the thematic mindmap and its constituents B) judging how well the mindmap and code system accurately represent the conclusions C) challenging the researcher's interpretations and/or offering alternate accounts.	3) Looking at the thematic Mindmap + code system, how valid do you think is this representation of outcomes? a. Are the thematic mindmap and code system valid/accurate? (this may require validation of themes, subthemes, codes, & examples). b. Are the conclusions derived from data valid/accurate? c. Can you challenge the researcher's conclusions? Can you offer alternate accounts to the representation of conclusions?

Appendix K Sample Transcripts

1. A sample transcript from teacher interviews

Abdullah Alhasani 0:00. Hello, and welcome to this interview. The goal of this interview is to investigate Omani students, perceptions of experiences, other experiences, and multimedia authoring. They've created different artefacts, including podcasts, and online courses and prezies and things like that. So I'm focusing on three areas, 1) aspects of learner engagement, 2) and then the pedagogy that facilitates the multimedia authoring aspect, and 3) then the surrounding learning environment. We're also going to be tackling some challenges that might have been experienced by those students in these learning experiences that might have been reported: concerns, fears, etc. Let's start by getting to know you. Briefly.

T.2. 1:13. My name is I T.2. and I have been an English lecturer for so many years now. Probably more than 20 years now. And I've been here in this college for, this is my fifth or sixth year. And so far, I have been teaching English for academic purposes to business and IT students. Also Level A foundation students, and educational technology for IT with the ELT majors, and the debating of communication also with the ELT majors.

Abdullah Alhasani 2:19 So that's 14 years. Six of which is in this college. Do you have previous experiences authoring multimedia artefacts prior to this?

T.2. 2:46. No, when I started teaching educational technology, which was the first time. I saw the software used for it or how to use it. So far, I was only I mean, until that time I had only been using the ready ones and for the listening classes. Yes. but to create, no!

Abdullah Alhasani 3:08. All right let's get to it. Three parts are going to be covered: the first part, we're going to talk about learner engagement in authoring multimedia artefacts experiences, we need to explore how such experiences engage students: pre, within, and post stages. At the initial stage or the planning stage, how did you prepare your students for this experience, we can take podcasting as an example.

T.2. 3:45. Well, they knew at the beginning of the course that they will have to do something like that. So they were kind of prepared that they will be experimenting with a lot of new things for them, because that's a new area for them. Okay, the software was given to them. And I think it was pre-downloaded to computers. And some students were bringing their own laptops, so software was distributed to them on flash sticks. As for how to work with the software, I decided that I want them to learn it by watching instructional videos, and they could do it in pairs, or they could do it on their own, it was up to them. And then only if they had if they still had issues, then I would address problems with them - like if they couldn't find something. For example, sometimes, although some of those instructional videos will be showing the older version of the program, or the newer version of the program, and they're supposed to, and so they wouldn't be able to find certain functions there, so this is when I would come in so. So the as far as the learning how to work with the tool, they were supposed to do it in small groups, or in pairs, which would kind of supports student-centred learning because they are supposed to be sharing the knowledge with each other. And now that YouTube offers this great opportunity to do that. So yes, so this is how they were, how they were working with it. It took me a while to, especially female students, to get them used to the fact that they will have to hear their own voice. Students are not comfortable with listening to their own voice on the audio recording. Even though for example, lots of them use WhatsApp audio messages, but they say it's different when they talk to their friends when they send those audio messages to their friends, or where they know that somebody else will be listening to that. So they had to kind of deal with this in the process. And I remember there was a girl who was absent in one of the classes and she was supposed to present something, and I wanted her to, and she couldn't come or whatever to the class. And I said to her Okay, in that case, you're

going to record your presentation so that other students will be able to see it. And she absolutely refused. Not on the video, okay, I knew that video is going to be a big problem, but not even the audio. She said no, there's no way she can do it. When I tried this audio recording with my foundation students last semester, there was like an activity we were doing in the book and I wanted all of them to practice, and because I had a very large group, so I decided that with the girls, I'm going to ask them to record the activity as a voice message and send it to me over WhatsApp. And yet still some of them had problems with that. They told me point blank, they said I hate hearing my own voice on the recording.

Abdullah Alhasani 7:10. So that's the reason you had to convince them because they hated their voice?.

T.2. 7:14. Yes, because they hated their voice. Yes. I think it took quite of getting used to for them. And I think that's the reason a lot of them just treated that past as something they must put a tick next to. Okay, that's done. And I am done. But they didn't really take it deeper to the next level where, Okay, I record this bit then I listen to it, and then I will see if I can correct something. Because that later produced the final product. In the final product, it was very, very clear who didn't do any work with it. They just wanted to record it, and have it done.

Abdullah Alhasani 8:02. So software is provided, and then some instruction, they were given space to explore themselves, but they were provided videos to do that. How do you ensure that students were ready to embark on such a project? With this amount of resources?

T.2. 8:21. well with this course they really had no choice, I mean, because it's a very fast-paced course. So they have no choice. You know, when the time comes, the time comes. They are usually informed at the beginning of the course, they are given syllables at the beginning of the course, so they're kind of psychologically being prepared for it throughout the weeks, that okay we are approaching this moment when you're going to have to create your own podcast. So they were told, for example, they were instructed like where to do it or where not to do it, like which places would not be a good place to do it. So I said don't do it on a very noisy street, or don't do it in a bathroom because of the Eco. Yes, so they were told about things like that. But Yeah, they were kind of being informed throughout the course that the time will come when they will have to create a podcast.

Abdullah Alhasani 9:24. All right. So they have no choice, but did you feel that beside the stuff that you provided, did you feel that they had the necessary skills? And

T.2. 9:44. No, No, I don't think so. I think in the process, a lot of them started discovering themselves. For most of them, it was like the first time experience. And later from what they told me that, some of them hated the experience, Like I said, they just wanted to get it done. But some students were telling me that they actually really, really enjoyed it, and that they discovered certain skills in themselves even technical skills that they didn't know that they possess, like how to work with software, or those students who are like really trying to perfect whatever they were preparing, you could you could hear it from the final product that they really worked on it. Yes. So those said that they really, really enjoyed it. And that they learned a lot of new things with it. And it was not just the language, it was it was also about the technical skills.

Abdullah Alhasani 10:49. how about the choice of topic?

T.2. 10:54 They had to prepare two podcasts: one was the solo, one was the conversation that they would have with somebody. Some of the topics.... that was also that I told them, I said choose a topic that you are really passionate about,

because if you are passionate about the topic, it will be much easier for you to talk about it. But again, I had a feeling that a lot of students that just tactics tick on the box. So they would pick extremely boring topics, you know, when you as a teacher are listening, and I told them with some of them I was literally falling asleep. Because first topic was boring, and because it was boring, it was delivered in a boring way. But some students who had passion about something and they picked a topic, where they will talk about it. Yes, there was a huge difference, even in the in the tone of their voice, in how they would delay, the intonation, how they would implement music elements into the podcast. Yes. So there were a big difference there.

Abdullah Alhasani 12:08. But sure they were given to freedom to choose.?

T.2. 12:10. yes

Abdullah Alhasani 12:12 What about the resources, beside the software, that you provided? and the tutorial?

T.2. 12:17 Well, first, they were directed to the website, six minutes English, which is like the podcast web website of BBC. And they were asked to listen to a few podcasts to see how it is done. Because for a lot of them, it was like a new thing. They thought it was just enough if they just record themselves talking, but I was trying to show them that it's much more than that. Some of the students, after watching the videos that were recommended to them, they would go on YouTube and look for other videos to get a bit more information or to get more examples of how a good podcast is done.

Abdullah Alhasani 13:07 It was just personal effort?. they went beyond that.

T.2. 13:11 yes

Abdullah Alhasani 13:17 Did you provide any technical support throughout the way?

T.2. 13:20 Yes, when they were in the lab, because these classes are taking place in the lab, if they already had the audio file that had to be uploaded to Audacity, and they had problems with, for example, how to cut it or how to input the music there or how to fade it in, fade it out?, Yes, they could approach me in class. Or even in my office, if they brought their own laptop, they could do it. They could do it in the office. Because many of them chose not to record with audacity, they were recording with the mobile phone, and then just working with them with the audio files. So we could do we could do it in the lab. Yes, so absolutely. They could ask me for help.

Abdullah Alhasani 14:10 Okay. And the (during) phase, that was the preparation phase, sort of, what were the steps that students followed during the creation process?

T.2. 14:25 Okay, the steps were, I mean, the instruction was given, I think, if I remember step by step in Google Classroom, where they were told, okay, so they chose the topic, they already kind of had the content, so they had to look for a place where they would record it, and it was done outside of the classroom. Some of them chose to, for example, during the classroom time they would choose to go outside of the classroom and sit in the corridor, especially if they chose to record it with the friend that they don't see that often, to record it there in the corridor, and then they would come with the ready file that will be on their mobile phone, then they were told where to look for the royalty free music for their fading in, fading out. So they were directed to websites where they wouldn't violate any copyrights. Then, they were also told how to convert those files from the whatever weird formats their phones created them into the mp3, and how to how to upload it into Audacity. And then

basically, they were working usually like if it was like, for example, a dialogue that they were doing they would be working in class together on how to how to work on the file. Yeah, the A lot of them, unfortunately settled for whatever first attempt they had, and they were just working with whatever they had. So they didn't see any need to go: Okay, I listened, I listened to it, there was something wrong there, so let me try and record it again. Just like they don't work from feedback that we give them in general, it was the same problem with the podcast. So very often, I would end up with podcasts where I literally had to be ready to remove my headphones anytime because you will have a podcast where there is a really, really loud music on the intro, then you can barely hear students talking, and then suddenly there is a very loud music somewhere in the middle, and you just literally go deaf. Yes. So yes, so that was the issue.

Abdullah Alhasani 16:59 All right. following these steps, how did they reflect on their work, getting the topic ready, choosing the content themselves, ...

T.2. 17:12 they were supposed to write blogs, there was like a blog style entry where they were supposed to reflect on the whole process. Like did they enjoy it? what they liked? what they didn't like?. And that was... supposed to be submitted through a blogger account, because by that time, they were already familiar with the blogger. So they were supposed to write short blogs. But unfortunately, the reflection that I wanted to get from them, I was almost never getting because they would just describe the process of how they did that. So they will tell the steps, they would take like screenshots of the software that they were using, telling readers like what to press when you want to do this, or you want to do that, but they really didn't know how to reflect on the whole experience, like did they enjoy it? They didn't enjoy it?. Some of them were saying yes that they learned new things, that they discovered, like new software, for example. But as far as the whole idea of why we were doing it?, and what was the purpose of doing that? And what did they learn from it? It was just from few students that I got it.

Abdullah Alhasani 18:47 Throughout the creation process, they approach to you? What mainly the support they required, was it to do something to do with the editing,? how to edit.?

T.2. 18:57 With editing, Yes. How to edit?

Abdullah Alhasani 18:59 Is there any kind of support? like they wanted personal, sort of emotional support?

T.2. 19:06 No, not really. I mean, not with. Like I said, those students who had problem with hearing their voice, they just had to power it through.

Well, they had no other choice. So you lose the mark basically if you don't do it, Yes. And because podcast was worth, like 10 marks, I think out of 100. So that would be quite a big loss. Yes.

Abdullah Alhasani 19:19 did you push them?

Do you feel they sought help from each other?

T.2. 19:42 Yes, yes. And I think there were more comfortable. I had these moments that I really, really liked when you walk into the classroom, and you see one student showing the other students how they did that, or how they should do that. So this is what I really liked. So they started asking each other. So for example, if one student already submitted a podcast, and the other

was still working on it, I could always say, okay, go and ask Ahmed, because he already did that, so he can help you. And they were really, supportive towards each other, and they knew how to explain things as well.

Abdullah Alhasani 20:20 Why did you like it?

T.2. 20:21 I like it because doesn't that support a whole student-centred learning that we're talking about? And where they're supposed to be like independent learners, and the whole social constructivism and everything else? Where they get knowledge from each other, rather than from the teacher? So, I mean, I wouldn't mind if they asked me for help, but I really liked to see that they were helping each other in class,

Abdullah Alhasani 20:46 because that supports your own approach to learning.?

T.2. 20:48 Yes, Absolutely.

Abdullah Alhasani 21:01 Alright, the post stage, it's called the reflection, let's call it prior to around grading those projects. Did you feel that students gave some thought to the outcome? did they evaluate it in one way or another? from the outcomes that you received

T.2. 21:27 I would say very few. For the majority it is just one more task that they had to do. I think if students really gave any value to it, a lot of them wouldn't stop with that one podcast that they had to submit. They would probably get into it a little bit more. Once they submitted their podcasts, I would have a spreadsheet and the marks will be given, and they will be given comments on every mark. So they knew why they were getting this mark, for every single podcast. So as I'm listening, when they talk I would be writing comments, and the comments were quite detailed. But yet, even though they were given those comments, I didn't have even one student who, like if they were unhappy with their mark, would approach me and say, Okay, I want to improve my mark, is it okay, if I do it, again, correcting all these mistakes that I had? but I didn't have a case like that. So I don't know if it meant that they were not engaged, because again, going back to the fact that it's a very heavy course. And it's like really no flexible ability in time there. So even though we can move certain things, we can postpone certain things, but they know that other tasks are coming. And because podcast come, if I remember correctly, week eight or nine in the program. So there's not that much time left to do any corrections. But I think if they asked, they would be given a chance to correct it.

Abdullah Alhasani 23:29 Having listened to some samples of the podcast, (judging the quality of the outcomes) Would you feel that put effort on that?

T.2. 23:39 Again, it really depends on the students and depends on the topic. Like if they picked a topic that they liked that they have a lot to say about? Yes. I mean, they would make the same language mistakes that they make in speaking. Okay. They did not appreciate the fact that on the podcast, you can always go back and correct it. But this language accuracy is what everybody's complaining about here.

Abdullah Alhasani 24:11 So, you feel that problem was recurring.?

T.2. 24:13 Yes, it was. And this is what I would also be telling them. Okay, certain podcasts sounded extremely rehearsed. In the sense of, I knew, and you could even hear that students had a piece of paper from which they were reading and not very well. So I mean, rehearse in the sense, like, it was not a natural conversation, (delivery style?) but it would be something that

they prepared in writing. But even though it was prepared in writing, they didn't read it enough to be able to deliver it in a smooth way. So I told me that I know immediately when somebody is reading from a piece of paper, even if I don't hear that rustling paper on the recording, but I told them I can hear it because of the intonation, because of where they cut the sentence. And I said, I know when it's red, and I know when it's delivered naturally, so when you have a natural conversation. And that's why I told them to not choose topics that are difficult, where you have a lot where you find a lot of difficult words that are difficult to pronounce for you. Go for something easier Where you can have like a natural conversation with somebody. But very often, yes, it was like so obvious that oh, my God, it's read from the paper, and they didn't practice it at home enough even.

Abdullah Alhasani 25:39 so, you think it's from the lack of practice and not to do with the skill?

T.2. 25:42 No, I don't think so.

Abdullah Alhasani 25:46 Is that a clickable across the board? even to those guys who were the good ones?

T.2. 25:51 With the good the good ones, I mean, if there are good at language in general, they wouldn't have a problem. I can't recall any case where somebody would have terrible difficulty, technical difficulty dealing with the programme or something. If their language was good, it's the weak ones. The week students, students who we consider week in general, weak in English. They would really struggle, I mean, some podcasts I could barely understand what they were saying because the pronunciation was so bad. Even though they were told, remember, you see it on the piece of paper, but I cannot see what you're trying to read. So you must really work on your pronunciation. So you don't know the word, go to the dictionary, check how it is pronounced before you start recording. But to prepare something like that it would require a lot of time. And I know that some of them probably remembered it like two days before they were supposed to submit it. So they didn't spend that much time working on it. So even though they were already familiar with the software and how it works, but the whole process of creating podcasts, thy would do it like in two day'. Well you can't really do a good job if you only have two days to do that.

Abdullah Alhasani 27:15 So you feel like time pressure was a problem?

T.2. 27:17 yes.

Abdullah Alhasani 27:33 Either way, so how did you feel or were you told that they repeated the recording process more than once? And for whatever reason?

T.2. 27:55 I never asked Really. No, I wouldn't know I wouldn't No.

Abdullah Alhasani 28:02 Like even for those who thought they were still repeating the same linguistic mistakes, or language mistakes?

T.2. 28:08 No, I don't think so. I had a feeling that some of them did not even listen to the final product. That was even worse. Because like I said, when they submitted it, and I showed one of the examples in class and I said, on this part, you can barely hear anything, and then you have this background noise coming in. Because I showed them in class how to fade in & fade out the music, and I told them please do not leave any music playing in the background as you speak because I will not be able to hear anything, unless it's a really, really soft music. But it was clear that some of them never even listened to their final product.

Again, they had no time for that, because if they prepared something last minute there was no time to do it. I'm trying to remember if there was anybody who wanted to resubmit the podcast, but don't think I had a case like that.

Abdullah Alhasani 29:12 Do you think that students were emotionally somehow invested in the outcome?

T.2. 29:20 I think it comes from a personality; I mean for personality of them as students. I mean, those students who are, let's say, high achievers, who work really really hard, who try new things, Yes, they would spend a lot of time a lot of time doing it, and they would be really into it. But those students who are struggling in general with other subjects. There were students who hated the subject itself, I mean, the educational technology Because they were telling me, I hate computer, I hate doing anything with the computer. So they would be really, really struggling with that, even with that; but those who are good students, I think they enjoyed it. What was the question? I forgot the question.

Abdullah Alhasani 30:12 I said if they were emotionally invested in such projects?

T.2. 30:15 Yes, Yes, I think so.

Abdullah Alhasani 30:29 Did any from seek feedback for some of the outcomes? You said you provided detailed feedback. Do you think they sought feedback from somebody else? Other than you?

T.2. 30:44 I don't think so. Like I said, if they didn't even listen to (some of them, I'm not saying all of them) But some of them they didn't even listen to what they recorded. Yeah, I don't think so. And I never asked, like did you let your family listen to it or something? No, I didn't ask. Even here, I don't know, students never take it one step further on any of the subjects that I taught. So the feedback is given, but they don't really know what to do with this, they don't know how to work with this. And because we have no time to guide them through it, we really hope that they are, like, independent enough. Nothing much happens after feedback, be it written, be it recorded in any way. Because I even observed it like in writing classes, when you give them back the writing with detailed feedback, what they do, they just have one glance at the paper, they fold it, they put it inside the book, and nothing happens with that paper after afterwards. And it was the same with podcasts. Like they got the detailed feedback from me, probably read it, but nobody approached me to say: teacher, can I like to do it again? Or this is where I had the problem. Can I redo the podcast?

Abdullah Alhasani 32:03 So that's a common problem.?

T.2. 32:05 Yes. it is

Abdullah Alhasani 32:08 Do you think (talking about the good ones or even the bad ones) that outcome, the whole thing they created (the podcast), would have an impact and sort of impact on their learning of future...?

T.2. 32:24 See, this is what I think. Because the creating podcast is just part of this course. But this is what we were trying to do last year, last year I had this idea of it's a creation, it's a whole creation process. And I had this idea of selecting the best podcasts and displaying them somewhere. So I thought, okay, there must be a way of either creating a website where we can upload, of course with students consent, where the best podcasts can be uploaded so that others can hear it. Because I have a feeling that if students were aware that their work goes somewhere beyond the classroom, because whatever they submitted, it was just between me and them, I don't know how many would let their friends listen to what they created. Other than those

dialogues that they were recording, you know. I have a feeling if they knew that this would go somewhere further out there, maybe they would have put more effort to it. Because I have a feeling that the fact that whatever you do stays anonymous, and nobody knows about it, and nobody will hear it, and I do it just for the purpose of assessment. Maybe that's why they don't put much effort. So maybe if they knew that it's going to be published somewhere, for example, in one way or another where other students can hear that, maybe they would put more effort.

Abdullah Alhasani 33:59 public display purposes?. Did you feel some of the outcomes were worthy of display?

T.2. 34:11 now I can't remember the topics now that they were discussing...But

Abdullah Alhasani 34:15 But in terms of quality? in terms of delivery or presentation.?

T.2. 34:21 Some of them, probably. I mean, I wouldn't say a lot of them, but some of them probably yes, I could, I could easily think of like from each section of let's say 25 students, I could easily think of five podcasters I would select that I could select and publish them somewhere.

Abdullah Alhasani 34:41 because?

T.2. 34:42 because of the topic choice, because of how they did it in a in an interesting way. I remember, I think it was the first time that I taught this course, there was this boy who was like we can English in general, but he was the only one in the whole section who got the whole idea of what the podcast should sound like. So he had this really, amazing intro that he created himself. And it was clear that he probably listened to quite a few podcasts or radio programmes to know what it looks. The content of the podcast, because he was talking about computer parts or something like that, Okay so it was not very something very engaging, but the whole intro and outro I was really, really impressed about how he created it. So I don't know, if they were told, like for example, when they have these writing competitions, right? They say okay, the best essay will be chosen to be published somewhere, right? So maybe if they were told the same here with this with the podcast, like the best three podcasts, for example, in the group will be uploaded somewhere, maybe they would apply more effort. Although with the female students, I'm not sure. Because some of them, psychologically, the whole concept of their voice being publicly heard somewhere, it's already scary to them. But with the maybe with the boys. I don't know about the girls, some of them are quite open-minded about these things, but some of them psychologically are just not ready for it.

Abdullah Alhasani 36:24 All right. I think we addressed already the challenges. Okay, how did they overcome some of those challenges that they faced, do you they think?

T.2. 36:43 talking to each other, Going on YouTube looking for solutions. Because this is what I always tell them to do in class. Like, they would have a problem, I say Okay, can you please go and try it to find the solution by yourself?.

Abdullah Alhasani 37:02 So you push them in a way?,

T.2. 37:03 yes, If you can. If you still cannot, then we can do it together, then I can help you, I can show you how to look for things. But quite a few of them were helping each other a lot. So they would be sitting together. For example, I would have three or four students around one computer station, where they are pointing to things and showing things to each other. Yes. But basically I pushed them to be a little bit more independent and not wait for the teacher to give all the ready answers. And I

would also tell them that sometimes it is not the destination, you know, it is the journey that you take, because I always tell them that people learn in different ways. So you can get to the same destination going in loops, you can do it in the straight line, you really must find your own way there. So letting them do certain things by themselves, or pushing them to do that, Yes, I hope it taught them something.

Abdullah Alhasani 37:07 Do you have any suggestions to overcome some of those challenges?

T.2. 38:17 I don't know, maybe more time should be spent doing that, because we didn't really have that much time to do it in class. But I think time limitation. Yes, it's a big issue here. Maybe before they do the podcast, maybe they should have like one or two activities. Let's say in Google Classroom, we have these discussions where you propose a question. Maybe we should have like one or two activities prior to that where they must record an answer to a question, or they get used to hearing their voice.

Abdullah Alhasani 39:00 All right. Let's move to the second part. We're going to talk about the pedagogy of multimedia offering. One of those emphases is given to learning by doing, the practical aspects of learning. Do you think it is valuable to them at this stage in higher education in Oman?

T.2. 39:28 Well, it kicks them a little bit off their comfort zone because they are used to being instructed all the time or given clear directions of how to do it. I don't know, but either in writing or in the verbal instruction, but I don't think the this is the way people learn nowadays. Like, I don't know, a very simple thing. I didn't know how to how to clean my washing machine the other day. Okay. So what you do? you go on YouTube, and you basically watch the video and you just follow the steps, right? Nobody's like instructing you how to do it. They're just watching it. Yes. So and I also tell them that if they learn something, not just reading about it, but by trying to do it, they will remember things better. I don't know if it makes sense..

Abdullah Alhasani 40:38 yes, so by "things" you remember the skills or the knowledge?

T.2. 40:43 remember the skills, you acquire new skills, you acquire the knowledge, you know. And it was obvious when they were instructing others. So okay, this is what I learned. Now I can pass on this knowledge to my friend, by showing him how to do it. So I don't know, for me, it's kind of works like a chain.

Abdullah Alhasani 41:09 How do you compare such an approach to other approaches to learning? or How do you judge the value of learning by doing compared to other approaches?

T.2. 41:17 What are other approaches like one?

Abdullah Alhasani 41:19 That's interesting? Yes. Because you always you said something that's not how students learn, it means the approach would be: getting used to by being instructed, for example,

T.2. 41:29 yes, here? Yes, absolutely. They are still very teacher-centred, and they treat the teacher as a knowledge giver, and not just as a facilitator. I think a lot of them are uncomfortable with the fact that they come to class, and for example, the materials are not handed into them in the hard copy. This is what they're used to. Right. And now you tell them, okay, the syllables and something was uploaded for you in the Google Classroom! A lot of them are still struggling, where do I go into the Google Classroom? Where do I look for this stuff? And I always tell them, okay, you access the application, or whatever, or the

website, and you start clicking on tabs, until you figure out where things are on the platform. For me, that's learning by doing, and then you will remember it much better, rather than every time you're asking me, where do I find this? Where do I find these things? With the podcast, I think it is the same thing. I mean, I don't think they would learn anything, if, for example, I recorded a video for them even how to create a podcast - they wouldn't learn anything from it, you know. So when they were working on audacity, and sometimes they would make a mistake somewhere, and they would go, Oh, my God, I lost something. I would always say no, you can always go back to it. Okay, you lost it. Okay, create another one. Because you already now know how to do it until this step, where you took the wrong step. You already know the steps. So

Abdullah Alhasani 43:10 how did they react to such an approach to learning?

T.2. 43:13 Oh, my god, it was very, very different. I mean, it was dependent on students. I think it depends on how engaged they are in the whole learning process in general, because there are a lot of students who are completely withdrawn, I don't know, even sometimes why they come to this college to be honest, because they're not really interested in studying, you know. But those students who are really into it, who really likes studying, who are very engaged, they love the fact that they are given the freedom of how I get there, that I don't have to follow the same steps as teacher is telling me, because I can still get there, but in my own way. Yes. I think, again, it comes with the personality of them as a person as a student.

Abdullah Alhasani 44:04 Do you think we need to increase this approach? In this context?

T.2. 44:10 Yes, absolutely. Absolutely.

Abdullah Alhasani 44:14 Because of the reasons you mentioned, or are there something else also?

T.2. 44:17 I mean, I don't know. I'm trying to remember myself as a student many, many, many years ago. I don't know if it comes with the culture, with the country, or with the college itself, we never have to be told, like what to do. I mean, we were like, Okay, this is the literature for the semester. When you're going to read it, or whether you read it, or whether you do it, it's entirely up to you. So we were very independent, the students I mean. There was this threshold that you pass from secondary school. Once you go to the college, you become a very, very independent learner, because you must, even some of the secondary schools, it was dependent where you were. I remember that the simple skill of note-taking was taught to me by our history teacher in secondary school when it was not a common practice that time. Common practice was dictation. So the teachers would dictate what we're supposed to write. He was the first guy who taught us how to take notes from the lecture. So he was basically sitting and talking, and we must write really, fast. This is how I learned how to how to take notes. So I never had a problem when I got to the university. But here, I'm surprised that we must teach them a very, very basic thing. Like for me, it comes instinctively, if there is a word I don't understand, and the teacher puts it on the board, the first instinct would be for me to take a pen and write that word down in my notebook. And even that I must instruct the students to do. So if the word is on the board, you must write it down into your notebook, if you don't know it. Even that simple thing, I must instruct them how to do it. So they're not very independent learners,

Abdullah Alhasani 46:05 Do you see any disadvantages to such learning approach to higher education, to learning in higher education generally?

T.2. 46:18 Disadvantages would be, I don't know. Maybe the fact that... how would you manage giving feedback on steps to students, like if you have a lot of students, for example, in the class, you are not able to follow each one of them? I mean, I understand that it's much easier for a teacher to give a set of instructions, where every student must follow it the same way, rather than having students learning in different ways. Because then for you, as a teacher, it is going to be very, very difficult come to follow with large groups. Yes,

Abdullah Alhasani 47:05 as a process?

T.2. 47:05 Yes, it's a process, because, I mean, assessment, it's another thing, it's another story. But how did they get there? It will be very, very difficult. It's very difficult with large groups.

Abdullah Alhasani 47:17 Do you think that's the reason? We don't have much learning by doing. Because it's harder to follow?

T.2. 47:22 maybe. maybe. And maybe also, I don't know, maybe because teachers themselves are not comfortable with that approach. Because learning by doing, that means I need to first find out how to do it before I will be able to assess whether my students are doing it correctly or not. Do you know what I mean? Like learning by doing approach, I think it requires a lot of new learning all the time, like a teacher himself must learn a lot of new things all the time.

Abdullah Alhasani 48:10 From the part of the teacher huh?

T.2. 48:11 aha

Abdullah Alhasani 48:20 Okay, let's move to the second part of the authoring itself, authoring multimedia artefacts or products. Do you think creating artefacts or engaging in a process of creating artefacts is valuable to learning for Omani students at this stage?

T.2. 48:48 I don't know to be honest because I keep thinking about the fact that (if We're talking about the podcast), we are teaching the ELT majors. Yes, because for these students, like, the goal is that they have good English and that they can teach others Okay. Now, while we were creating podcasts, if they were weak language-wise, and on top of that, they had to struggle with the technical skills, I think it was at times overwhelming for them. Like, they didn't see the clear purpose of doing it, why do we have to do it? They didn't see like any learning value in it because some of them told me that they're never going to do that ever again. Like, that was just like one time off. And that's it. Sorry, I forgot the question.

Abdullah Alhasani 49:57 the authoring experiences, authoring artefacts, such as multimedia artefacts, is valuable to learning in higher education.?

T.2. 50:13 Maybe not on this? I don't think it's I don't think they're ready for it.

Abdullah Alhasani 50:16 So they're not ready.?

T.2. 50:18 Okay.

Abdullah Alhasani 50:22 But do you believe its value?

T.2. 50:23 I think it's valuable. Yes, I think it's valuable. I mean, when I hear this word, author, sometimes they don't even have a concept of what the author is or who the author is, when they plagiarize stuff, they don't understand that they're taking something that belongs to somebody else. So they don't have this concept of authorship. Okay, that they must acknowledge the person who created something, so that whole concept is very, very big for them. So I'm not sure if they're ready to see the value in creating content themselves. Again, it probably comes with, I don't want to say lack of publicity of that, but it's just they know that it doesn't go anywhere beyond the classroom. It's just something that the teacher asked them to do.

Abdullah Alhasani 51:18 What if it does (go beyond the classroom)?,

T.2. 51:22 we should try to see what happens. if they know that, for example, something will be published somewhere, and others will hear it.

Abdullah Alhasani 51:31. My other question, like do you think we need to introduce more,?

T.2. 51:37 probably, Yes, probably. I just remembered that I had a case of a student, it was not the podcast. But before I started teaching this semester, I asked one of my former students who is so much into technology, I mean, there are people who really, really enjoyed this course, because like I said, they discovered the new side in them, and there was this girl who would every single class that she would come to, she would start with: teacher, I would like to show you something. And then she would show me a new application that she discovered and what that application can do. And like halfway through the course I told her, I said, I think you're in the wrong program. I think you should go into media department, she was really, good at that. And she really enjoyed it. And her English was not that good. She's working on it. But the English is not that good. But she was like, so into technology. And I asked her to create a video I wanted to show to my foundation students at the beginning of the semester, because I'm trying something new with them. And I said to her, do you know how you have all these super characters and super villains in all those comics? movies? I said, I want you to pick like a Superman or Batman. And, can you like, do a short video compilation of what their strengths are. But I said to her, don't forget to include your name somewhere there. Because I told her I have a plan of uploading this to YouTube. Okay. I mean, she generally puts a lot of effort into this stuff. Okay. But the minute I uploaded it into the YouTube, I think she immediately informed her friends who were helping her that were giving voices, that that video is on the YouTube and the video started receiving likes, and likes and likes, and people were leaving comments. And she was so pleased with that. And that's what I mean by when your work is out there somewhere, that somebody can see it. I know, they do it a lot through Instagram. For example, I'm not an Instagram user, so I wouldn't even see that. But YouTube has liked a much wider audience, you know. But for example, if we had a programme here in the college running a program, like they tried to do something with this radio program, where we play such things for other students to listen to. Maybe they would put more effort there.

Abdullah Alhasani 54:06 Okay. This multimedia authoring experience, what do you think it adds to the learners and the learning process?

T.2. 54:31 They discovered things. They discover different ways of doing those things. I think they realize that something that they never had anything to do with, like when they see having something from zero, and then they create this at the end, because this is what I always tell them. I said, do you remember yourself at the beginning of this course? and see all your achievements, what you have created what you have done by yourself? Do you realize how big it is? It's like a completely new experience. You know, I think for some of them it is quite empowering, that they can do something like that, that sometimes

they didn't even know that they have the power of doing it. Sometimes They didn't have a need for it, and they discovered it for themselves. So yes, I think so.

Abdullah Alhasani 55:38 what about to the learning process, what does it add?

T.2. 55:41 again, it's like, there are different ways of learning things. And sometimes through like, I don't know, maybe they are less scared to make a mistake, because they see that going through mistakes is also like a learning process. So maybe they would be a little bit more courageous to try new things, and not to be worried about the failure right from the beginning. Because I think that's what a lot of students, that's why they are so hesitant to try new things, because they think from the beginning that they will fail. I don't know how to do it?. That's their attitude, right? but once they go through that, once you push them through that, I think they kind of get confidence that they can learn things, that they can learn new things.

Abdullah Alhasani 56:36 Alright? Do you see any challenges, possibly, to such an approach to learning?

T.2. 56:46 Again, it's going to go back to large groups; not being able to follow every single students' progress. The university teacher that we have now, she has a sentence that I also adapted, do not suffer in silence. And I keep telling my students the same thing. So I said, if you have any problems, come and tell me because then we can find a solution to that. But quite often they are worried to admit that they don't know how to do it, or that they tried, but they failed. And therefore they kind of lose any interest in that. Yes, so the challenge you would have to have an individual approach to each student with a process like that.

Abdullah Alhasani 57:38 Do you think that's a cultural thing?

T.2. 57:40 Could be

Abdullah Alhasani 57:43 struggle, struggle, struggle! All right. Um, let's talk about student centred learning. Multimedia authoring affords students the space, the opportunity to take learning on their own hands. Do you think that sort of role is valuable to learning in Omani higher education?

T.2. 58:11 students taking control?

Abdullah Alhasani 58:13 Yes, yes. student-centred learning? or student-centred learning generally?

T.2. 58:23 Probably but Why? You mean the learning by doing? Or what?

Abdullah Alhasani 58:32 No student-centred learning

T.2. 58:35 Yes, yes. But again, I don't know if it's a cultural thing. I don't know. I mean, we try really, hard to create like independent learners. And most of the time we fail still. So I don't know if it comes with the culture, with the way they are brought up at home where they rely on their family a lot, on their parents a lot, on instructions, I don't know how they are taught in schools. Because I swear to God, the first time I heard about the students-centred learning is when I came here to Oman, we didn't have such a concept when I was a student. I mean, if you are a student, you are taking care of your own learning. Okay. But here, for example, this was my very, very new experience that a parent would come to inquire about the student who is in the college. It was like, it would never happen. First in Poland, nobody would ever give you that information.

Because once you are 18, that's it. You're, you're of age, you're an adult, and no parent can come and ask about you. So all these concepts are kind of new to me. So intuitively, for me they existed long time ago. But it's only now that they started emphasizing this in all the literature, that we must go back to student-centred learning. But for us it was always like that. So I don't know if it's a cultural thing.

Abdullah Alhasani 1:00:11 How do you think it's going to help them decide? Like, in what was being independent? how's that going to be helpful to them?

T.2. 1:00:18 Because they need to take control of what they do. They need to take responsibility for their mistakes as well. Because I think also partially it is that they don't want to be responsible for their failures. Like, quite often, they would come and say, well, teacher, I was absent, like, they didn't do something. Okay. Why didn't you do this x? I was absent. But how is that my problem? You were absent, so I suppose it was your responsibility to go and ask your friend, what we did in class, okay, this cannot be an excuse. But I have a feeling that they still see it, like, this is not my problem. Even though I was absent, this is not my problem, Like the teacher didn't inform me about it. You know what I mean? But I think this kind of approach is student centred approach, but, first, all the teachers must be consistent in that. So we are all doing it that way. We're not spoon-feeding them. But if they're used to spoon feeding from one teacher, and then they come to the teacher, like this class, I remember the first time I taught this course, I had, like lots of stories going around, she's really, really tough; And you have to do like a lot of things, you know. B but then a bunch of students that was with me, I think the second time, they really, really enjoyed it. And they started saying to other students, well you're going to learn a lot of new things, but you must do it on your own. So there is like a support from the teacher, but she's not going to tell you how to do it, she can only direct you to where you can find help. But she's not going to show you how to do it. And you must do it anyway. So again, I think this is kind of empowering them. They are adults, but sometimes they behave like children. But this kind of makes them realize that they are capable of things that they were not even aware that they're capable of. Yes, especially when they must prepare like, okay, not even the, the podcast, but for example, when they had to prepare a topic. They do a lot of micro-teaching here for other courses, for example, yes. But it's, it's one thing when you read about it, and you prepare a PowerPoint presentation, and you tell others what you read about. It's another story if you ask them, okay, this is the tool, you must go and explore how to use this tool, and then you are going to teach others how to use it. Okay, so it's more about how to work with this tool. And you're not telling them about the tool. You're not describing it, but you must show them step by step. When we were doing Google applications, this is what they had to do. I said, I don't want to hear any lecture here. No PowerPoints, it's a workshop, hands-on workshop. So you go, you explore what is Google Docs, you know all its ins and outs. And you must tell the students, but you must do it in a way where they also learn. So you're not just showing them on the board, but they must follow your steps. So you give them small task, and they must go and perform it.

Abdullah Alhasani 1:03:32 So how do you feel students reacted to such an approach when they were given such responsibility?

T.2. 1:03:37 I think they liked it. Although, Yes, it required a lot of learning because they were like, these were new to them. Imagine you must teach somebody about something that you have no idea about. So you must go and learn it first but not from the teacher.

Abdullah Alhasani 1:03:57 Do you think we need to introduce more?

T.2. 1:03:58 Yes, Yes, I think so. They must, because they are going to be future teachers, so they must start feeling as a teacher. And it can start with something small. The other day, I had a student who made a mistake with the word (work) and (job), something like that, a foundation student. And I said, Okay, you're going to be an English teacher. So tomorrow, you're going to come back here, and you tell your classmates, what's the difference between job and work? When do we use one? When do we use the other? And he did a really good job for somebody who did it the first time. Yes. We went to one of the symposium from Malaysia they came, and they said that this is the concept that introducing the university. So if somebody studies medicine, for example, from the moment they enter medical field, from the moment that they enter the university, they are sent straight away to the hospital, to have like on-job training, even though they have absolutely no idea what they're doing at that point. But they said, if you start feeling like a doctor, you will start behaving like a doctor. You know, so I think this is what these students need to be aware of, like they are going to be future teachers, so you must start behaving like a future teacher. So you need to be able to explore things yourself to be able to teach others.

Abdullah Alhasani 1:05:22 Cool. With that, do you think there might be some challenges? or disadvantages to student-centred learning?

T.2. 1:05:36 No, I think the whole education is going towards it. No. I don't see any disadvantages in this to be honest. Other than, you must be very critical about the source of information. Because in the past, it was a teacher who was like the expert in everything, right. But nowadays, you can get information from anywhere. So you must become a very critical thinker, and selector of the right information, which is not easy probably for them

Abdullah Alhasani 1:06:12 so do they need preparation?

T.2. 1:06:14 I think it comes with practice. I hope it comes with practice, like, when you can separate one from the other.

Abdullah Alhasani 1:06:24 Okay, cool. Let's move to the last part of the pedagogy, which is learning through ICT. multimedia offering involves heavy use of technology. And how do you see the value of that in the Omani context of higher education? to students, I mean,

T.2. 1:06:50 their knowledge of technology is quite limited in the sense of, they know technology as their mobile phone. But you give them a laptop, and a lot of them get lost. Like even their mobile devices, because I keep telling them, I mean, the reason you have these nice smartphones, is because you can do so many things with them. But for example, when they were supposed to record the audio, some of them didn't even know how to do it on their mobile phone, where do I find the application for it? If they're on your phone, but they never use these! like, for example, they would be sending WhatsApp messages so that it's there inside there. But if they must find the application, and this is where they get lost. And it's the same with laptops, for example. Students bring their laptops, you would think that they should already know how to use them by now because they had computer 1 & computer 2, and you tell them, like, open a new tab, and they have absolutely no idea what you're talking about; or refresh the page, and they have absolutely no idea what they're talking about. So I think sometimes we overestimate what they already know when they don't know it.

Abdullah Alhasani 1:08:09 This is what they call it, digital natives, but they're not really like that. What do you think it adds?

T.2. 1:08:25 This is the 21st century skills. the digital literacy, Isn't that like all over the world? All the older educational systems are trying to get there.

Abdullah Alhasani 1:08:43 are you saying They need to keep up with the world?

T.2. 1:08:45 Yeah, of course. Absolutely.

Abdullah Alhasani 1:08:49 Why is that important?

T.2. 1:08:52 So That the country's not left behind.

Abdullah Alhasani 1:09:04 How do you think students resonate with? With more ICT in their learning? how do you think students receive that?

T.2. 1:09:16 more ICT in their learning, other than in the college? I don't see where they get it to be honest. What do you mean? Like, where do they learn?

Abdullah Alhasani 1:09:25 Like, would they receive it Well? in the sense that would they welcome the approach of integrating more technology?

T.2. 1:09:30 Well, well, again, this is like, overestimating this digital native's thing, because not all of them are. I did come across students who absolutely hate technology. Their mobile phone is a WhatsApp device. That's it. Yes, very, very basic use. But nothing more than that. WhatsApp, Instagram and twitter device, this is what the mobile phones are for them.

Abdullah Alhasani 1:09:59 So just for fun?

T.2. 1:10:00 Yes, yes. But it's very, very difficult to get them convinced to use it for any other purpose. Like, let's say dictionary, how about you use it? How about you install... All my new students, I must prep them: These are the applications that I want you to install in on your mobile phone devices, and you're going to use them. So like dictionaries, like okay, some of them to translators. But I don't think they are there yet. I don't know. They're heavily dependent on technology. On the one hand, because they cannot live without mobile devices, try to take it away from them for 45 minutes, and you will see them shaking like, you know, like their Sugar Rush, right!. But at the same time, they don't really know. I mean, this is what they probably must be taught about, like how to use them in a in an effective and advantageous way, in a proper way. That also comes as a 21st century digital skill, digital literacy kind of thing, you know?

Abdullah Alhasani 1:11:12 So they lack the knowledge and the how to use it properly?

T.2. 1:11:16 Yes.

Abdullah Alhasani 1:11:19 So, do you think we need to integrate more tech?

T.2. 1:11:21 We need to integrate our tech, but it probably must be done already from elementary school or secondary school. This is what I don't know what they use. Because every student that I asked, they always say that the internet was not available for them in school, they were not allowed to use mobile devices in school. So

Abdullah Alhasani 1:11:41 so, infrastructure is being a challenge?

T.2. 1:11:43 Yeah, I think so. Yes. Internet is terrible here. I mean, this is Like, Oh, my God, it's terrible here.

Abdullah Alhasani 1:11:53 sorry we are not X!

T.2. 1:11:56 I don't know. Because I don't know how it is in X schools. And when I was a student, we didn't have the internet. But I think that I think they have to be taught how to use technology in a responsible way before they come to the college, so that we don't have issues of confiscating mobile phones in class because somebody is on WhatsApp rather than being on a dictionary, you know? I think if they were taught about it, starting from secondary school, I don't think we would have these problems.

Abdullah Alhasani 1:12:30 All right. The last part of the interview, we're talking about the learning environment, authoring multimedia artefacts requires a lot of things, in terms of the learning environment. Talking about the role of the teacher, such projects require that teacher's role be limited to being facilitators and providing guidance, etc. and, by contrast, giving students the freedom. This sort of role, how do you see it valuable to students to learning in higher education?

T.2. 1:13:10 Again, comes with independence, being quite independent, being given freedom. May be in the process, students will be able to discover what kind of learners they are. Because some of them don't even know what kind of learners they are. They, by not being limited by the teachers, in that sense, it's like a road to self-discovery. So they can discover their own ways of doing things. I think it's really, important; if students are to be independent, yes, this is very important.

Abdullah Alhasani 1:13:59 How was your experience with that, in this module, for example,?

T.2. 1:14:06 it really depended on students. With some of them, it was really a lot of pushing, and it required a lot of effort on my part in the sense of pushing students to do something. But I really appreciate the students where I could have like, shortly instructed them what they're supposed to do, what are the learning outcomes from it, what is expected from them, and then gave them the freedom, and then they will come back with the ready product after two weeks or three weeks. I think I really appreciated students like that. Because, I don't want students to be heavily dependent on me, I want them to find their own ways, I want them to find their own learning. So as a teacher, I will be looking into it.

Abdullah Alhasani 1:15:06 it doesn't threaten your role?

T.2. 1:15:08 No, not at all, because, I'm on my gosh, we know it's coming. I know; therefore I know that a lot of teachers are afraid of letting go of the control. Yes. And that's why I told you, I mean, if there's a certain approach that the institution takes, teachers must be united in this. But there are teachers who are really, afraid of letting go of that control over the class. And things must be done exactly in that way. Right.

Abdullah Alhasani 1:15:40 afraid of Letting go,!!.

T.2. 1:15:41 Yeah. Because it's also, kind of, our comfort zone, you know, where you know, that you are here, students are here, and then suddenly, you know, the balance shifts a little bit. For example, I had quite a few cases where a student would correct me, but they would be scared to do that, because they would think I would get upset about, especially when it comes

with technology. And I always laugh it off because I keep telling them with technologies, like this morning I'm going to check the application and it looks like this. And then I come to class two hours later, and it looks completely different. And as a teacher, you must be ready for those changes. Because I can't remember which application it was like that I was checking it at home, and it was still working fine. And then I come to the college and suddenly looks completely different. Okay, and you must find your way. So, if you are not threatened by this, then you probably wouldn't have any problem of letting go of the control in the class. But there are teachers who are afraid of that because they're afraid to be challenged by students. The students are quite challenging. Nowadays, yes.

Abdullah Alhasani 1:17:04 So are you with restricting teacher-centeredness?

T.2. 1:17:09 I am with restricting teachers-centeredness. Yes, absolutely. Because we must be ready for students who are challenging. Students are smart. And because nowadays, people like these, you will have different skills. I actually like when students feel so proud that they can come to class, and they can teach a teacher something that they discovered, like the example of this girl, she would come and say, teacher, I wanted to show you something, you know, and they really appreciate the fact that the teacher does not get upset about it, and welcomes these kinds of ideas. Because I told them from the beginning, I said if you discover anything new, don't be afraid to share it with the class, with me, because we are all here to learn, you know, so they have to understand that. Teachers must understand lifelong learning, right? So it's not only what you learned in the past, now the knowledge changes quickly. Okay, so teachers also must be ready for these changes.

Abdullah Alhasani 1:18:18 What impact does that create when students discover something and come to teach it to the teacher?

T.2. 1:18:23 Oh, I love it. I mean, and also students, like, it's because this kind of knowledge comes from their friends, and they're so happy that the friend knew it, and the teacher didn't know it, you know, but of course, it depends on how you as a teacher are going to approach it, because if you're going to get upset about it, it's not going to work. But it always worked in my classes because I gave them the freedom on the platform, I gave them the freedom of uploading things. So I said, if you find anything that you think is worth sharing, please do so, because we're all here to learn.

Abdullah Alhasani 1:18:59 Right? Do you see any advantages beside these? in terms of the role of the teacher? Students who threatens, it's very hard for them to let go, do you see the culture playing and aspect there, or the educational system?

T.2. 1:19:14 Yeah. Because probably it's a little bit of, I don't want to say who is the master of the ceremony, But, like, who is the leader here? Basically, kind of thing, you know,

Abdullah Alhasani 1:19:29 so balances, Authority controls?

T.2. 1:19:32 Yes, Yes

Abdullah Alhasani 1:19:41 Okay, um, would you want to say, it says anything about the educational system? it says something about the culture? What do you think the education system has something to do with it?

T.2. 1:20:03 I don't know if it's the educational system or what they bring from home? Again, I don't know because I have no experience in schools here. So I don't know how, what is the relationship, you know, teachers, students, how they are taught receive?

Abdullah Alhasani 1:20:18 how do you see the educational system here at higher education?

T.2. 1:20:21 They are I mean; they still behave like kids here. And this is what I don't really like, I mean, sometimes you don't feel like you're dealing with adults, you know,

Abdullah Alhasani 1:20:30 so we're talking about students?

T.2. 1:20:30 Students, yes.

Abdullah Alhasani 1:20:34 But are teachers doing their part, giving them the freedom, giving them the choices? does curriculum prepare them for that?.

T.2. 1:20:41 I wouldn't know. Curriculum is quite again; we're not talking about our subject (educational technology) that gives kind of freedom. But there are subjects that are quite rigid in terms of, like, you can't really make a lot of changes there, because it's all centralized, comes from ministry. Our universities (in Poland) have a little bit more of autonomy, and teachers within the University have all the autonomy. So I remember when I was a student. But here, just the fact that some programmes are really, old, and it takes like ages to revise them, it doesn't go hand in hand with how quickly things change nowadays, with the use of technology. Everybody talks about the world develop develops rapidly, blah, blah, blah, all that, but you can't see it in educational system here.

Abdullah Alhasani 1:21:46 All right. Now, let's talk about the learning atmosphere. Authoring multimedia artefacts, or multimedia content, requires creating an atmosphere where you support students to work individually, to work in groups, and to work from trial and error. Creating such an atmosphere, how do you judge it value in the learning context of higher education?.

T.2. 1:22:11 How what?

Abdullah Alhasani 1:22:12 creating a learning atmosphere that encourages students to work independently, to work in groups or collaboratively, to work from trial and error, because that's what the whole experience was all about - try, and make mistakes, and relearn again. Creating such an atmosphere, do you see it is valuable in higher education context?

T.2. 1:22:33 Yes, because we don't want to replicate a secondary school setting, where a teacher is lecturing, and students are listening and taking notes or not taking notes. Again, I'm going back to what is called "social constructivism" where the knowledge is shared and co-created. Of course, there should be a certain balance where the teacher is still a teacher in the class as an authority, but I don't think so much as authority of knowledge anymore. It's like an authority in keeping discipline in a class where there's no disruptive behaviour and things like that. But when it comes to teaching and learning, I like the way where students are sitting in the lab, and they are showing things to each other, and they can show things to the teacher. And I think I don't know, I think it's a great learning atmosphere for that, where they feel free to voice their concern, or where they feel free to ask a question, or they feel free to give information, even, that they got.

Abdullah Alhasani 1:24:14 How do you see the trial and error working, like, reflecting?

T.2. 1:24:22 Yeah, I don't know if it, again, comes with the culture where they're so scared of making a mistake or failing. I don't know. It comes, for example, I can never understand why students are cheating here on the exams, because the GPA that they get, I don't know if it has any value for the ministry per se. Because to be offered a job in the school, they must get IELTS band six, and they must pass the educational exam, right. Does it have anything to do with their GPA that they get here from the from the college?

Abdullah Alhasani 1:24:59 for scholarships, for employment offerings, to get a job, I think that's sort of for benchmarking purposes, a Priority first thing.

T.2. 1:25:12 okay, because I could never understand why are they cheating on the exam?

Abdullah Alhasani 1:25:16 Everything is about GPA, unfortunately. Well, there you go ago. And how do you think students resonated with such a learning atmosphere? from the Ed-tech course?

T.2. 1:25:29 Well, you would probably have to ask students, that question.

Abdullah Alhasani 1:25:32 But how did you feel as a teacher?

T.2. 1:25:34 Again, it came with, Do they students like technology? Do they like working with technology? Or do they hate it? Do they like this teaching style, because not all the students even like it, where they have to make that extra effort of going and finding information and learning from the information that is not given to done by the teacher? Okay. So again, I think it comes with the personality of them as a student, or what kind of students they are. Because if they are used to learning from page one to page five, only what is given by the teacher, then they wouldn't appreciate this, I think. So they would find it difficult, but students who like a little bit of freedom I think they liked it a bit more.

Abdullah Alhasani 1:26:27 So the responses you got were mixed.. Are you with encouraging and expanding such a learning atmosphere?

T.2. 1:26:33 Yes, Absolutely. And I really wish that the curriculum gave us that freedom.

Abdullah Alhasani 1:26:42 What would you do?

T.2. 1:26:44 Well, I'm trying already to introduce it in one of my classes. Well you heard about the KODOS from the girls, which was like one of the ideas that I have. But did they tell you about the gifts that they got at the end?

Abdullah Alhasani 1:27:00 Gifts?

T.2. 1:27:00 Yes.

Abdullah Alhasani 1:27:02 Well they mentioned an example about the Duolingo how one student hacked >>>

T.2. 1:27:07 yes, that was that was, like, amazing. I gave KODOS to that point. I did not penalize him for that. I gave him points for that. And he shows others how to do it. But then it also told me, Ok, these are the things I must watch for? Because the

reason they were doing it, and because they were in competition. I told them the person who is going to score the highest point is going to get the gift.

Abdullah Alhasani 1:27:34 How did he manage? I got his name down. I was like, we need this guy.

T.2. 1:27:37 Iman Al-Shaquille. I think. Yes. He was amazing. I mean, honestly, yes, these are the things you know, this is when you know how good they are with technology, and the things that they can do. You heard my story about the QR codes, right? How they tried to cheat with that.

Abdullah Alhasani 1:28:01 Yes, you told me that.

T.2. 1:28:01 this tells you this, I mean, so you give them some idea, and they kind of go and they think let me do something, let me fool the teacher, you know, kind of thing. So it was the same with the duo-ling. But the whole point was that they were getting a gift from me. So I got iPads for the best student. Yes, so in one group I had two students who were given gifts, because there was a large group, 35 students. So I had one boy and one girl, okay. And in the other group, I had one student who was given because I knew he's interested in manga, and drawing, he's really, good. He got one of those pads for drawing.

Abdullah Alhasani 1:28:10 cool.

T.2. 1:28:17 So were giving gifts. This semester, with the with the foundation students I'm trying to re-design the course as a game. So we still must cover the material that is given by the Ministry, prescribed by the book, headway, but I want them to be more involved or engaged in what they do. So I asked them to create avatars for themselves and give themselves cool nicknames. And we have this leader board kind of thing. And I create quests. So for each chapter that we study in the book, I call it "level". And I create, like, a narrative around the chapter, so that they kind of know what we're going to do. And then for each chapter, I design quests, and they are not compulsory, I said it's only for those people who want to do them. So for example, today to both groups, they are only foundation students, to both groups I introduced BOLOTOGON, storyboard-Dat and Voice Threat. And they have a quest that relates to it. So instead of writing a book review, I want them to create either a movie that is going to be recreation of a scene from a film that they liked, or they can have like a dialogue with a friend about the movie. Or, they can do the same with the comic strip (storyboard-Dat) but they must put voice into it. So they must use voice threat. So once they download it as a PowerPoint, they upload the PowerPoint slides into the voice thread. And now they must start recording the narration to that story. Okay, so just to get them a little bit more engaged. Again, students who are not interested in learning in general, and who are not interested in (who I don't know why they're here in the college), they would never be engaged in this. But I already spotted a couple of students who are like always there in class, or most of the time, do their homework, always take that one extra step to learn something. And today, they were like sitting and listening. And then you know, I told them, you must choose which way you want to go, if it's a blotogon, I need to add your name to the license. If it's a storyboard-Dat, I showed them how it works, how the Voice Thread works, it's all free software. So I said to them, you decide how you want it. And they started working today, they started creating movies, comics, you know,

Abdullah Alhasani 1:31:26 that supports the concept of authoring multimedia!

T.2. 1:31:30 Yes

Abdullah Alhasani 1:31:31 Cool. Do you see any disadvantages to creating such a learning atmosphere? that supports individuals, like independent learning, and that supports collaborative learning, trial and error?,

T.2. 1:31:47 Well, again, I think it comes from the limitations of the institution and the system itself. So we have large classes, small classrooms, the setting of the classroom is not appealing at all, it's not inviting at all - moving those desks or chairs to create groups takes time. Quite often you come to the lab, and there is no internet or half of the computers are not working. So it comes kind of with the infrastructure. So I think the institution itself would need to have a good system to introduce this kind of learning.

Abdullah Alhasani 1:32:33 Yeah, cool. Moving to the final part, we're going to cover the nature of the learning activity. Authoring multimedia artefact experiences depends on project and project based learning. Do you think learning thru projects is valuable to learning in Omani higher education,?

T.2. 1:32:50 learning to projects.? you mean, like, Collaborative or any?

Abdullah Alhasani 1:32:54 or generally PBL, compared to exams?

T.2. 1:33:00 I don't know if it's going to be valuable here in this system, simply because of the amount of cheating that is happening here. Like in the exams, they are strictly monitored not to cheat, right? But with these projects, I mean, we already have experience with a simple research project where they just cannot help themselves to plagiarize. And again, going back to the example of today's class, the task was explained to them, and then I come to one of the computers, and I see that the boy found the story on the internet and basically all he does, he cuts and paste dialogues into the storyboard-dat. It's like they can't help it sometimes. So if that is to work, there should be a system developed, where cheating is minimized, where there are stricter consequences, where it's easier to be detected. Because even like a simple picture that they take from the internet, you know, that does not violate copyright issues. Right. That's, also a problem. How do you manage that in the system? So yes, I think that there should be like a good support system for that.

Abdullah Alhasani 1:34:42 Oh, right. Um, but how do you think students receive such an approach or resonate with such an approach to learning, PBL, given these aspects that you mentioned?

T.2. 1:34:57 Again, this would have to be like, you know, each student would have to be interviewed individually, like, how much time do they spend? Okay, Google Docs, for example, gives you the option of checking their progress through revision history. So you would see how much time a student spends writing the project. But some students, even though they are told at the beginning of the semester, plz work only with Google Docs, they still bring stuff from Word document, and you don't know how much time they spent working on it? Who was helping them in the process? So there's like no good monitoring system for certain projects. And, sometimes the syllabus of the subject itself does not give you the flexibility of doing that, where you can, like have, checkpoints. If you have a very heavy course, you wouldn't have time, if you have, like, 25-30 students to monitor them individually. So yes, so I don't know how it would be done with large groups. To be honest, for certain subjects, I think that doing a project, whether it's a group project or individual project is just a waste of assessment mark.

Abdullah Alhasani 1:36:24 Like what subjects?

T.2. 1:36:25 Yeah, well, I don't know, some of the ELT subjects that are taught, I didn't teach them So I wouldn't know, but I think every single subject in the ELT has some kind of a research project. But why do they have to do the same thing over and repeatedly? What are they learning from it?

Abdullah Alhasani 1:36:45 So you mean the repetition? you are more concerned about seeing Similar projects?

T.2. 1:36:49 Yes, yes. I don't see much of a scaffolding done in in that sense. Like, for example, students. In foundation level, when they are taught English, maybe they should be taught on the level of a sentence. Like, their language accuracy is terrible, until they graduate college. But I think it is because things are repeated, every semester we repeat things, but we don't scaffold them. So like, every semester they would be writing essays. They have a subject called Advanced writing one, they write essays. They have a research project there. Then they have a subject called research project, and then again, they have a research project there. even there was this subject "debate and communication", that was the semester when I didn't teach that, but the teacher who was teaching that subject that time, instead of having them doing short speeches, she introduced presentations. And what did they do? They presented the project that they already presented in another subject, for another teacher. But you wouldn't know that.

Abdullah Alhasani 1:38:04 They reproduce,?

T.2. 1:38:05 yes, they reproduce because they want to do it with the least effort to get the highest gains, you know what I mean? So the institution itself, or the system itself would have to develop a certain mechanisms of how to deal with this.

Abdullah Alhasani 1:38:31 challenges. Okay. So you're with increasing, with the condition that we need to produce a system?! How can that be achieved, you think?

T.2. 1:38:49 I have no idea, you would have to change the mentality of people, I think

Abdullah Alhasani 1:38:53 So how does that work in other contexts?

T.2. 1:38:56 I can't member ever having any PBL when I was a student. Now that I'm a student in this masters, we don't have any projects, we have submission of semester assignments. But for example, the subject that we studied "research methodologies", the assessment was divided into three parts. The first part was dealing with quantitative research. And within the quantitative research, you have like three different tasks, so you must develop questions, this is how many marks it is worth. Then you must analyse the answers that you collected from certain students. And then you had to analyse the answers that were given by the teacher. So that's what I mean by scaffolding, you are not repeating this, I mean, you are working within the same scope, quantitative research. But the tasks are very, very different, the way you would be doing it, as you are doing the research project. Okay, the same within the qualitative part of the research. So one task was to develop questions for qualitative research, then you had to describe the process of how you created the questions, where you put them, how you disseminated the questionnaires, and so on. And then the last part was to analyse the answers, but the answers were supplied by the teacher. So you were not analysing the answers that you got from the students? Do you know what I mean?, because for me, that was the very good example of scaffolding things. So you're working within the same scope, but you're not repeating the tasks. But here is quite often it's the repetition of the same thing

Abdullah Alhasani 1:40:43 Exactly. repetition. So maybe this is one of the suggestions to the system? You want to create a system that attends to that. So like, for example, the podcasts that students created, they can be repurposed in another way, but with an addition or ..

T.2. 1:40:59 Yeah.

Abdullah Alhasani 1:41:01 Okay. It's interesting. Right. Now, that will be it. any final comments? and suggestions to

T.2. 1:41:15 No I think I said a lot. Oh, my God, look at how much he wrote.

Abdullah Alhasani 1:41:20 Yeah. Oh, it's quite impressive. And because the sample of teachers is quite limited. That's why I want to extract as much as possible. It was quite insightful. So, how do you rate the overall authoring multimedia artefact experiences for students? any final, goodbye notes?

T.2. 1:41:40 Again, there are some who probably loved it, there are some who hated it, there are some who will never do it again. I think it's a very, very individual thing for each students. And they also have this love-and-hate relationship with the subject in general, so that's the emotional sort of investment?

yes, they come to the subject already hearing from their friends, (this is what my students were telling me), we heard from our friends, that this is the most difficult subject in the whole course or program, but they said it's also the one where we learned the most. So it was like the most interesting, but at the same time is very, very challenging.

Abdullah Alhasani 1:42:03 How do they balance the whole thing?

T.2. 1:42:17 I don't know, I think the way the assessment is done in this course, I loved it, I mean, I literally, I really, really love the content of it and everything, you did a really, really good job on redesigning it. Because I told them look at how many different assessment parts you have. So you fail in one, it does not mean the failure of the whole subject. You know, I said you have the chance to make it up in another way. And the whole purpose of KUDOS is that, OK, you fail here, you fail here, you feel that you are losing track of things, you feel that you want to catch up, but you are already so many steps behind everybody else on marks. So here is your chance, create something interesting, introduce something interesting in class, you'll be given extra points that will be later on at the end of the semester converted to marks, that you lost in the process somewhere else.

Abdullah Alhasani 1:43:30 It is cool, gets them more engaged and involved in the whole thing.

T.2. 1:43:34 Yeah. Because then they don't give up halfway through the course. Because if you remember, every week, they have at least two or three different assessments. It's either a small quiz or the blog that they must write, or the question that they must answer, the small project that they must write, you know. So I know that it was overwhelming, but kind of compensated for them. I said, Okay, so here is another chance. What's more, I made those kudos transferable. So I said, you want to help your friends, you can transfer some of your kudos.

Abdullah Alhasani 1:44:07 Oh. That's cool. And Has anybody done that?

T.2. 1:44:13 Yeah. Because they got more. I mean, they already got full A. And they still had kudos left.

Abdullah Alhasani 1:44:21 So looking at students' grades in the overall course, what do you see the tendency like?

T.2. 1:44:30 I think I had a good bell curve in all the groups. Dr. Hamed complaint at some point in time that there are lots of A's in the group, you know. But the HOD said, No, no, these students are good with technology, so it's okay. Some students were really really engaged in the whole thing, you could see that they really enjoy it. I used to have them in my office all the time asking questions, you know, sharing things with me and showing me things.

Abdullah Alhasani 1:45:00 So it helped unlock some doors?

T.2. 1:45:05 Yes. Yes. Honestly, this girl is amazing when it comes to art and media and stuff like that. and she loves doing it with technology.

Abdullah Alhasani 1:45:17 That's impressive. Thank you very much. Really appreciate your input, and that you were willing to participate in this interview. Yes, cool. Let's hit stop.

Appendix K

2. A sample transcript from student interviews

[00:00:01] **(interviewer):** شكرا على الموافقة والمشاركة في هذه الدراسة .طبعا المحاور مررنا عليها باختصار ، بنشوف تصورات طلبة اللغة الانكليزية، وخبرتك طبعا في صناعة المحتوى كما أملاها عليك ال Edu tech course ، خلنا نتعرف عليها بشكل مبسط.

[00:00:21] **S.9.** طالبة سنة خامسة وأخيرة .كلية التربية بالرستاق .الفصل الأخير.

[00:00:28] **(interviewer):** نتمنى لك التوفيق إن شاء الله .هل قبل هالكورس كان عندك خبرات سابقة في صناعة المحتوى؟.

[00:00:36] **S.9.**كان عندنا خلفية بسيطة بحكم أننا قمنا بدراسة مادة الحاسوب من الصف الأول وحتى العاشر في المدارس .كنا ننتج محتوى مثل البرامج الخاصة بصناعة المطويات للتوعية في الصف العاشر.

[00:00:54] **(interviewer):** هذا كان في ال extracurricular activities ولا كان من ضمن المتطلبات؟.

[00:01:03] **S.9.** من ضمن المتطلبات.

[00:01:05] **(interviewer):** ما شاء الله .قلتي برامج صناعة posters ؟

S.9. [00:01:07] leaflets

[00:01:07] **(interviewer):** يعني معك خبرة؟ ممتاز ، خلنا الحين ندخل جو ثاني .تجربتك الشخصية في صناعة المحتوى استنادا إلى هذا الكورس، ونتكلم عن البودكاست كمثال ربما سهل، مبحثنا الأول بيكون عن التفاعل في العملية التعليمية، طبعا بنشوف ما مدى تأثير صناعة المحتوى على التفاعل في عملية التعلم أو في ال processقبل وأثناء وبعد .أخبرني عن مرحلة ما قبل الإنتاج .طبعا التي أنتجتي two podcasts كيف حضرتيلهم؟ كيف جهزتيلهم؟ وش الجوانب الي ركزتي عليها؟.

[00:01:57] **S.9.**في البداية كان لازم نتثقف تماما عن برنامج البودكاست من خلال البحث مثلا في محرك البحث جوجل، في اليوتيوب، الاستفسار من طلبة السنوات السابقة، والبحث أكثر معلومات كيفية التعامل مع هذا النوع من البرامج.

[00:02:18] **(interviewer):** يعني معلوماتك كانت من زملائك؟.

[00:02:22] **S.9.**من زملائي، من استخدام أشياء الكترونية، ومدونات، الخ.

[00:02:26] **(interviewer):** ويش الي ركزتي عليهن المصادر؟ مدونات قلتي؟

[00:02:34] **S.9.**ايوه .واليوتيوب، ومحرك جوجل.

[00:02:42] **(interviewer):** مدونات لأشخاص معينين مثلا؟

[00:02:44] **S.9.**بشكل عشوائي.

[00:02:49] **(interviewer):** وكيف بالنسبة لدور المعلم؟ ويش وفر لكم؟

[00:02:52] **S.9.**هذا الكورس كان طبيعة المعلمة معنا أن يكون أكثر independent learners من أننا نكون نحن متلقين .فمن بداية الكورس هي صارحتنا ان نحنا لازم نكون التركيز علينا كطلاب في البحث عن الأدوات، تقديم المعلومات وهذا، من خلال أنفسنا دون مساعدة، هي كان فقط مثلا تعطينا الفرص وتعطينا نبذة بسيطة، كان علينا احنا الطلاب البحث.

[00:03:17] **(interviewer):** يعني مهيئين كتهيئة نفسية سابقا؟.

[00:03:20] **S.9.**نعم.

[00:03:23] **:(interviewer)** بالنسبة لبروجكت البودكاستكينج، وش كان الموضوع الي اخترتيه في البودكاست؟ عن ويش كان؟.

[00:03:27] **S.9.**ما اتذكر تماما بس كان موضوع تربوي.

[00:03:38] **:(interviewer)** اخترتي الموضوع بروحك؟.

[00:03:38] **S.9.**بروحي .كنا مخيرين في اختيار الموضوع.

[00:03:43] **:(interviewer)** كيف جهزتي للموضوع؟ كيف بديتي ترتبي له؟.

[00:03:45] **S.9.**أول شي بديت باجتهادات شخصية .اخترت الموضوع الذي أحس أني أنا أقدر أبدع في مجاله، بعد ذلك بديت أبحث عن معلومات إضافية، بديت أصيغ طريقة تقديمه بصورة سلسة، وبعد ذلك قمت أعمل في البرنامج بنفسه، يعني بصورة منفصلة .جهزت أول شيء طبيعة الموضوع، بعد ذلك كيفية إدخاله والتعامل معه في البرنامج.

[00:04:14] **:(interviewer)** قلتي طريقة تقديمه بطريقة سلسة، من اي جانب يعني؟

[00:04:22] **S.9.**من جانب أن برنامج البودكاست يتطلب منك أنك تدخله على هيئة دفعات، يعني ما تدخل المقطع الصوتي مرة واحدة، فلازم أنت لما تسجل المقطع الأول والثاني، لازم يكون هنالك صلة حتى انت تقدم بصورة سلسة بدل ما تكون بصورة متقطعة.

[00:04:43] **:(interviewer)** طبعا الملفات تكون الملف صوتية؟ و ملف ميوزيك وكذا يعني؟

[00:04:48] **S.9.**يتم دمجها مع بعض لتعطي الناتج النهائي.

[00:04:55] **:(interviewer)** كيف جهزتي النص ؟الموضوع؟ هل جهزتيه في ورقة مثلا؟.

[00:04:57] **S.9.**في ورقة خارجية، تدربت عليه، تدربت على الpronunciationعشان اتجنب الأخطاء اللغوية، وأيضا كيفية تقديمه صورة تعطي انطباع جيد عن معرفتي بهذا الموضوع.

[00:05:15] **:(interviewer)** من كان الaudience؟هل كانوا كبار، صغار، طلاب مدارس؟

[00:05:22] **S.9.**كان يهدف إلى طلبة المدارس، بشكل اول كان هو الهدف أن يقدم لطلبة المدارس.

[00:05:29] **:(interviewer)** وهل كان اختيار الموضوع له تأثير في ال audience؟

[00:05:35] **S.9.**الكلمات المختارة، طريقة الطرح، هذي كلها كان لها جانب مراعاة إنها تناسب عقلية ومستوى طلبة المدارس.

[00:05:44] **:(interviewer)** طبعا كل هالخيارات تقوي بها بشكل شخصي؟ انتي تختاري الaudience، انتي تختاري الموضوع، تختاري الكلمات الي تتناسب مع مستواهم العقلي؟

[00:05:52] **S.9.**ايوه .انت مخير.

[00:05:52] **:(interviewer)** طبعا تدربتي على كيفية التقديم، وخلاص حسيتي انك خلاص قادرة بعد هذا، التدريب جهزك بشكل عام؟ يعني التدريب هو الي ساعدك؟.

[00:06:17] **S.9.**ايوه

[00:06:21] **:(interviewer)** وين سجلتي؟ وكيف سجلتي؟ ويش الأدوات الي استخدمتيها في التسجيل؟.

[00:06:22] **S.9.** في البداية قمت باستخدام اللاب توب بنفسه تسجيل سماعة اللابتوب، بعد ذلك شفت ان للجودة سيئة .حاولت أني اسجل باستخدام هاتفي، جالاكسي، حسيت أن الجودة أفضل، لكن ايش المشكلة؟ المشكلة بعد ذلك أن نوعية الملف لازم تحويلها باستخدام برنامج ثاني.

[00:06:44] **(interviewer):** وهل هذا كان مشكلة كبيرة يعني؟

[00:06:48] **S.9.** ايوه لأن تدخلهن اكثر من برنامج عشان يكون ال productبصورة جيدة، كان لازم تستخدم برنامج انك انت تشيل الشوائب، الأصوات، الضوضاء، ببرنامج تحول صيغة الملف، يعني عدة برامج، ما اقتصر فقط على برنامج البودكاست.

[00:07:04] **(interviewer):** برامج تنقية وتحويل صيغة؟ ممتاز .الخطوات التي اتبعتيها ، من ناحية اختيار الموضوع، والتدريب عليه،وكيف تقدميه، واختيار الكلمات، هل أثرت على المنتج بشكل عام؟.

[00:07:21] **S.9.** أثرت في تقديم منتج أفضل، لأن كل هذه الخطوات ساهمت في إنتاج منتج يليق بالشيء الذي أنت تحاول توصله، الرسالة الي تحاول توصلها بالنسبة للجمهور ، مراعاة مثلا فئاتهم العمرية، اهتماماتهم الخ.

[00:07:46] **(interviewer):** انزين .بدينا الحين مرحلة الانتاج والتسجيل، خبريني عنها، وشو الخطوات الي اتبعتيها؟ من play الى ضغطيstop ؟.

[00:07:47] **S.9.** المرة الأولى كانت محاولة للتجربة أكثر من انها محاولة فعلية، عشان نشوف العوائق وكيفية تجنبها، فبعد ما شفت هذي العوائق حاولت اني اتجنبها، بمعرفة أسبابها على أساس اني انتج محاولة ثانية أفضل من المحاولة الأولى، فبدأت بالتسجيل أدخلت البرنامج، نظرت إلى الجودة، ايش الأشياء المحتاجة اضيفها، أيش محتاج انقصها عشان أجيب المنتج المناسب والمطلوب.

[00:08:21] **(interviewer):** وضبط عندك من المحاولة الثانية؟

[00:08:25] **S.9.** لا، للأسف عدة محاولات كان كل مرة فيه عوامل معينةانها هي تخرب الإنتاجية، يمكن حاولت7 ، 8 مرات لين ضبط المنتج الأخير.

[00:08:38] **(interviewer):** وين سجلتي؟.

[00:08:52] **S.9.** في السكن.

[00:08:52] **(interviewer):** هل اضطريتي تتحكمي بالسكن من ناحية.... ؟

[00:08:54] **S.9.** البيئة، يعني طبيعة الناس الي انت عايش معهم لازم هم يفهموا طبيعة الشي الي انت جالس تسويه، على أساس إنهم يراعوا، مثلا محد يصدر أصوات، محد يقاطعك، لحسن الحظ أننا نحن في الغرفة كنا ناس نعمل على نفس المشروع فكنا متفهمين، بالرغم من هذا كان فيه بعض الصعوبات، إنه كان يطلع صوت خارجي كذا، فكان يأثر على جودة المقطع الصوتي.

[00:09:20] **(interviewer):** بالنسبة للضوضاء، كيف حاولتي تتعاملي معها؟

[00:09:34] **S.9.** حاولنا إيجاد بيئة مناسبة تهيئنا نحن الثلاثة المشاركين في نفس البرنامج أن نأتي بجودة جيدة، فكان نحاول أن نضبط البيئة على أساس أن يكون العمل يخرج بالصورة المناسبة وبالصورة الصحيحة، بدون مقاطعات ودون أي ضوضاء.

[00:09:54] **(interviewer):** ويش سويتوا؟

[00:09:55] **S.9.** هيئنا جوالغرفة حيث أن يكون مافيه ضوضاء يكون وقت مافيه ضوضاء مثل وقت الليل يكون الوقت هادئ، فيكون هذا الوقت هو الوقت المناسب .إن هذا الوقت وقت نعمل فيه على المشروع.

[00:10:26] **(interviewer):** يعني الساعة كم؟

[00:10:26] **S.9.** الساعة 12 كذا

[00:10:26] **(interviewer):** ممتاز ، بالعكس بيفهمني كيف الناس احيانا تحاول تتغلب على العقبات التي تواجهها، لأنها في النهاية كلها اختيارات شخصية، أنت صاحب القرار وانت تختار .وبعد ماتحكمتي بذي الاشياء، كيف تشوفي انها أسهمت في ان المنتج كان بكفائة؟

[00:10:44] **S.9.** أسهمت بأن يكون المنتج أفضل، لكن ظل بعض الأخطاء نسويها لاواعي، مثل أخطاء في pronunciation ، slip of tongue هالأشياء كانت تأثر بعد استماع مرة ثانية للمنتج انت تلاحظ أنك سويت أخطاء لا إراديا، فلازم تعيد وتسوي، فكانت العوامل المؤثرة أحيانا لغويا، أحيانا بسبب الضوضاء يعني أشياء مختلفة اثرت في جودة العمل.

[00:11:20] **(interviewer):** كان حلك الوحيد، طبعا كان عندك slip of tongue كان .pronunciation كيف بالنسبة لل clarity وجودة الصوت؟ والجودة بشكل عام خارج إطار اللغة؟

[00:11:32] **S.9.** الجودة بشكل عام تحتاج منك جهد شخصي إنك انت تعرف برامج ثانيية عأساس أنك تطلعة بجودة أفضل، يعني كلما كانت جودة العمل الصوتي أفضل، كلما كان أفضل للجمهور وأفضل لك انت إنتاج عمل جيد.

[00:11:43] **(interviewer):** وهذا الي سويتيه انتي؟.

[00:11:44] **S.9.** ايوه .استخدمنا برنامج ثاني عأساس أنه يبين جودة أفضل للصوت.

[00:11:54] **(interviewer):** تتذكري ويش اسمه؟ هذا ما طلب منكم المعلم، بروحكم حبيتوا تحسنوا؟

[00:11:57] **S.9.** ايوه بروحنا.

[00:12:11] **(interviewer):** واضفتي ميوزيك وذي الحركات كلها؟

[00:12:13] **S.9.** كان لازم إضافة ميوزيك، لكن كان لازم أنك تراعي أن صوت ميوزك الخلفية ماتعلى على الصوت الي انت مسجلنه، فلازم يكون عندك خبرة فنية ان مستوى صوتك يتناغم مع الموسيقى، يتناغم مع الأسلوب الذي انت تحاول توصله للجمهور.

[00:12:27] **(interviewer):** طبعا خلصتي كل شيء، جهز المشروع، كان تركيزك على المشروع النهائي) المخرج النهائي(، خلاص هذه المرة الثامنة، جهز المشروع، كيف قيمتيه؟.

[00:12:44] **S.9.** من خلال الاستعانة بصديقاتي ، هل عندكم إنتقادات، عندكم أشياء لازم أنا أعمل فيها عشان اطلع المشروع بصوره أحسن من كذان أو لا، فالإنتقادات الجانبية تكون بناءة أكثر من انتقاداتك الشخصية للعمل لأن المنتقدين يشوفوا أشياء انت ما تشوفها.

[00:13:12] **(interviewer):** وبناء عليه شو سويتي؟

[00:13:14] **S.9.** بناء عليه مثلا حاولت اني احسن مثلا إذا كان هناك شيء pronunciation أطلع الكلمة بصورة أفضل، اذا كان هناك مشكلة فنية مثل الموسيقى نحاول أننا نخفض الموسيقى بحيث إنها تتناسب مع درجة صوتي.

[00:13:27] **(interviewer):** اوكي .ضبطتي،ورتبتي، وخلاص تحكمتي في المموسيقى واتحكمتي في اللغة، الحين شغلك جهز ، كيف كان شعورك؟ وصفي لي شعورك) بالمنتج النهائي.(

[00:13:48] **S.9.** العمل كان متواضعا، كان نوعا ما ليس بتلك الجودة العالية جدا، إلا أنني كنت فخورة بعملي كطالبة تستخدم البرنامج لأول مرة، حسيت بالإنجاز لأن قمنا بعمل شيء ما كنا متوقعين أن نقدر نسويه من البداية، فحسيت بالإنجاز والفخر أني طلعت بإنتاج نفس هذا.

[00:14:13] **(interviewer):** ويش كان اهمية هذا الشعور لك؟.

[00:14:17] **S.9.** كان مهم جدا أنه يعطي حافز ، أنا عندي الإمكانية طالما عندي القدرة أنني أتعلم وأقرأ وأبحث عن معلومات جديدة، عندي الإمكانية اني أبدع فهذا البرنامج وبرامج ثانية.

[00:14:39] **(interviewer):** قلتي يعطيني حافز وإمكانية أني ابدع؟.

[00:14:52] **S.9.** ايوه بصورة أكبر ، ويكون عندي الدافعية أني أقدم فبرامج أخرى. غير برنانج البودكاست

[00:15:15] **(interviewer):** هل فيه تحديات واجهتيها بشكل عام في رحلة صناعة البودكاست قبل وأثناء وبعد؟. تحديات عامة واجهتيها؟.

[00:15:23] **S.9.** التحديات الأولية التي واجهتها هو معرفة معلومات تخص البرنامج، وبعد ذلك أثناء المشروع كانت التحديات هي توفير بيئة مناسبة لعمل المشروع بصورة جيدة بعيدا عن ضوضاء وإلى آخره، بينما التحدي الأخير هو إنتاج المشروع كانت إيجاد نقاط الضعف وكيفية تقويتها.

[00:15:59] **(interviewer):** طبعا كلها تغلبتي عليها؟.

[00:16:00] **S.9.** الحمد لله.

[00:16:02] **(interviewer):** اول واحد طبعا رحتي عن طريق الويب ومدونات جوجل .ثانيا اخترتي الوقت المناسب، والثالثة طبعا بسؤالك عن جوانب الضعف، سألتني زميلاتك اعطونك فيدباك ....قلتي كلمة جميلة :ان الانتقادات الجانبية تكون بناءة من الزملاء .عندك مقترحات للتغلب على مثل هذه التحديات ؟ لو مستقبلا مريتي بنفس التجربة أو طلاب اخرن فنفس الكورس درسوا بعدك، كيف يمكن الواحد يتغلب على مثل هالتحديات؟.

[00:17:03] **S.9.** أظن أن الدور هنا ياتي للمعلم أكثر من الطالب .إعطاءه خلفية عن الأشياء التي بامكانه انه هو يواجهها وبامكانها انها تثبط من نجاح مشروعه .أظن اعطاء خلفية مثل هذي للطالب بامكانها انها تساعدة من البداية تجنب هذه الأخطاء عوضا عن اكتشافها بنفسه.

[00:17:20] **(interviewer):** تشزفي ان التنبيه على الأخطاء أفضل من اكتشافها بنفسك.؟.

[00:17:36] **S.9.** نعم لإن بأمكانها انها تختصر عليك الوقت معرفة الأخطاء وكيفية التعامل معها إلخ، فأنت تدخل على عملك بالمشروع بخلفية سابقة.

[00:17:49] **(interviewer):** بس هل تنتج نفس الفائدة التعلمية تشوفي؟.

[00:17:57] **S.9.** لا .هوه يوجد فائدة تعلمية انك انت لما تكشف الأخطاء وحدك أنت تبني نفسك، وتصقل مهاراتك الذاتية بنفسك، أكثر ما انك يكون عندك المحتوى بسلبياته وإيجابياته إلخ جاهزة، فانت يكون عندك روح استكشاف الأخطاء بنفسك، وروح التعامل معها بنفسك، فتكون شخصية اعتمادية أكثر على نفسك.

[00:18:30] **(interviewer):** معناته انه ما يخلق هذا النوع مشكلة؟ .ترى صح ان المعلم زين انه ينبه، بس التنبيه كلام نظري، اما اكتشاف الاخطاء هو واقع عملي . انت تجيك مشكلة، تحاول التعامل معها بأكثر من طريقة ربما . فهل ممكن تحديات ثانية تشوفيها ربما؟.

[00:18:48] **S.9.** لا هذا التحدي اكثر تحدي، باقي الأمور كانت الحمدلله لا بأس بها، توفرت عندنا الأدوات مثل لابتوبات ،والهواتف، فما شكلت بالنسبة لنا عائق.

[00:19:09] **(interviewer):** حلو .ننتقل للمبحث الثاني، منهجية التعلم المبني على صناعة المحتوى .أربعة محاور أساسية المحور الأول التعلم التطبيقي او التعلم عن طريق الممارسة .ومعنى هذا، أيضا النتايج بربطها بخبرتكم، كان لازم تمارسوا وتطبقوا وتسووا .في الجانب العملي بشكل عام .وين تشوفي أهميةالجانب العملي أو مكانة الجانب العملي في المرحلة الجامعية؟

[00:19:41] **S.9.** الجانب العملي مهم جدا، لأنك أثناء المرحلة الجامعية أنت الآن تتهيأ انك تدخل لسوق العمل، تدخل أنك تكون إنسان أكثر عملي من أنك تكون نظري، فلازم الطالب يكون يتعود منذ أيام الجامعة أو أيام الكليات أنه يكون إنسان عملي أكثر من أنه يكون نظري، على أساس أنه لما يدخل سوق العمل يكون معتاد على هذا النوع من الأعمال، عوضا عن فقط تلقي المعلومات.

[00:20:09] **(interviewer):** ليش؟ هل معناته سوق العمل يحتاج ناس عمليين مثلا أكثر من النظريين؟.

[00:20:15] **S.9.** نعم للأسف سوق العمل اكثر، وهذا الشيء وجدناه من خلال خبراتنا اثناء اللحاقنا بالتربية العملية في المدارس، وجدنا أن الأشياء التطبيقية أكثر فائدة من الأشياء النظرية، يعني إذا ما طبقت الأشياء التي تعلمتها، بامكانك انك تفقدها، يعنيuse it or lose it ، لازم انك انت تطبق هذه الأشياء عأساس أنها تكون أكثر ثبات.

[00:20:40] **(interviewer):** طبعا نتكلم عن كل المعلومات، العملي دايم يسهم في ثبات المعلومة أكثر من النظري؟.

[00:20:46] **S.9.** ايه

[00:20:52] **(interviewer):** كيف تقيسي درجة التقبل لهذا الأسلوب ، او المنهجية العملية والتعلم التطبيقي؟.

[00:21:06] **S.9.** التقبل بين الطلبة متفاوت طبقا لطبيعة التعلم لدى الطالب، فبعض الطلاب هم نظريين أكثر ما انهم عمليين .فهذا التقبل لهذا النوع من الطلاب كان أقل من النوع الثاني من الطلاب الي هم يكونوا متحمسين للعملي أكثر من النظري، فكانت ردات الفعل متفاوتة طبقا لطبيعة الطالب نفسه.

[00:21:37] **(interviewer):** لكن هل معناته بسبب التفاوتات برأيك نحتاج إننا نمكن ونكثر من التعليم التطبيقي؟ ولا نشوف حسب تفاوته او تناسبه مع احتياجات الطلاب؟

[00:21:52] **S.9.** لا يجب أن يجبر الطالب أنه يخوض مثل هذه الأشياء بما فيه مصلحته ومصلحة سوق العمل الي هو بينظم له .فلازم يكون ينمي الجانبين عوضا عن الاستناد على الجانب النظري فقط، عشان يكون ذو مهارات متعددة.

[00:22:12] **(interviewer):** خبريني عن التربية العملية، شكلك ربطيه بالتربية العملية، وش بالضبط لاحظتوا اكثر ، تقولي لاحظنا من تجربة التربية العملية إنها تحتاج ناس عمليين أكثر، من اي زاوية شفتيها؟.

[00:22:28] **S.9.** من ناحية التعامل مع الطالب، لما تنتقل المدرسة الطالب المدرسي إنسان ينظر الأشياء بعملية أكثر من النظرية، لأن هذا بامكانه أن يولد روح الملل، فالطالب المدرسي عند مدة التركيز بسيطة جدا بامكانك انك تفقدها إذا ركزت على الجانب النظري، فلازم يكون شيء عملي، شئ يخلي الطالب أنه هو متحمس للتعلم عوضا عن تلقى المعلومة فقط، يعني لازم يكون هناك تفاعل بين المعلم والطالب من خلال استخدام أشياء عملية وتطبيقية، بدل من التركيز على أشياء نظرية.

[00:23:04] **(interviewer):** فتشوفي الاشياء التطبيقية درجة الانتباه لها أكثر؟.

[00:23:10] **S.9.** ايوه، تفهم في إدخال الطالب في العملية التعليمية.

[00:23:22] **(interviewer):** ممتاز .هل يمكن أن تكون هناك تحديات او سلبيات للتعليم التطبيقي، خصوصا في مرحلتكم كطلاب جامعة، هل هناك تحديات وسلبيات ربما للتعليم التطبيقي؟ لانه شكلك ايجابية في هذا النوع من انواع التعلم وشكله يتناسب مع شخصيتك، بس هل ربما تشوفي ان فيه له تحديات؟.

[00:23:57] **S.9.** له تحديات، لأن ليس جميع الطلبة متقبلين لهذا النوع من التعلم، ف انت تمر في السنوات التي قبل هذي السنة، قبل هذا الكورس بمواد نظرية، مواد تخص الأدب، مواد تعتمد على النظريات والفلسفات، فتنتقل الان لشيء مختلف تماما عن الشيء الي تعلمته سابقا، كان يشكل تحدي كبير للناس الي هي تعودت على المنهج النظري والكتابي.

[00:24:24] **(interviewer):** وكيف توصفي هذي العادة، هل هذي العادة تعتبر سلبية ام إيجابية؟ الي هو التعود على أشياء نظرية؟.

[00:24:30] **S.9.** سلبية لأن بإمكانها انها تولد اخماد رغبة الطالب لتعلم أشياء تقنية وأشياء عملية. فالطالب يعتمد فقط على نوع واحد من التعلم والتعليم الي هو فقط الكتابة والقراءة عوضا عن تطبيق الأشياء مثلا وادخال التكنولوجيا.

[00:24:50] **(interviewer):** هل هذا انتقاد مبطن للمنهج مثلا؟ أو النظام التعليمي؟.

[00:24:57] **S.9.** يعني المنهج أكثره نظري من أنه عملي، المواد تركز على الأشياء النظرية أكثر من أنها عملية، خلاف الشي الي بتلاقيه لاحقا في المدرسة.

[00:25:07] **:(interviewer)** ننتقل للمحور الاخر الي هو محور صناعة المحتوى أو إنتاج الوسائط .كما ذكرنا ان مشاريع المحتوى لازم تنتج شيء، بدل ما يكون التعلم هنا) اي ف العقل(،يكون التعليم شي يثبت) اي خارجي مادي .(صناعة المحتوى هل تشوفي لها أهمية في سياق المرحلة الجامعية للطالب؟ انتي مريتي فيها هالتجربة، هل توصي غيرك مثلا انه يمر فيها؟ وين تشوفي اهميتها؟

[00:25:43] **S.9.**صناعة المحتوى مهمة جدا لانها تنمي الجانب الإبداعي للطالب، تنمي حس المشاركة بالأفكار الموجودة لدى الطالب حيث إنه يدعمها بصورة احسن، حتى ظهرت العديد من مسابقات صناعة المحتوى حتى تشجع الطالب حيث يناقش، واظهار أفكار منافسة للافكار الأخرى .فهو مهم لأنه جزء من شخصيته الطالب نفسه.

[00:26:07] **:(interviewer)** المسابقة جت هنا في الكلية؟.

[00:26:11] **S.9.**لا المسابقات بشكل عام في برامج التواصل ووسائل التواصل الاجتماعي، موجودة، هي جوائز صناعة المحتوى لتشجيع الطالب على أن يكون مبتكر على أساس إيصال رسالته وأفكاره الي هو يؤمن بيها.

[00:26:26] **:(interviewer)** هل طلاب الجامعات ممكن يشاركوا بيها؟.

[00:26:30] **S.9.**ممكن، مختلف الفئات العمرية، مختلف الخلفيات العلمية موجودة لديهم.

[00:26:36] **:(interviewer)** عند خلفية اذا احد شارك ؟

[00:26:44] **S.9.**أنا عندي خلفية من خلال متابعتي لبرامج التواصل نفس الانستغرام وهذا .كان في ناس مشاركة في صناعة المحتوى، فيه طلاب، فيه موظفين، هي مسابقة عامة يعيني.

[00:26:56].**:(interviewer)** ما شاء الله .هل هذا يخلق أهمية صناعة المحتوى بشكل عام في عمان؟.

[00:27:03] **S.9.**يخلق الأهمية ويوعي الطلبة والموظفين على أهمية هذا النوع.

[00:27:09] **:(interviewer)** هل تشوفي فيه ميول في عمان بشكل عام نحو صناعةالمحتوى؟.

[00:27:12] **S.9.**ميول لكن أكثر شيء فئة الشباب موجود، فئة الشباب المبدع

[00:27:33] **:(interviewer)** هل فيه تقبل لانتاج المحتوى؟ هل الطلاب متقبلنها؟ ام لازال فيه حواجز ناس ينظروا لها، حواجز الاجتماعية حواجز ثقافية.؟

[00:27:41] **S.9.**الناس لازال عندهم خلفية ضعيفة عن الموضوع بشكل عام حتى أنهم يتقبلوا وكذا، فأظن أن الناس إذا كانوا أكثر وعيا .بالنسبة لموضوع صناعة المحتوى، بامكانهم انهم يتقبلوه بصورة أحسن وأفضل.

[00:27:59] **:(interviewer)** يعني وعيهم قليل بأهميته تقصدي؟

[00:27:59] **S.9.**ايوه.

[00:28:06] **:(interviewer)** ولا استخداماته؟.

[00:28:06] **S.9.**الأهمية والاستخدامات كله يخصة، الخلفية عنه بشكل عام.

[00:28:02] **:(interviewer)** هل نحتاج اننا نوسع ونكثر من صناعة المحتوى في المرحلة الجامعية؟

[00:28:17] **S.9.**نعم لأن الإنسان يكون في أوج إبداعه وأفكاره في المرحلة الجامعية، فالمرحلة الجامعية لازم يتم استغلالها بصورة جيدة عميقة، لان الإنسان يكون هنا في أوج ابداعه في هذي المرحلة والسن.

[00:28:47] **(interviewer):** هل في تحديات تشوفيها ربما لصناعة المحتوى؟.

[00:28:49] **S.9.**يمكن عدم وجود الدعم المساند من المجتمع، عدم فهمهم في هذه الفكرة بامكانه انه يثبط من عزيمة الناس التي تحاول أنها تصنع المحتوى .فالبيئة المحيطة بامكانها انها تكون بيئة مثبطة.

[00:29:14] **(interviewer):** ننتقل المحور الثالث، محور وضع الطالب محور العملية التعليميةstudent-centred learning، كما ذكرنا ان الطالب يمنح مساحة أكبر من الاستقلالية، يمنح مسؤولية والميدان ميدانه، دور المعلم يكون محصورا جدا، وين تشوفي أهميته؟ خاصة في المرحلة الي انتي فيها المرحلة الجامعية؟.

[00:29:38] **S.9.**تسهم في صقل الطالب ، ويخلي الطالب أكثر اعتمادية على التعلم الذاتي، تبرز فيه صفةأنه يكون responsible learner ،إنسان معتمدا على نفسه، يدور على المعلومات من ذات نفسه، دون أن هو يكون فقط إنسان متلقي، فيسهم في صقل شخصية الطالب انه يكون أكثر ثقة، أكثر إبداعا، أكثر دور من أنه يكون المعلم مستحوذ على البيئة التعليميه.

[00:30:15] **(interviewer):** هل الطلاب كان متقبلين؟ وانتي هل كنتي متقبلةأنك انتي تكوني في محور العملية التعليمية؟

[00:30:24] **S.9.**في البداية ما كان فيه تقبل تام بحكم انا نحن تعودنا أن نكون مستقبلين للمعلومات أكثر مما احنا معتمدين على انفسنا،، لكن بعد وضعنا في الأمر الواقع تقبلناها الفكرة، وشفنا أنها اصلا هي رجعت علينا بفوائد احنا كنا ما نعرفها.

[00:30:55] **(interviewer):** هل نحتاج نمنح الطالب هذه المساحة؟ ونعطيه هذي المسؤولية؟

.[00:31:07] **S.9.**يحتاج الطالب انه يعطيى هذي المسؤولية، خاصة الطالب الجامعي .بامكانه ان يكون هذا الشيء أفضل من انك تعطي الطالب المدرسي، نسبة انك تخلي الطالب المدرسي independent learner بامكانها انها ما تلاقى قبولا من الأهل والبيئة المحيطة .لان الاهل ضد فكرة أن الطالب هو الي يكون-learner centredيعني الفكرة المتعارفة عند الاهل ان انت المعلم لازم يكون دور، بينما الطالب هو فقط متلقي فبإمكانك أن تحصل تذمرات من الاهل، بان هذا عمل الإستاذ فقط . المجتمع بشكل عام بإمكانه أن يحد من تطبيق هذه الفكرة.

[00:31:49] **(interviewer):** الطالب الجامعي قلتي تتناسب معه، هل تربطيه بالمستقبل ام بس فقط بناء شخصيتيه كما ذكرتي سابقا؟.

[00:31:58] **S.9.**كلاهما يعني شخصيا و مستقبلا .ا

[00:32:02] **(interviewer):** خلنا ننتقل للمحور الرابع وهو محور توظيف التكنولوجيا في التعليم .إنتاج الوسائط يقوم على توظيف تكنولوجيا، هل للتعلم الذي يعتمد على استخدام التكنولوجيا في التعليم أهمية في المرحلة الجامعية في عمان؟يعني توظيف التكنولوجيا في التعليم هل تشوفي له أهمية في المرحلة الجامعية؟ مرحلة اعداد الطالب أو الطالب_المعلم student-teacher ؟

[00:32:59] **S.9.**له أهمية لانه أثناء استخدام التكنولوجيا مع الطالب الطالب يقوم يكتسب بدوره خبرة ويتعود أكثر على التكنولوجيا من ناحية التعليم، فهو مؤثر وحتى إذا كان لم يستخدمها الطالب بنفسه، مجرد استخدامها المعلم تجبر الطالب إنه هو أيضا يشارك، مثلا برامج ال Edmodoهو كمعلم انت كطالب لازم أيضا يكون عندك خلفية في البرنامج المستخدم من قبل المعلم، فالمعلم نوع ما يجبر الطالب بصورة غير إرادية أنه يشارك، أنه يكون جزء من هذه التكنولوجيا.

[00:33:36] **(interviewer):** هل تشوفي اهمية لتوظيف التكنولوجيا في التعليم؟.

[00:33:55] **S.9.**لها أهمية لأنها تواكب العصر الموجودين فيه حاليا، تواكب عقلية الطالب الموجود الآن، يعني الطالب في عمان الطالب الجامعي الآن مختلف تماما عن الطالب الموجود قبل ثلاثين سنة، الآن نحن اعتمدنا أكثر على التكنولوجيا، اعتمدنا أكثر على بيئة تعليمية متطورة أكثر، فلازم تواكب البيئة الموجود فيها الطالب، عوضا عن استخدام الأساليب التقليدية بامكأنها تكون مملة.

[00:34:33] **(interviewer):** هل استخدام التكنولوجيا وتوظيف التكنولوجيا يحسن من العمليات العقلية؟ عمليات التذكر، عمليات الفهم، عمليات التحليل؟.

[00:34:45] **S.9.**يحسن، خاصة الجيل الان، الجيل الصاعد بسبب اعتماده على الآيباد، واعتمادهم على الهواتف في عمل جميع الأشياء، ف هم العقلية لديهم متبرمجة على استخدام الحاسوب في كل شيء، فلما تعطيه ورقة و قلم يحس أن هذا الشيء غريب وهذا الشيء يخليه ينسى أكثر مما لو انه هو يمارس ويستخدم التكنولوجيا.

[00:35:12] **(interviewer):** بس ليش التكنولوجيا؟ ويش أفضل فيها؟

[00:35:16] **S.9.**فيها مميزاتها ، مثلا التكنولوجيا تمكنك من التواصل مع المعلم حتى بعد فترات الدوام، تمكنك أنك تشارك أرائك مع تلاميذك الأخرين، مثلا في المدارس المختلطة وهكذا تمكنك من التواصل مع الطلاب .يعني هذه التكنولوجيا بإمكانها أنها هي تمثل بيئة أفضل للتعلم، من ناحية أنه ما يكون فيهstress ، مايكون فيه طلبه خجولين، وهكذا، فهي تكون بيئة أكثر راحة بالنسبة لهذا النوع من الطلاب للمشاركة بالآراء

[00:35:16] **(interviewer):** هل تشوفي ان الطلاب في المرحلة الجامعية خصوصا متقبلين لتوظيف التكنولوجيا في كل المواد مثلا؟.

[00:36:08] **S.9.**نوعا ما متقبلين، بامكان أن يكون عدد بسيط فقط غير متقبل بحكم البيئة التي أتى منها، مثلا هذه البيئة التي أتى منها ال netغير مدعم، غير مستخدم كثير ، فهو غير متقبل للفكرة بسبب معرفة العوائق التي بامكانه أنه يواجهها بحكم المكان الذي يسكن فيه، لعدم تواجد انترنت في مناطق الأودية .هذا بامكانه أن يشكل عائق له أنه هوه ما يحب يستخدم هذا النوع من التكنولوجيا.

[00:36:41] **(interviewer):** يعني معناته فيه جيل بنفس هالسن ما كلهم يحبوا تكنولوجيا؟.

[00:36:43] **S.9.**ايوه، ماكل الجيل، فيه ناس بحكم المكان الي يسكنوا فيه، البيئة التي يجوا منها، هم مايحبوا يستخدموا التكنولوجيا.

[00:36:51] **(interviewer):** بس تتوقعي إنه شاب مثلا في المرحلة الجامعية، بغض النظر وين عايش، ممكن ما عنده تقبل للتكنولوجيا؟.

[00:36:53] **S.9.**هوه ما تقبل اكثر من انه يكون عوائق، مثلا عندي زميلتي متقبلة التكنولوجيا وتحبها تماما، لكن بحكم البيئة الي هي عايشة فيها ال net connectionعندهم ضعيف، فبامكنه يشكل عائقا في رغبتك انك تتعلم أكثر.

[00:37:17] **(interviewer):** بس متى ما توفرت، ماعندها مشكلة عادي؟

[00:37:22] **S.9.**ايوه.

[00:37:28] **(interviewer):** اذا احد التحديات هذا، توفر البنى التحتية. انزين، هل نحن نحتاج اننا نكثر من استخدام وتوظيف التكنولوجيا في التعليم.؟

[00:37:43] **S.9.**يحتاج أننا نستخدمها بصورة متوازنة متوازية.

[00:37:50] **(interviewer):** قصدك التوازن ؟لا إفراط ولا تفريط؟.

[00:37:52] **S.9.**ايوه، حفاظا على رغبات الطلاب المختلفة، وفي نفس الوقت عشان يكون فيه توازن في البيئة.

[00:38:12] **(interviewer):** المبحث الأخير عن البيئة بشكل عام والبيئة التعليمية التي تدعمها صناعة المحتوى .أولها هو طبيعة دور المعلم، طبعا دور المعلم يفترض يقتصر على التوجيه والاشراف والدعم متى ما احتاج الطالب، بس أيضا الضروري إعطاء الطالب مساحة، انا كمعلم ما احاول اتسيد الموقف، اتدخل متى ما مناسب بس أيضا اعطي الطالب المساحة اخليه يجرب، اخليه يبحث، طبعا نفس التجربة الي مريتوا فيها كلكم وهذا الي صار في الاديوكيشنل تكنولوجية .تشوفي هذا النوع من أدوار المعلم .له ضرورة وأهمية في المرحلة الجامعية وخصوصا في عمان؟.

[00:38:55] **S.9.**لها أهمية، لأن المعلم يعمل كمحفز كبير للطالب، من خلال مثلا إعطائه واجبات يتم فيها استخدام الإنترنت، مثلا عمل مسابقات، مثلا أفضل مشروع من ناحية الإبداع والإتقان.هذي كلها بامكانها أنها تحمس الطالب أنه يأتي بأفكار أفضل، بامكانه انه ينمي روح الإبداعية لدى الطالب، وهذا أيضا بامكانه انه يحفز الطالب أنه يكون أفضل وأفضل، لأنه هو شايف أن الأستاذ أعطى أهمية لهذا الجانب فهو أيضا يعني يعطيه أهمية له.

[00:39:31] **(interviewer):** لما ذكرتي جانب المسابقات - يعني يعمل لهم مسابقات ويتركهم يعطيهم المساحة؟.

[00:39:39] **S.9.** مثلا بالنسبة للكورس هذا الماضي الي نتعلم نحن فيه، كان معنا برنامج Duolingo برنامج نتعلم فيه اللغات الكترونيا، فكان فيه مسابقة أن الطالب الذي يحصد الميداليات الأكثر في تعلم اللغة، فكانت فيه مسابقة، وكان فيه تكريم للطلبة الذين هم اجتازوا مراحل متقدمة في تعلم اللغات التي اختاروها.

[00:40:31] **(interviewer):** هل الطلاب متقبلين لهذا الدور من ادورا المعلم؟ ام هل لازم يتقبلوه؟.

[00:40:47] **S.9.** لا هم متقبلين من انفسهم هذا الدور المعلم، متقبلين أن هذا شيء هم لازم يتعلموه كلطلبة جامعيين، يعني هذا شيء مفروض عليهم أنهم يتعلموه عشان يواكبوا صفات الطالب الجامعي في الوقت الحاضر.

[00:41:10] **(interviewer):** طبعا تتكلمي على ان الطالب لازم يكون مستقل، يعتمد على نفسه، كذا يعني؟.

[00:41:15] **S.9.** ايه

[00:41:16] **(interviewer):** هل معناته اننا نحتاج من تقليص صلاحيات المعلم في الحصة الدراسية أو ف الصف بشكل عام او في المادة؟.

[00:41:24] **S.9.** تقليصها لكن ما بشكل تام، يعني بإمكان أن يكون المعلم مدقق، بإمكانه أنه يكون هو مصحح، بامكانه انه يراقب أعمال الطلاب، لكن ما يستغني عنه بشكل تام، يعني يبقى محافظا على أدوار معينة لضمان نجاح العملية التعليمية.

[00:41:51] **(interviewer):** طبعا الي هي تشمل التوجيه وتوفير الدعم والإشراف وكذا؟

[00:41:53] **S.9.** نعم

[00:41:53] **(interviewer):** وين ربما تكون فيه سلبيات لتقليص صلاحيات المعلم.؟ هل ربما تشوفي انه له سلبياته؟ يعمد عليكي انتي.

[00:42:05] **S.9.** فيه سلبيات لأن الطالب طبيعته لازم أن يكون عنده نوع من الضغط في البيئة الدراسية من قبل المعلم، ما الضغط بمعنى التضييق ولكن بمعنى التحفيز، لازم هو يحصل فيه هناك إنسان يحفزه، انسان يوجهه بحيث أنه يكون انسان افضل ومتعلم افضل .فلازم يكون فيه نوع من التوجيه من قبل المعلم.

[00:42:39] **(interviewer):** هل حسيتي في هذي المادة ذاك النوع من انواع الضغط؟ او التحفيز؟.

[00:42:39] **S.9.** كان فيه نوع من الضغط على أساس تأتي بعمل أفضل، ما كتضييق، كتحفيز.

[00:42:48] **(interviewer):** المبحث الأخير، نتكلم عن البيئة التعليمة بشكل عام .مشاريع صناعة المحتوى مثل البودكاستينج creatine online course or creating videos تدعم التعلم الذاتي التعلم التعاوني والجماعي، أيضا التعلم عن طريق التجربة والخطأ .وايضا منح الطالب مساحة اكبر يتعلم بنفسه يجرب اكثر من طريقة .مثل هالبيئات التعليمية وين تشوفي أهميتها في المرحلة الجامعية للطلبة في عمان؟

[00:43:32] **S.9.** أهميتها في تبني خبرات الطالب، وتبني مواهب بامكانها تكون مخفية عن المعلم، فمثلا .مثل هذي الكورسات بامكانها أنها توقظ إنتليجنس intelligence اخرى للطالب المعلم ما كان عنده خبره حيالها، مثلا فيه طلبه بامكانه أن يكون مستواهم في المتوسط، ولكن عند إشراك التكنولوجيا بامكانه انه يشوف أعمال مبهرة يقدموها، هذا لأن هم عندهم مثلا intelligence خاص بأنه يكون مبدع في جانب الحاسوب اكثر مما يكون مبدع في جانب النظري الخ .فهي تتبنى مواهب ابداعية للطلاب.

[00:44:30] **(interviewer):** انتي ذكرتي 8 مرات سجلتي تقريبا، وتوسعتي في عملية التعلم، رحتي تقري وكذا، كان فيه هناك مساحة خاصة لك انتي انك تجربي وانك تتعلمي، تقبل الطلاب لهذا النوع من البيئات التعليمية التي تمنحك المساحة، هل تشوفي أن عندهم تقبل لها؟.

[00:44:53] **S.9.** فيه تقبل للطلاب، لكن حسب الفئات العمرية، ممكن تقبل الطلبة الجامعيين أكثر من الطلبة في المدارس، لأن الطالب الجامعي يكون متعلم مستقل اكثر مما هوه المدرسة، في هذه المرحلة انه هو يتعلم ويبحث أكثر من أنه يعتمد على المعلم .فبطبيعة الحال الطالب الجامعي متقبل لهذه الأمور لأنه هوه يبدأ ينشيء فيه حب التعلم الذاتي عوضا عن تلقى المعلومات.

[00:45:28] **(interviewer):** بس هل الكورسات الي ياخذها تهينه لهذا النوع من هذه المسؤولية؟ هو يفترض ان المتعارف والمتوقع انه خلاص الطالب هالمرحلة بيد يعود انه يعتمد على نفسه، بس هل الكورسات تهينه؟ هل المعلمين يهيئوه لتبني وتقمص هذا الدور؟.أم؟.

[00:45:49] **S.9.**يعتمد على طبيعة المعلم نفسه، بعض المعلمين الطريقة الي يعامل فيهاالطالب هي تحفزهم أنهم يكون independent learner لكن بعض المعلمين هو لا يعمل كموجه ولا يعمل كحافز للطالب، فالطالب هنا يحس أنه متخبط، يعني ما عنده موجه للشيء الي هوه لازم يسويه، فيعتمد عل دور المعلم، متى ما كان المعلم موجهه، و متى ما كان معتمد تماما على دور الطالب) .و متى ما كان الطالب قابليته أن هو يكون متعلم ذاتي أفضل(.

[00:46:34] **(interviewer):** هل يحتاج ندعم هذا النوع من البيئات التعليمية؟.

[00:46:44] **S.9.**نعم يحتاج ندعمها عشان نزرع في نفس الطالب حب التعلم الذاتي.

[00:46:57] **(interviewer):** هل تشوفي تحديات لهذا النوع من البيئات التعليمة ربما؟.

[00:47:00] **S.9.**تحدي للطالب في البداية لأنه هو ما اعتاد على هذا النوع من البيئات .لكن بعدين بعد الممارسة وتخطى عدة كورسات تتبع نفس المنهج هو يكون أكثر أنه مألوف معه هذا النوع من التعليم، فينخرط فيه أكثر، مما أنه كأول كورس يجرب هذا النوع من التعليم، فبالممارسة هو يكون متعلم ذاتي افضل.

[00:47:30] **(interviewer):** المبحث الأخير عن طبيعة نشاط التعلم PBL التعلم عن طريق المشاريع، طبعا الكورس كله كان بروجكت) صغيره وكبيرة(، ويش أهمية التعلم عن طريق المشاريع) بناءا على خبرتك انتي (في المرحلة الجامعية في عمان؟

[00:47:53] **S.9.**المشروع يوفر لك ال CONTEXTانك انت تكون إنسان، مبدع، فمثلا عندنا في مادة LANGUAGE THRU STORIES ، كان عندك الكونتكست أنك انت تصنع محتوى القصة، هنا انت تستخدم مهاراتك، مهاراتي في صياغة المرادفات في جمل، مهارتي في استخدام مثلا بيوت شعرية على هيئة قصة، فهي تحوي موهبة الطالب، وهو عاد يفرغها بأشكالها المختلفة تبعا لمواهبه الداخلية، الأشياء الي هو ماهر فيها بنفسه .فهي تعمل كحاضنة لمواهب الطالب وخبراته.

[00:48:32] **(interviewer):** هل معناته يحتاج اننا نكثر من التعلم عن طريق المشاريع؟.

[00:48:41] **S.9.**ايوه، لأنها هي تضع الطالب أكثر في موضع انه هو العامل والمفكر والمبدع اكثر ما أنه هو المستقبل .فهذي بامكانها انها هي تخلي الطالب ينمي مواهبه أكثر، تخليه يكون مبدع فأكثر في الجانب التعليمي.

[00:48:58] **(interviewer):** هل الطلاب متقبلين؟

[00:49:07] **S.9.**نعم .من خلال ما رأيته الطلاب كانوا متقبلين جدا وكانوا متحمسين أن هناك مشاريع، فكل واحد كان مبدع بطريقة الخاصة، وبتفكيره الخاص، كان يحاول أنه يوصل أهداف المشروع من خلال استخدام خبراته الخاصة ومواهبهالخاصة.

[00:49:30] **(interviewer):** كيف تقارنيها وتقارنوها بالتعلم عن طريق الاختبارات مثا؟. لان المشروع يعطي درجات والاختبار يعطي درجات .كيف كان تقارني الاثنين؟

[00:49:41] **S.9.**أسس التقييم مثل الاختبارات، كل ما يجب على الطالب مثلا في الاختبارات النظرية أنه هو يكون ملم بقراءة الكتاب بأكمله، الأشياء الموجودة في الكتاب، لا في المشاريع يعني الخروج عن المألوف الي هو أنت فقط تستقبل مثلا، انك تخزن المعلومات بعدين تفرغها، لا انت هنا عندك معلومات تستخدمها بطريقتك الخاصة لإيصال المعلومة، فأنت هنا أكثر إنك انت تكون إنسان مبدع وإنسان توصل المعلومة بطريقتك الخاصة، أكثر من كونك تملى عليك الأشياء الي تسويها.

[00:50:18] **(interviewer):** هل في تحديات أو سلبيات ربما للتعلم عن طريق لمشاريع؟.

[00:50:26] **S.9.**السلبيات اعتقد اكثر شي تكون في ال MATERIALSنفسها .لازم الطالب يكون عنده مثلا هذه الأدوات، بعضها ممكن تكون غالية، هذي أحد سلبيات، وأيضا يمكن بعض السلبيات تحتاج الوقت ،يعني هذه المشاريع تأخذ أوقات كثيرة، يعني الامتحان بامكانك انك تذاكر وفي غضون يومين تخلص منه، لكن هذه المشاريع تحتاج منك مراحل، مرحلة التفكير، مرحلة انك انت تحاول تعمل في المشروع، مرحلة هل انت عملته بشكل صحيح أو لا ، فالمدة الزمنية أطول بالنسبة للمشاريع.

[00:51:07] **(interviewer):** بس هل تستاهل؟.

[00:51:10] **S.9.** تستاهل لانه ينمي عندك الموهبة كأستاذ، وتخليك تفكر بشكل أوسع .الامتحانات شوي تضيق التفكير ، لكن المشاريع تخليك انك تفكر بشكل أوسع وشكل مبدع أكثر.

[00:51:30] **(interviewer):** تحسي ان هالكورس اعطاك القابلية انك تفكري بشكل أوسع؟.

[00:51:37] **S.9.** ابوه خلاني بشكل أوسع، وحتى نمى عندي مهارات أنا ماكنت على دراية ان بإمكاني اكون مبدعة فيها.

[00:51:51] **(interviewer):** مثل ويش؟.

[00:51:51] **S.9.** مثل كتابة القصص القصيرة.SHORT STORIES

[00:51:54] **(interviewer):** وكنتي تطلعيها على شكل نص؟

[00:51:56] **S.9.** ابوه كنت أكتب قصتي الخاصة، القصة القصيرة ، وكنت أتلقى ال FEEDBACKمن الاستاذة، فانت تستخدم القصص هذي من خلال إدخال مثلا مفردات لغوية يتم تعليمها للطلاب هكذا، تجمع بين موهبتك التعليمية وموهبتك الإبداعية، في أنك تقدم التعليم للطالب.

[00:52:19] **(interviewer):** في نهاية هذه المقابلة ما لديك ما تضيفيه، انطباعك بشكل عام عن هذا الكورس؟

[00:52:36] **S.9.** يعني كان كورس جميل جدا وكنت سعيدة أني كنت جزء منه، كنت سعيده أنه حضينا بهذا النوع من الكورسات الي تصقل مواهبنا، وتهتم فينا كأناس مبدعة، أكثر مما نكون ناس علمية بحتة.

[00:53:09] **(interviewer):** ممتاز جدا .شكرا يا شذى على وقتك وكل هذه المعلومات القيمة.

Appendix K

3. A sample transcript from the data validation phase of one-to-one interviews and a focus-group discussion

Abdullah Alhasani

Welcome, everyone. Welcome all and thanks for being here. I think already started sharing the screen before you join. The reason for this was to help you refresh your memories about... I know, it's been two years since you were involved in an interview with me. It's quite a long time ago. However, great to have you over. The slides that you see, I think we went through all the stages and the steps that I, it was great that I met with you on yesterday S2DV and S1DV, and it was great also meeting with T1DV earlier today. To give you a briefing about how this is going to go, I tried as much as possible to structure it, make it simple. It looks there's so many documents, documents and everything. But it's quite simple, straightforward. We're going to start all together on the same page to give you a little bit of refreshing about how the interviews went and what exactly I was looking at an investigating. So I was more investigating and exploring authoring multimedia artifacts, which I label as a as AMA, or AMA-based learning. So basically, it's a whole new approach based on a unique philosophy of learning. Now, the whole point is just to see how this approach, how does it work in different levels? What are these levels with the level of learner engagement, when students engage in a process of producing something, and that's why I looked at three phases of production, the pre-production, the production, and the post-production? At each of these phases, I was looking at the outcomes. Remember, as well as the challenges that you experienced. Again, today, we're gonna have two perspectives, we're gonna have T1DV as a teacher-perspective, and we're gonna have S1DV and S2DV as a student-perspective. Now, both perspectives were quite different, viewed from two different angles and lenses. And all of these are, are detailed in your all scripts. And so my job was basically to... say conducted 19 interviews, or sorry, a total of 22 interviews, 19 interviews with students plus three with teachers, I sort of merged them together to see if there..... First the analysis was done on each phase. Okay, so I looked at AMA engagement, looked at these production phases, and what was reported as to the outcomes, challenges, and suggestions. And then looked at AMA pedagogy. Four pedagogical principles were highlighted, which is one: the applied learning, or experiential learning, also labelled as learning-by-doing; looked at the outcomes and the challenges. Looked at the artifact construction, the process of producing something or creating something. Again, challenges and outcomes. We also focused on student centred learning, as well as ICT or computer-mediated learning. And then again, looked at which outcomes and which perceived challenges were there. Finally, we explored the environment with three principles in mind, the role of teacher facilitation, the learning atmosphere of such approach, and project based learning as an element of that environment. And again, we looked at the outcomes and the challenges of these. This is just to refresh your memories of exactly what how the instrument and the survey and the interview questions were structured. So they're structured in this way. Anytime during the interview, you want me to get back here, I can get back here and view it to you. Now, moving to the second stage, there are two things that I also shared with you was the overall diagram of my analysis. And it's quite comprehensive, it's quite detailed, maybe more detailed than the earlier version that I sent you. Now, the reason I did this, I thought it would be better. So you can possibly see which specific examples you mentioned maybe, and what those editing-related challenges or technical challenges mean. So just to give you examples to put you on the same page. The coding scheme, this is the coding scheme. And I generated a total of 1816 codes from the interviews. They were organized according to the same categories, learning engagement, and you will see that I analyse teachers interviews, because teachers' answers were a little different as to how the process went, and what were the challenges that were experienced. And the students account was also a little bit different from the teachers', and that's why I thought it would be a better idea to look separately at students processes of production. Again, we looked at, apparently there were three phases a student went through: planning, and then doing and the challenges of each, and then finally the post-production. Okay, again, all of these areas corresponds with the diagram that I showed you earlier, right here. And then going to the learning pedagogy B, all of these are in blue. So the somehow converge with the diagram that I showed you. Again, all these labels and colours just created them there so they're helpful to you to see, only the labelled areas and the highlighted areas in blue and brown. They go according to the diagram, according to the structure of that we created here, okay, the post-production production, all of these. Now, the way I did my analysis was I started with each phase, each element of engagement, and then looked at pedagogy, and then looked at environment. And it was quite simple to analyse and see what sort of codes were there. However, at the second stage was to look for similarities. Where there's similarities in the answers and the outcomes here? And the outcomes here, for example. The challenges here, and the challenges here, for example, or the challenges here, or the challenges there. So the idea was to look across, whether the similarities or the differences. And the moment I started doing that, another approach of analysis, another way of organization emerged, the one that is labelled or detailed right here. And that's why I adopted different sort of labelling scheme. And that labelling scheme, again, was quite simple, which I organize according to (enablers) and the (challenges). I put all the challenges into one category, I know be easier to look at the challenges maybe together briefly, before we get into details. Most of challenges were either personal. And that's how I interpreted the personal challenges. Personal meant to do with the person, whether a student or the teacher. Students or teachers complain that the task demands were heavy. These are the examples they gave. Or the specific codes they gave. And also they said, their issues with conducting the task again, that's why the the idea of phases emerged because they're associated with conducting the task. The suitability of the approach to their personal styles, again, sort of personal reasons; lack of personal experience or prior experience. So it was all factored within personal reasons or personal challenges. Also, technical challenges emerge from all the categories. All right from learner engagement, AMA pedagogy, and AMA environment. Again, pedagogical challenges, various pedagogical challenges... Again, this is my interpretation. This is my account. This is how I adopted new way of organization. You may agree, you may disagree. That's your own way of viewing it, and that's what I'm interested to find out about today actually in the session. So these are the main challenges were six: pedagogical, infrastructural, Edu system (These are quite general), and then the socio-cultural challenges. When it comes the enablers, again, six main factors were seem to contribute to the outcomes of AMA-based learning what of these to do with creating the right conditions for this approach, such as the role of teacher facilitations, the use of supporting documents like rubrics, the sort of atmosphere you create, reducing anxiety, emotional support. And the analysis did not generate all these results from the students. It's a combination from students and teachers. For example, if you look at the role of intellectual support, teachers were much more helpful in giving me details of how they support students emotionally, how have they supported them intellectually, how they challenged them, how they encouraged them when students seem to give up, things like that. So all of these are part of, I considered, part of creating a learning atmosphere. But again, it's part of creating the conditions. If you want such approach, which is AMA to be successful in college or in SQU, or in a school settings maybe in the future, these are some of the things you might want to consider and look at. And then other factors to do with relevant learning. I think I went through many of these with you, but it'd be helpful also to quickly go over them relevant learning, these are the three sub-factors that are related to relevance: that this approach meets personal preferences, it meets how pedagogy is viewed these days globally, and how real life learning is all about. Okay, and then looking at the flexible and iterative of learning, this all about the process. Okay, that's why you label a try as much as

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possible to put descriptive labels to converge all these factors. So it's flexible, it's iterative, it means it's long process of doing and redoing, of discovery, relearning, solving problems, building knowledge, things like that. And then active and independent learning. When we say active, it's more of a student responsibility, so the student was accountable, he was self-directed, he was self-regulated, he self-reflected, there were interacting students together to help each other as a teamwork, generating ideas, and things like that. T1DV and other teachers were telling me that before they started creating their projects, they were analysing some samples together as a group, right.?

T1DV

Yeah.

Abdullah Alhasani

So that was part of collaboration in class. Some students even collaborated while doing the project, like that went and asked other students how to overcome this problem, or what to do with music, or things like that. What I labelled here as 'effective learning'. Again, this is my interpretation, I labelled as effective because literature as well as personal opinion, personal readings told me that when you achieve these factors, usually the learning is labelled as more effective. Okay. As long as the learning enables students to be self-aware of themselves, so it's not only learning an info, or an idea, but it's more all self-fulfilment, being aware of self-goals and life missions. Okay, it's a higher order realization and maturation. 'Providing enhanced learning', 'providing praxis' like applied or concrete learning, 'motivational learning', 'creativity', 'building mastery, or capability', 'valuing individuality'. And this was also quite interesting because some students viewed it in the line that because this approach enabled them to express or show their own identities throughout the music, through the creation, through the topics. This was quite more valuable than any other learning they've done before. So that's why I thought it values individuality. 'Enhancing efficiency', all these ideas and labels are there. Finally, the 'transferable learning'. Again, some of the factors, some of the analysis was revolved around how AMA enabled students to carry this experience and impart it to other learning experiences. We were talking yesterday, S2DV was one of the group of other girls like three or four, who applied the podcasting experience to their book club in the college and they created various novel introductions or introductions to novels or reflections or novels, that they read or reflections of books that they read through podcasts and they shared it with the community of interested audiences. This is an example of that. It can be also to be applicable to wider contexts, real life contexts, or future employment, maybe to your careers, maybe you as when you become a teacher, things like that. So this is a much more detailed comprehensive analysis that I've done. Again, this is my own view, this is based on my personal readings, personal analysis, personal reflections. And this went through like various phases, like three or four phases of trying to group ideas, similar ideas together.... During your discussion right now, what I'm interested in is this, do you think these labels that I use represent, match what I've done? Do you agree, do you disagree? How would you do it differently? Things like that. I'm ready. Now. I think. If you have any questions, let me know. If not, we can go ahead and start our focus group session. Sorry, I've been talking a lot. But just to make sure that we're all stand on the same page.

T1DV

Yeah. Thank you, Abdullah, for this introduction. And for my side. Now, it's a clear actually, you made it very clear for me. So we may start.

Abdullah Alhasani

S1DV. Is there any inquiries or questions before we...

S1DV

when we are going to talk about our points... Should we mention each point alone or in general?

Abdullah Alhasani

You can mention examples, it's up to you. You can mention examples. And if you want to mention specific examples, and you want to share them to the screen, so everybody could... I know, it's gonna be a bit challenging, or you can just talk about it and mention it. And you can say in page, blah, blah, blah, so we can easily refer to it, and maybe see how our interpretation is different, and maybe agree on it.

Abdullah Alhasani

Ok. the way I analysed your codes and coded segments and label them, if there was a different way to do the analysis, or if you were to do the analysis, how would you do it differently? like would you group different ideas together? Would you consider that something else?

T1DV

Well, Abdullah, basically, it's like, it's like modelling something the way you want. And, you know, we took it like in our case, in my case, I took it as a project, as an experience that I guide my students through. Right away, we start at the very beginning with the, like, with the benefits of, like, benefits of podcasting, and rationales for using audios at all, like in language and teaching experience in general. And then shifting from that to talk about like, differentiating, actually, that's what we did. At that stage. We try to differentiate, like, live radios, podcasting, and podcasting experience. So it was, for me, it was very important at that stage that my students really understand what it is exactly that we are talking about. And then we shifted to pedagogy, mostly where we introduced authentic and non-authentic kinds of podcasts. And even with the authentic when I remember, we discussed, like, using existing resources and developing own podcast materials. So it's all kinds of that. And then we shifted talking about the categorization of podcasts, the mediums, the types, the length, the author's, the style, the purposes. All of this comes into the process. So it's like structuring or modelling the way how we built the whole podcasting experience, if you get what I mean here. But for me, again, I'm stressing that at the very beginning it was a bit challenging for me to introduce the topic for my students and see it from pedagogical manner. Okay, they know it, they probably are listening to such stuff every

day, but the educational value of it is what I was looking at the very beginning, is what we were trying to build by linking it into pedagogy. This is what I was trying to stress throughout the experience of, like this project, or building this project. And again, I might link this to the case studies that I introduced to my students so that they can see the rationale, the importance of such tool into language learning and teaching. So yeah, I can see that you have structured the way like ...pedagogical challenges, the technical challenges, and then yeah, I would definitely agree to that. I mean, the way how it is structured is really stimulate different ideas in the right place. But really, it might differ according to the purpose of why we are doing the analysis in the first place, If you get what I mean, here, Abdullah.

Abdullah Alhasani

Yeah, T1DV. Interesting. Okay. Now, this is my analysis, this is my own account. See, these represent the codes, the labels, the highlighted areas in your scripts, okay. But again, S2DV and S1DV, this remains my own analysis. I could be twisting your words, I could be building this hierarchy, this structure, according maybe to a false dichotomy, like a full sort of organization. What tells you this is a correct way of organizing it? What proves that? Because anyone can take your word. See, this is what happens. Think of it as honesty. I can take a word and then go to the media and I can say, 'Well, T1DV, S1DV and S2DV said that, that, and that. Now what happens is, because everybody is going to be listening to the media, everybody's going to believe that this is what T1DV thinks, and this is what S1DV thinks.... but maybe I'm manipulating your words, maybe I'm twisting what you're trying to say. Do you think this code system really represent...? Do you think, for example, that "problem solving" fits within the category of 'flexible and process learning'? Do you think the way I organized it hear,.... I can leave it to you right now, I can give you some time and see... Hmm, look at "learning-by-doing", for example, do you think learning-by-doing all these aspects... See all these labels I created myself, these are higher-order categories that I created. These are lower-order categories, like "additional incentives" like "discovery", "safe learning", blah, blah, blah, but I put them all together under a higher category, which I labelled as "flexible and iterated learning". In other words, if I show this stop here, okay, which is, again, (the enablers). Do you think all these factors that I put right here? Do they really fall into that category? Or do they not? Do they fall into other categories? Are they represented? Well, are they misrepresented? This is what I'm going to give you some time to discuss together as a group, and I'll be listening to what you think about it.

T1DV

Okay. If I look at the enablers Abdullah okay. Yeah. So basically, looking at the enablers "creating the conditions for learning", that's what you like, ignited, which include the conductive to learning bits in your teacher learning rules course. The "compatibility of the curriculum, pedagogy, assessment", it will all come to that; the "infrastructure of readiness", "Safe learning atmosphere", I would also definitely. "Errors are not punished", "Making mistakes is part of learning"; Definitely. The "emotional intellectual support". And then we have the "supporting documents". Okay, Abdullah, what do you mean by the supporting documents here? If I may ask?

Abdullah Alhasani

Okay. It's just to enable students to ....

S2DV

In which one where you are? Can't find it. Can you believe put the mouse on it?

Abdullah Alhasani

Oh, great. Great. Great. Okay. So I was going through that and then going through the details here. And then "safe environment", "safe learning", "supporting documents". Okay, supporting documents are basically part of you want to create the condition for me learning students need to sort of reference something to refer to, to guide them without the need to rely on the teacher to be self-dependent. And that's where the rubrics seem to fill the void. Okay, they could tell them how they're going to be assessed and graded. And what is expected in each phase. So basically, something like that.

T1DV

Yeah, definitely. Abdullah, this is what was also highlighted. Project specifications, the groups that students need, yes, I would totally agree to that.

Abdullah Alhasani

Let's see also, what S2DV and S1DV whether they agree with you or not, I know sorry. They're a bit left behind. We're not pointing at these. I wasn't sure. But thank you for pointing out. Absolutely. So I'll leave it to the three of you to decide.

S1DV

Maybe I can say something about the mindmap. They might have thought about, for example, things like challenges. students understand that. Because I think the basic here are the teacher and the students, more than the skill and each one of them. If I were me, I think I will. It is. I will make some things or, like parts.

Abdullah Alhasani

I apologize S1DV. But I think maybe T1DV's Mic was making a little noise. So I'll have to mute you. Sorry. And I'll ask him to repeat your ideas. Sure, the less you know, so what do you think again?

S1DV

Yes, I think the mind map in general, if I were the researcher, I will make it instead of inhibitor and enabler, I will make them according to teacher and students, because I think teachers and students are the basic, and then the challenge, and for example, the things come under them. So, for example, the challenge parts or other things, I can put them under students, and I can put them also under the teacher. So that's what I think.

Abdullah Alhasani

So you would analyse features separately, and then you would analyse a student's data separately, right? Yes. Okay. Okay, that's possibly one way. S2DV Yeah. Do you think differently?

S2DV

Personally, I think it can be what S1DV said, But what you did is I think it is more suitable because it is more general. And after that, we can categorize everything under it.

Abdullah Alhasani

I think we lost You there, sometime. your mic fell off. We can't hear you anymore. Okay, I think S2DV is facing a little problem with Mic. Feel free the other two to contribute. How can we validate this organization? Is there a way to validate? Is there a way you can validate this organization and the structure?

T1DV

Okay. So, I just wanted to say that I mean, again, this really depends on the purpose of preparing such model or like the "enablers" and "inhibitors". For me, I would keep I would rather keep it this way. I would like the way how it is structured and the way how and the information that it reflected it. Like I can tell that mostly it shows things from probably student or sorry, from teacher point-of-view, particularly the areas related to pedagogy, if you get what I mean. Yeah, yeah, I was actually yeah. About the "teacher facilitation", like the initiation, the direction, and like within the project and then the project evaluation phase which involves the "reflection", "further chances", "assessing like artifacts". Yeah, definitely, "additional incentives", "kudos", yes of course, and competitiveness. Can we consider giving students more chances as an additional incentive? Also "to meet personal preferences", the styles, this is all related to the "relevant learning". This is where we also need to consider meeting the pedagogy, reflecting the common practice in higher education and beyond. The process of learning I would also so we have the "flexible and iterative of learning". Yeah. Okay. We have the "process learning, the trial and error". Yes. "Learning, relearning" again, the "recording, editing, modifying, adding effects". Okay. What does learning involve here, Abdullah? And if I may ask, is it learning about the project or learning about podcasting in general?

Abdullah Alhasani

Okay, well, basically, what happened was that several aspects of what students mentioned seem to refer to a process that they went through that process involved learning or some students would emphasize the learning and relearning nature, which include persistence and have to persist. And some was more of a technical aspects in terms of how to record we record multiple times up to 10 times and more. There were big aspects you do with editing, modifying and see within these aspects that would either to do with language, or sometimes technical aspects. But all of these would refer to a process learning all of these aspects or sub factors would reemphasize an approach to learning that invests in a process learning or trial and error. You know, they learn so they don't get it from the first time perhaps doing and redoing and redoing and that also placed adding effects, okay, took more than one attempt more than one step. So this is the overall umbrella idea.

T1DV

So, okay, very clear. "Discovery learning", the "free exploration of the software tools"; then "recording", yeah, the "Knowledge Building phase", the "personalized approaches and strategies", definitely. Yeah. Yeah, well, where would I put if I like, let's say the students are within the process of creating the podcast. So choosing authors and contributors, where would you add it, Abdullah?

Abdullah Alhasani

choosing even interviewees, for example?

T1DV

Yeah, for instance,

Abdullah Alhasani

okay. Part of "self-direction" students had to do a lot of decision making, sorry, okay. And part of decision making involves choice of topic, interviewees, the venue, the equipment, so this more highlighted the process that still active refers to the student. So students were kind of active in making the decisions and directing and steering the project and reflecting on it and things like so is a student centred learning more reflective and congruent or sort of this view.

T1DV

Very clear. Yes, I would totally agree to what is added there. And of course, this would involve deciding on the structure of the podcast and deciding on the probably the usability of the of the podcast itself, the length, the time, and all this stuff, right.

Abdullah Alhasani

Yep. All the decision making are within that, okay, so they direct all the choices. That's why self-direction emerges from them. It's their purpose.

T1DV

Okay. Very clear. “Self-discovery”. Okay. All right. And then we have the “active and independent learning”. Okay. “Self-regulation”, “self-reflection”, “interaction and collaboration”. Okay. “Enhanced Learning”, “Praxis”, The “motivational learning”, “Excitement”, “motivation for the experience”, “Satisfaction”. important. The “pride”, the “confidence”. Yeah, “valuing the individuality”, “diverse outcomes”. What does that mean? each outcome reflects the unique idea?

Abdullah Alhasani

Yep. students, I think many mentioned that. The way we're unable to make our decision making choose what we like choose the music we like, etc, etc. This encourages some sort of competitive outcomes know the outcomes are not going to be the same. It's not like a test. Everybody takes it. No, everyone does it their own way. So that's why the final outcome is going to be a little different. You're not going to have one outcome that matches all the other outcomes, there's going to be something different among each and every one.

Yeah. Sorry. S2DV, S1DV, don't feel like outsiders. So please Feel free to have a say.

S2DV

You know we follow you.

Abdullah Alhasani

Yeah, yeah, I want to hear what you think it seems like T1DV was going through here to see whether the categories fit within the higher order category, and whether they are logically structured, which is a form of validation. Does that apply to you? Do you think this validation, this category would involve something else? Maybe the labelling should be different? See, eventually, this is data from students. It is not my data. I've only done the analysis. Now, is the analysis correct or not? You should have a say about that. What do you think?

T1DV

Yeah. So S2DV, what do you think? Do you agree to the structure that Mr. Abdullah has made there?

S2DV

Now, I totally agree with it. And I think it is clear and organized. So to me, I don't know. I can't add anything. It is very clear and organized.

Abdullah Alhasani

S2DV, is it fair? It's an ethical question. Is it fair? Is this analysis fair? Did it do you justice?

S2DV

Yes. Why not?

Abdullah Alhasani

Well, that's what I would like to know.

S2DV

I think yes. I don't know. I can't find a reason to say it's not fair.

T1DV

Yeah. And what do you think, S1DV? would you agree to the structure? Like,

S1DV

yes, I think that is well organized. And well, detail. I cannot add anything.

T1DV

Can we go to the like, the “personal challenges”? In the mind map itself? yeah. So basically, we have “heavy task demands”. How did you divide this Abdullah? Like the challenges?

Abdullah Alhasani

Okay, very interesting. Ah, first, if I may share this. As I told you, I looked at each category alone. Then several challenges appeared. Mostly with the process of AMA engagement. There were mostly technical, as well as personal challenges. technical personnel, a lot of students were just reporting technical struggles. So it's like I had this I had that some infrastructure as well. However, when it came to the general pedagogy, that's where more a more sort of comprehensive approach was adopted by the interviewees, students and teachers both, some even included cultural challenges. The whole educational system, how they were prepared from school, and how that transition from school to college should have been, but wasn't, you know, and that's why all these challenges pulled from all these categories here, looking at PBL

challenges, the learning atmosphere challenges, you to teacher facilitation, etc. Okay, all of those are pulled together, seen for commonalities, what is common among them, and that commonality reflected the model that you see here in and this is how I classify them as well into what I believed was a personal challenges to do with the these can be task challenges, but since there were more, they differed, some students have no problem some students have problems with it with a task. So I thought you was more to do with a person rather than the task itself. Again, this is my way of viewing it. And that's why it has to do with the heavy demands of the task. And these are the sub labels, I would really much like to see also you like you went through the other factors to go through these factors and see if they belong to the right category if they're if they're representative or not, etc, etc. So what emerged finally was six categories of challenges personal challenges, technical, pedagogical, infrastructural, and that's why it was it was tough, whether the technical and the infrastructural, were the same or different. But these are more technical to do with the production technicalities, editing equipment, software, but infrastructure was beyond seem to do with the college infrastructure, etc, etc. Okay, so I can say, well, I'll leave you with that to see how you think about it, how you think about those inhibitors, I call them inhibitors, but could be also challenges. Okay, I'll mute my mic.

T1DV

Alright. I would really start looking at the "personal challenges". Probably S2DV and S1DV might like, contribute as well. Okay. So you have "heavy task demands"; "time consuming"? I think one reason for the time consuming because it was new, the students in the first place? Or at least first time I went to sleep, yes, I have probably received many requests, or students are different, like phases requesting for additional time to submit to submit the task. Then "mastering the software". Apparently, I mean, at least at the level of my sections, we only refer to some free websites like Audacity and other ones, which were not very challenging. They were challenging, but not really very challenging to the students. This is what I noticed recently. "Causes pressure for learners". Yes. One reason for that because it was a bit new experience to them. In my case, at least, requires lengthy exposure of course, yes, step by step definitely. And follow up from teacher side as well. "Overwhelming at earlier stages". Yes. Because there was a much like to acquire at the very beginning, considering the technical stuff and the knowledge about podcast itself and linking it to pedagogy. "Conducting the task", Yes, "finding a venue", "scripting". Okay. "Language issues"; "disruptions", Oh, yes. This has been seen throughout the podcasting experience where students have struggled actually in finding the right place. Time. Psychological, Yep. Can you explain this, Abdullah, the third phase?

Abdullah Alhasani

Yeah. A lot of students, especially towards the end, they felt that the demands of the task, and I think it had to do with the nature of the module itself. It was psychological. It was more to do with it was quite pressuring, see the psychological repeated basis. One, it's a new experience is overwhelming. There's so much, but then eventually, I think other courts requirements that caught up with them. And that's why he's like, oh, what am I going to what are we going to finish this because we also have an exams we have other things to submit and things like that. So there is a bit of a that's why I believe it was psychological sort of struggle trying to keep up and submit on time or demand more time. If you demand more time. If you need to extend the deadlines, it means you might catch up with catch up with some other requirements from other modules.

T1DV

Yeah, I'm not sure would S2DV and S1DV agreed to that. Because they have experienced this

S2DV

just an addition in this thing. Also, some Students maybe can be they are shy. So, it can be a psychological also problems how they cannot speak, or they cannot record their voices or speak or, for example, also talk with another person or record, for example, in an interview or such thing, during interview, all these things can be can make some pressure and some psychological problems.

Abdullah Alhasani

So, maybe we could label them a psychological pressures, possibly psychological pressures, here and there. Possible.

T1DV

Yeah. Yeah, I would agree to that.

Abdullah Alhasani

But it's interesting that you mentioned some personal qualities. And I thought, I think I have them here when he said, sometimes they don't like that, or they shy, I think, to do the "suitability of the personal style", especially "hard to convince them otherwise", some of them like, "stuck in their old ways". Like, something like that. I think there was something. Some of the examples, see, all of these examples are not complete, I just put some examples, there's some more. But because the mind map tends to get bigger and bigger, so I sort of had to mention to some examples from these, but I'm sure some examples were mentioned. Now remember to remember some sort of telling me that there were there were a bit shy, or afraid to get in front of boys, especially for girls or afraid to have their voice shared by others and things like that.

T1DV

And you know, at some, at some stage, I felt that with some groups, it was difficult for some students to consider such a project as a learning experience because they associate, like, listening to a podcast as a source of entertainment. Not really edutainment. It was just a feeling at some stage. And I cannot really over generalize and say that, yes, this is what students believe, probably S2DV and S1DV can tell us about this.

S2DV

Exactly. I, I do agree with you. And I mentioned that in the interview, I say that some students find this, like, a very hard task. And they, they even they do not want to do it. And they said, it's, it's better if we will do something, for example, a research or homework or such things, instead of doing a podcast. What is the meaning of broadcast? And why do we need to do a podcast? You know, still, we have this traditional idea about such media, and it is just for entertainment, not learning. So sometimes, yeah, we can find this a lot.

S1DV

Here, well, can I say something here? Shall we mention how to separate learning from fun? Is it really a challenge? To me? I don't think it is a challenge.

T1DV

Okay. Yeah. So in your opinion, it's not really a challenge and students do not consider this like, idea of considering like podcast as a tool only for entertainment.

S1DV

Maybe they can consider them like entertainment, but they are actually learn from it. Actually, we do that in our daily routine, for example, we listen to the radio for entertainment, but we learn a lot from them. So I don't think it's a challenge.

T1DV

Okay, all right. And I can see that Abdullah, you have already also like, discussed this point here.

Abdullah Alhasani

Yeah, exactly. I think it was also your idea. You said sometimes with the associated podcasting with something else, like for example, if you ask them to produce videos, they may be associate producing videos with fun, with something to do at home, nothing to do with the classroom, because a lot of them have the expectations that it's the job of the teacher, it's not me, the teacher has to do his job. So something like that. So that's why they prefer the didactics. Didactics refer you to teaching the traditional expertise of a teacher as a teacher standing in the middle and doing that work rather than students having to do the teacher's Job.

T1DV

Yes, definitely. And you have clearly added them here by “preferring alternatives”, “stuck in own ways”, And “hard to separate learning from fun”, totally I would agree to that. The prior experience; “lacking a relevant knowledge of approach”; “lacking preparedness”. Okay, what does that involve Mr. Abdullah, like “lacking preparedness”

Abdullah Alhasani

Many students associated this with, with how the educational system prepare them. They said fortunately, when we came we're biased to the traditional sort of approach to learning and that's why we're not fully prepared from the early stages in our life.

T1DV

Yes, and I remember I did also mention this that like this such project really kind of moves students from just being a passive source into like, like active and active actually where they can see their presentation of themselves into the podcast they create, and they produce at the end. So I definitely agree to that. Okay. The “software-related challenges”; the “equipment, the “quality of the equipment”, definitely; the affordability. Mr. Abdullah, like, where would you put it? like the “affordability of the equipment” itself? Because it is a challenge.

Abdullah Alhasani

Okay, yeah. Sorry, I put that with the infrastructural more so. It's down here. The “high costs”; “quite expensive”, especially as students have to buy their own gear and that's why he said equipment, the infrastructure will be equipment related, because some had to buy their own headphones and things like that, or their own mics

T1DV

True. yes. And I can speak of still on students’ behalf. In fact, we do need like more equipment and tools in order to be able to implement such project properly, at least in the first place until we get used to it and then we can use our own stuff and materials. But to come up with high quality product, you need to go good equipment and good place too, like an isolated room where you can really record. Okay, and then the “technical challenges”. Yes, I would. Okay. Yeah. bias to conceptual rote learning. Okay, so these are the “pedagogical challenges”.

Abdullah Alhasani

Maybe they can also be invalidated by S2DV & S1DV. it'll be interesting to see if they resonate with that when they go to school, if they can find some of these challenges. To deal with the “bias”, or “teacher-related”, or even “managing assessment or feedback”, or “difficulty to implement AMA”, or even the “flexibility in existing curriculum” to adapt their own ideas. Let's just see what they think about that.

T1DV

Yeah. emphasize on the didactics, like teaching for the test.

T1DV

didactics like teaching for the test. Okay. Like in the case studies that I usually show my students, we do always consider like podcasts by particularly what I might call as, like, yeah, the type of podcast where students might listen to, which is prepared by a teacher that discusses what has been covered in a previous week and prepares them for what is coming next week, or in the following week. I think that might be a kind of "teaching for the test", if we might add it there. But still, students did accept it as an idea of like, particularly if this podcast is short and covers the key bullet points which have been highlighted. And if these points, the highlighted points are the same points that they would have in their test, then they will definitely prefer it or prefer having it this way. This is the assumption I got, after discussing this point with my students. "Teacher-related".

Abdullah Alhasani

If I may add something here. I think that emerged from both analysis of students' info, and teachers' info. They may not be directly related, but I think when we're talking about the MA pedagogy and the and the AMA environment, these emerged, saying that unfortunately, I think in the curriculum, it was one of the biggest challenges that maybe teachers might face was that the whole curriculum, or there is a bias, an "existing bias towards learning through memorization", either from a part of the students, or the system, or even other teachers. Okay, there're always priorities on didactics, on teaching, on lecturing, and things like that, or So also, this kind of reappears later when we talk about the Edu-system challenges. Okay. enculturating didactics I think that was that also emerged there. So, it was either in association with the level of pedagogy, or at the level of whole educational system.

T1DV

yeah, the impression I got was that Abdullah, like with my students is that the more they see podcast, as kind of part of teaching and learning, the better motivated they will be to use them, to access them through the time. This is what I felt like, the more I linked it to, to pedagogy, to teaching, to learning, to curriculum, they start really taking it seriously and seeing it as an important thing. And one of these examples is the is the broadcast that I just told you where we can kind of like, I mean, they might see it as a good opportunity to, if you give them a podcast, talks about what has been covered and what is upcoming, what is coming for the for the upcoming week, they would definitely acknowledge and value the educational aspect in this, like in this kind of podcasts. I'm not sure at this point adds to what we have just discussed here. And. then we also have "managing assessment feedback". Yes, of course. I mean, rubric has always been an issue, honestly. And if it's like I think I myself need to develop, like the rubric, which was already there, like at least trying to find a rubric that really covers the exact specifications and the requirements, which means the learning outcomes of the target of that podcast. Requires individualized assessment? What does that What are you referring here to Mr. Abdullah?

Abdullah Alhasani

This is because you have to mark each podcast separately. It's not like sometimes with tests and exams, you can do them for example online and they have their auto graded. But here, This is one of the difficulties of them you have to manage, especially for larger classes, you have so many podcasts and listen to, to grade, and things like that.

T1DV

Yeah, yeah. I totally agree to that. As for the next point, "requires trust students do their own work", I don't know. But podcast, among other kinds of projects, I would definitely trust it more, because it's a kind of project that reflects the student. I mean, here, I'm talking about students' podcasts, as projects, to be assessed by the teachers and marked accordingly. And looking at an essay, or listening to a student podcast, I would trust listening to the podcast produced by students, considering that I already know the voice of the student. Particularly in relation to the to the academic integrity, and students use his own materials. Yet the challenge is what the student says, is it his own stuff, or it's copied from somewhere else? Here comes the challenge of students doing their own? I'm not sure I understood it. Will, Mr. Abdullah do?

Abdullah Alhasani

Yeah. Well, they can be some of these. Yeah, can be related to the content, can be the relative music, the editing. So you can trust the voice, but that's as much as it goes. But what about the other parts? So there is always still that old challenge, okay. It's traditional, conventional challenge of maybe somebody else is doing it for them, like the tests, somebody is taking the test for them. So that still carries over here? Partly, if not fully,

T1DV

yeah. That the high amount of cheating in the system? Yes, this might definitely involves reading others' work without acknowledging the fact that this work doesn't belong to them. So all what they are sharing with us from themselves is the voice. Yeah, definitely, I would add this here, I'm looking at it from teacher point of view here.

Abdullah Alhasani

For you, fortunately, it seems that we're all a teacher point of view that we have today. But it'll be interesting to see if some way we can reflect and relate back to their past experiences before becoming teachers.

S1DV

Oh, well, I really agree with what Mr. T1DV has said. So for example, if we are given for example, writing an essay, I can get everything ready for me, for example, could be information from other students. So I didn't do anything, but for the podcast to know even if I get an information or music or video from someone else, I also should put my touches there. So even if most of my work is not done by me, there is also about 500% done by me, not like the essay, which may 100% is cheating or taking from someone else.

T1DV

Yeah. I would agree to that as well. Okay. All right. So then we have 'it demands much effort' Yes, of course, 'it's difficult to be implemented', because it's unusual experience. This is what I felt. I'm not sure about S2DV and S1DV. But for my students, it was unusual experience. For them, that's why they did consider at least at the very beginning, something difficult to be implemented. And yes, it does demand some effort. Because it's not only what is required is not only like a piece of paper and a pencil, no! you it does require some kind of preparation, different steps to be followed, equipment also. So students need to consider different aspects to be merged together in order to come up with a product that should satisfy the rubric or the criteria made for it. Okay, 'limited options'. 'time constraints'. What kind of options are we talking about

Abdullah Alhasani

here? Oh, this has to do with the system. I think what I remember one teacher was saying that we can't extend the time of the project, for example, they can extend it, but then you're still bound by the syllabus, you're still bound by the particular syllabus. sometimes, for example, before the midterms, they require that you send them, to share all your grades to be happy, or the HOD, for example. So there is less flexibility to extend time for students or even give students alternative opportunities to refix their work and resubmit, again, if they're willing to do that, and improve the experience of learning, and outcomes as well. This is a generic sort of challenge, because it's applicable to... I remember also teachers mentioning it, so I thought it was worthy to mention, so I remain true to the analysis.

T1DV

Yeah. Yes, I would, like I would definitely agree to all it's mentioned here, “accessing to YouTube”, like has been an issue where our students here did not have access to YouTube at some time. And if we are to ask for it, then we need to probably write a list of students who are involved in this course and provide the rationale, and then we will be provided with access to our students, which is a bit annoying, definitely. For both teachers and students. I myself didn't realize that my students didn't have access to YouTube until like, like, by sudden, I figured out that they don't actually have access. But you know, this semester, we are going online. So like, this blocked-in-college isn't an issue. “Adequate internet connection”, of course. And yes, it is “expensive”. I mean, I'm referring to the high quality microphones. If we are to produce real stuff, then yes, of course. “Education System challenges”. “emphasis on rote learning”. Okay. The teacher reliance. What does that involve Mr. Abdullah teacher-reliance.

Abdullah Alhasani

It was basically a teacher-centred approach. So it was interesting, the students were referring to the whole system, even their school experiences. So they're just wider education system in Oman.

T1DV

Yeah. It was also raised by my students this semester, apparently, we were discussing such kind of projects. And to them the idea that whole idea was kind of new, because in fact, one of the students did even question the amount of focus given to listening in our curriculum. And I found this is an interesting piece of information, because how much emphasis given to listening in our curriculum? And, like, what kind of listening exercises and activities do we have in our schools? It's all this kind of traditional ways of introducing the students to listening, by having an audio record, asking students to listen, and then just answering questions. It's just within this circle. We didn't go beyond this, unfortunately. And with all as language learners, I definitely believe that more emphasis on listening needs to be to be given in the first place. And yes, I will totally, like highlight this point here. I mean, I would link it to the education system and curriculum. like in general, 'Poor readiness for tech-based learning'. Yes. This remains an issue. I'm not sure of S2DV and S1DV would both agreed to that, because you ladies like did the practicum three and four. Last academic here. Was there lots of emphasize on listening? And

S1DV

the focus more is in grammar, vocabulary, reading and writing. Speaking and listening are the less focused skills in the schools, as I noticed.

T1DV

S2DV, what do you think?

S2DV

If we are speaking about listening skills. I agree with you. But also if we are also now, they listen a lot, for example, for the teacher when he is explaining, or teaching, by this traditional away, as you mentioned, this is one of them. Another one, it is about CD. And that's it. About something new? Np, because as most of the teachers say, it is loosening this time, and we have a curriculum we supposed to do, and we are supposed to follow, and things like that.

S1DV

The adding to what S2DV said, Yes, students are listening to the teacher listening to each other. But they still don't know the listening skills, probably. Actually, Me Myself, I didn't know for example, how to get the information from the CD, or from the teacher himself. Until I have a course called the listening and speaking skills in the college ear, so after 12 year, years in the school, I still don't know how to get an information from someone who speak are from the CD. So this is really a problem.

T1DV

Yeah. You know why when what, because until now, in our systems, we still consider listening as a passive kind of skill. It's not active, even though many believes that it is a kind of active skill, because it does involve different stages, starting with the receiving knowledge, understanding it, remembering. And then you will definitely need to

process and evaluate what you have listened before responding to it. So this whole process, probably with listening as an active skill, rather than listening, and it's not being treated like this in our system. Unfortunately, at least this is how I see if I can tell that my work list has just agreed to, to that. What do you think? Do you agree to that?

S1DV

Yes, I think I really agree with what you say. They see listening like only a receiving process. They don't teach us like how to get the information, like how should I answer the question, and the other processes that happen while we are listening?

T1DV

I would definitely link that to the education system. Mr. Abdullah, like what's mentioned here. "Learner autonomy", okay. All right. How would you, how would you link autonomy to, to podcasts? Is it by establishing the project, the idea of project itself?

Abdullah Alhasani

Are you referring to this particular idea? or something else?

T1DV

No, no. Something else? I'm just looking at the, like, the mind map. "Edu- system". The "teacher-reliance", Really.

Abdullah Alhasani

that's, that's what I'm saying? Well see, according to the analysis, or what students contributed was that one of the biggest challenges of the Omani education system by far was that it still places larger emphasis on didactics, on lecturing, on teaching, on teacher centred learning. So there's still the role of the teacher is prominent, which, by contrast, diminishes student centred learning or learner autonomy. So there's less of that there's more of this. So this is how the system is organized, This is considered a challenge to all threat even to widening AMA based learning or AMA learning?

T1DV

True, definitely, I would agree to that. Okay. Okay, then we have the 'Weak graduate outcomes'. "Lacking skill-set", "technical knowledge, skills".

Abdullah Alhasani

Yes, it is to do both of the graduates as well as the teachers, they say one of the fallacies of the current system was that both the teachers that we get are not fully competent in technology. And that's why they rely less on technology, they have a preference for conventional methods. And the same is with the system students who graduate the system, who finish the system. Unfortunately, they do not receive enough exposure to utilizing technology creatively to enhance learning.

T1DV

Oh, yes, I can definitely agree to the, to the to the earlier part of what you have mentioned, Mr. Abdullah? Yes. Like, probably teachers, who are not well equipped with technology might not consider it as the best option to stop their classwork, or at least to consider it to avoid any kind of issues or challenges they might face during the implementation of any of the exercises or activities. But the later part, S2DV and S1DV might help us answering it. So like, what do you think? Yeah, S1DV and S2DV. Didn't college prepare you Well, with all technology needs to be used for your future career?

Abdullah Alhasani

Let's think beyond the college, let's think the whole educational system.

S2DV

Yes, exactly. Before the college, now, if we are looking for the school, we're gonna find that the classes of technology they have, I think only two to one to three classes were weak. So you know, just one class or two class in for the whole week. So unfortunately, nowadays, we left in, not unfortunately, today, we live in best technological days. And we have lots of applications, technology, inventions, and such things. So when just you when you find just one class in a school, just to learn more about the computer, program programming or systems or such thing is, you know, it is, it's not enough for the students. After that, you're gonna go to the college, and just you also you don't have a lot of courses, which gives you an opportunity to do a lot in it and technology and something like that. You know, we have this poor site in our education system. Unless you've been applying just a student or some students who like this fall, so they search and look for and do everything by themselves, because they have this passion and they love this, this area. But yes, I totally agree. That we have, we don't have enough courses to prepare our students, even in school or in college. So and nowadays, you know, in COVID-19, unfortunately, we thought, last year we faced this problem. Yeah, we find ourselves in online learning and we don't know anything on about online learning and such things. So it was something terrible. So yeah. Yeah. I would agree to what somebody just mentioned. Definitely. Okay.

T1DV

Yes, man, what would you like to add anything here to what somebody have to say?

S1DV

With regard to the school I really agree with what you say. Regarding the curriculum, we don't have much classes regarding that technology or the computer skills. So, we are less skilled in this part. But we have some students who are really interested in exploring or finding things about.. related to the computer or the technology. So you will find them really expert in this part. But regarding the college I think they really provide us with different kinds of technology and teach us how to use technology in the classroom, and how to use different programs. But we still have for the point of unskilled teacher, we still yes have unskilled teacher, I have this the doctor that just depends on the book itself. No technology, nothing is even the book. You just use it your time. So we still have those teachers, but I think the college provide us with enough experience in this field.

T1DV

Yes, I would agree to that as well. Okay. Then we have the point of 'social cultural challenges'. Interesting. The 'insufficient community support' okay. And the "insufficient knowledge of the approach", "insufficient awareness", "the community expectations", yeah. Yes, the "teacher is the provider of the knowledge and the source of knowledge' and the only source of knowledge. Unfortunately, this is true. The "cultural barriers", "gender segregation", okay, "the cultural values", "refusing to record on voices for public display or consumption". Yes, this is the issue we are having. So we go through the entire process of podcasting. And we always stop at, like the point where the student needs to publish the podcast, what we do is actually we try to, like, find ways to enable students like to be heard through their podcast. But I always feel like it might not be appropriate. For example, even within the class itself, we don't allow sharing students like podcast. As a teacher, yes, I do receive them all. But the level of accessibility we give to those podcasts is very, is very low. And I think if we are to fully implement the idea, then we definitely, like, need to enable students podcasts to be heard by their colleagues, either by probably deploying it into the virtual learning environment system, or by using some of these really Simple Syndication features where they can actually subscribe, and listen, and also upload the work so that public can hear them. Until we do that, I cannot see the full experience of podcasting. Mr. Abdullah, this is my point here actually. And here properly, I went out from talking about it as a project into beyond, looking at it for something more than project, something for the community consumption, and something which can add benefit to everyone. We might have an interest in a specific topic, which might be the focus of that Student. So it's like establishing an idea of focused community, or community in practice, where we might have people who might have the same interest, probably might share the same kind of podcasts. We didn't reach this stage yet. I wish we can do in future definitely. I'm not sure really about the "cultural barriers", definitely there are parties. And definitely students or some students might not like the idea. This remains a challenge. True,

Abdullah Alhasani

It is mainly associated with some female, not all female students who were still afraid of sharing their own voices to the public. But some were okay with it. they said, Well, we don't mind, especially when the publication becomes a requirement. That's when it becomes more sensitive.

T1DV

to Yes, I totally agree to that. Some students already do they are already doing that, actually. We keep it optional until now.

Abdullah Alhasani

Like S2DV and her group they did it for the club. So some are willing to do it, they have no problem with it. I remember, Shahad also was part of the club doing something that I listened to in their own page in Instagram. So yeah,

T1DV

yeah, that's what some students also this semester in my course did, where they actually subscribed into and into some websites, like SoundCloud, like some other and they just started sharing their stuff there. What do you think? Like, S1DV and S2DV? How big is the cultural issue here? Is it about time, where students will really start getting used to this, and they'll probably be able to share whatever work they create. And why do students not feel good of sharing? Like, let's say educational stuff with others?

S2DV

Honestly, there are many reasons. ..One of these reasons, and this fearing about judgment from the society, because we don't need to listen or to get some, you know, feedbacks, we don't need to listen to such feedback. So yeah, about that. When the society stop judging people, students won't do that.

S1DV

From my own point of view, I think it is like, just, we need the time, as for example, if we look, maybe 30 years ago, we will find women, they don't speak at all. But nowadays we have, like some of them. Yes, they talk, some of them not. So I think after maybe other 30 year, yeah, we will find women are talking, sharing, and doing everything.

T1DV

But I still would stress. Mr. Abdullah, I would still stress that it's a complete success when it comes into the, first of all, teachers-students relationship. And I don't think there would be a huge issue if we are talking about college community here.

Abdullah Alhasani

Well, actually, some emerged when it comes to students-students relationship, males, females working together cooperating on products, there was hesitancy if there was the only one female, or only one male, and then having to merge both. That's why they said, well, we're still not comfortable to work with boys, or boys to work with girls,

things like that. There were cases when there was only one female in the class, or two female, or one male in the class, etc. So the whole dynamics of group work would be affected. And again, these are imposed by cultural barriers, both 'gender segregation culture' or some stem or derive it from 'cultural values' that we're not supposed to be working with strangers. And then there's also issues of trust and things like that, whether they trust the other guy they're working with or not. These are quite sensitive issues and you don't want to push them further. You want to be just respectful, and understanding, whether if people refuse or agree to them? I think that leaves us with just with the last idea to do with, I think one student actually even highlighted with was that sometimes it's not so much about the podcast thing where the videocasting, I think is just about the type of ideas that are shared. Sometimes these are quite dangerous. And that's why the community does not accept them, or they're considered by the social-cultural values of the community that can be harmful to their values, and things like that.

T1DV

definitely true. Yeah. So Mr. Abdullah I can conclude that I would definitely agree to all what you have stated here. And it does reflect my own opinion. And I can tell the way how you... I really need to congratulate you in the way how we structured it here. Very well organized, and it does reflect all my thoughts, experience, and opinions.

S2DV

I totally agree with you. Mr. T1DV,

Abdullah Al Hasani

much appreciated. I think that that brings up maybe towards the end. So I hope that after this session, I know it took really longer than I expected. But I really appreciate your patience with me and willingness to do it. So at least by now, with the outcome of this, hopefully, we managed to validate the analysis. And then by validating the analysis to see if it corresponds with your own views, it matches what you thought, it honestly represents your personal opinions, and personal experiences, also with AMA and all the thoughts you contributed in the previous interviews. Eventually, we just want to make sure that this validation is not only researcher validation, but it's a validation of both the researcher and the participants as well, by giving you the conclusions and allowing you to have a say about the conclusions, it makes the findings stronger, it makes them better. So there's no biases. So we eliminate biases, as well as we ensure that they're truly representative. It's like a second validation check. But I really, really appreciate your input. Really, thank you very much, this is going to be truly helpful. And it was quite interesting actually wanting to merge that. The general assumption that you go and collect and conduct research, and then that's it, everything is all about the researcher. But then that authentic, that second line check of having to take the conclusions back to participants and allow them to validate. It turned out to be quite powerful in how the results are interpreted, and how they're not only interpreted, but also communicated. Because now they're considered double-valid rather than just one valid. So thank you very much. T1DV, and thank you very much S2DV and S1DV. Feel free to share last thoughts if you like.

T1DV

Yes, Mr. Abudllah. can we share, Like, if we have thoughts let's say writing, like if an idea came up in our minds, Can we still share it in an email? Oh,

Abdullah Al Hasani

That's a great idea. Yeah, definitely. Definitely. Yeah, anything to do with that, anything to do with if you haven't had a chance for something... I know this assignments taking quite long. But if you feel they still there's something about how these are represented, or there are things that you wanted to mention, or you wanted to change. Okay, feel free to share them. Write me an email. I'll definitely accept that.

T1DV

I'm confident Abdullah that whatever we have gone through today really does represent our perceptions about the whole point here.

Abdullah Al Hasani

I was counting on that. Yeah. Do you have anything to say or... you know what, so we don't keep that as a drag. Thank you very much, T1DV. Thanks a lot for your input. Thanks for your teacher-perspective again. S2DV, thank you very much for your input. And for the student-perspective. S1DV, the same thing, I'm really grateful for your input as well, for the student-perspective. I like to thank you very much all for taking part. I'll leave everything else extra in emails. Feel free to share or otherwise. Thanks.

Appendix L Quantitative Data Collection Instruments

1. Teacher Questionnaires

Learning Through Authoring Multimedia Artefacts (AMA)

Dear respondent,
This questionnaire aims to elicit your personal views about learning through authoring multimedia artefacts (AMA), such as podcasts, online courses, etc. Three main areas are addressed in this questionnaire:
1) Learning engagement in AMA experiences
2) Learning through AMA
3) Learning environment of AMA-based learning

Your participation in this study is voluntary. If you decide to participate, kindly click (YES) below to proceed and fill out the questionnaire. Please know that your identity will remain hidden and the information you provide is intended to be used for research purposes only. Your input will be greatly appreciated.

Thank you for your time and effort,

Abdullah Said Hamed Alhasani (The researcher)
PhD researcher at Southampton Education School
University of Southampton, UK
asha1m15@soton.ac.uk

* Required

1. **If you agree to participate, then choose YES to proceed to the qurestionnaire.** *
   Mark only one oval.
   - ◯ Yes *Skip to question 2.*
   - ◯ No *Stop filling out this form.*

Bio details

2. **Academic experience?** *
   Mark only one oval.
   - ◯ 1-5 years
   - ◯ 5-10 years
   - ◯ 10-15 years
   - ◯ Over 15 years

3. **Gender?** *
   Mark only one oval.
   - ◯ Female
   - ◯ Male

4. **Have you had experience authoring multimedia content prior to joining the Educational Technology module? Answer briefly.** *

Part 1) Learner engagement in Authoring Multimedia Artefact (AMA) experiences

This part aims to explore different aspects of engagement in the process of multimedia authoring.

Please decide how much you agree or diagree with the following statements:

5. **1. Authoring multimedia artefacts (AMA) enhances:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
deeper understanding of the topic.					
conscious thinking processes.					
critical thinking skills.					
problem solving skills.					
creative thinking and creativity.					

6. **2. Authoring multimedia artefacts (AMA) helps students:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
self-regulate and self-manage their learning and performance.					
learn to set goals and plan the learning process.					
self-monitor their achievement of the learning goals.					

7. **3. Authoring multimedia artefacts (AMA) helps students:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
think deeply about and review the strategies they use.					
evaluate the effectiveness of the strategies they use.					
identify their mistakes and learn from them.					

8. **4. Authoring multimedia artefacts (AMA) helps increase:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
positive feelings of excitement, interest and curiosity in learning.					
motivational beliefs and feelings about learning.					
self-satisfation about learning.					

9. **5. Authoring multimedia artefacts (AMA) encourages students to:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
develop technical and technological skills.					
apply different learning strategies and skills.					
research and look for additional information and resources.					

10. **6. Authoring multimedia artefacts (AMA) promotes:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
team-working skills and organizational skills.					
collaboration and working with others.					
negotiation of meaning and obtaining feedback.					

Part 2) Learning through Authoring Multimedia Artefacts (AMA)

This part aim to explore different aspects of AMA-based learning.
Four sub-areas are explored here:
(1) Learning by doing,
(2) artefact construction,
(3) student-centred learning, and
(4) ICT-mediated learning.

Please decide how much you agree or diagree with the following statements:

11. **1. Learning-by-doing (or experiential learning) encourages students to:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
engage actively in the learning experience and learn through using their senses.					
reflect and think deeply about their learning experience.					
create abstract concepts (i.e. mental maps) and generalizations based on their learning experience.					
improve their decision-making and planning for future learning experiences.					

12. **2. Creating external products (e.g. podcasts) encourages:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
productive learning and self-expression.					
increased understanding and knowledge about the topic.					
active and deep learning and reflective thinking.					
interest in developing and advancing knowledge.					

13. **3. Student-centred learning encourages students to:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
make learning more personal, motivating and relevant to them.					
identify their own learning needs.					
make decisions and choices about content, strategies and tools to use in their learning.					
apply their thinking and learning styles.					
engage actively in a process of learning discovery (i.e. learn, reflect, re-learn and improve strategies).					
self-monitor and self-assess their own progress.					
collaborate, interact with others and negotiate meaning.					
take reponsibility of their learning and become independent learners.					

14. **4. Using ICTs in learning:** *

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
engages students in meaningful learning experiences.					
improves students' thinking and learning.					
facilitates new and creative possiblities for learning.					
encourages students to create, co-create and share knowledge.					
enables active, creative and reflective learning.					
improves students' technological skills and enhances their confidence in using technology.					
enhances engagement and motivation in learning.					

Part 3) Learning environment of AMA-based learning

This part aims to explore different aspects of the learning environment of authoring multimedia artefacts (AMA).
Three sub-areas are explored here:
(1) the learning atmosphere,
(2) the role of the teacher as a facilitator, and
(3) the nature of learning activities.

Please decide how much you agree or diagree with the following statements:

15. **1. The role of the teacher should be to:** *

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
create the conditions for students to learn, instead of providing ready knowledge.					
enable students to create their own knowledge and understanding.					
encourage students to self-manage, self-direct and take responsibility for their own learning.					
enable students to interact and collaborate with others, talk and discuss their ideas with them, negotiate meaning, and share feedback.					

16. **2. The learning atmosphere provided by authoring multimedia artefacts (AMA):** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
encourages student-centred learning.					
encourages safe learning and tolerates making mistakes.					
encourages students to learn, try out different strategies, and learn from their mistakes.					
provides a supportive and friendly learning atmosphere.					

17. **3. Project-based learning encourages students to:** *
Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
discover and explore new knowledge and meanings.					
make connections between different information and knowledge.					
engage deeply in a process of learning and reflection.					
try out different learning styles, strategies and skills.					

2. Student Questionnaires (Arabic & English Versions)

التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة

عزيزي الطالب،
تهدف هذه الاستبانة إلى استقصاء تجربتك الشخصية في التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة (مثل انتاج البودكاست، الفيديوهات، تصميم المواقع الألكترونية، الخ). تغطي هذه الاستبانة ثلاث أقسام:
1) التفاعل في العملية التعليمية في هذا النوع من أساليب التعلم (أي االتعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة)
2) المنهج التدريسي للتعلم المعتمد على صناعة المحتوى وإنتاج الوسائط المتعددة
3) البيئة التعليمية التي يدعمها التعلم المعتمد على صناعة المحتوى وإنتاج الوسائط المتعددة

إن رغبت بالمشاركة في تعبئة هذه الاستبانة، انتقل لقسم الأسئلة باختيار (نعم)، وإلا بامكانك الخروج دون تعبئة الاستبانة باختيار (لا).
لا تهدف هذه الاستبانة الى جمع البيانات الخاصة بالمتعلم، لذلك فهوية المشارك والاجابات التي يوفرها ستحضى بالخصوصية التامة.

لكم جزيل الشكر على وقتكم الثمين.

الباحث: عبدالله بن سعيد بن حمد الحسني
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* Required

1. **إن رغبت بالمشاركة في تعبئة هذه الاستبانة، إنتقل لقسم الأسئلة باختيار (نعم)، وإلا بامكانك الخروج دون تعبئة الاستبانة باختيار (لا).** *

Mark only one oval.

- نعم *Skip to question 4.*
- لا *Stop filling out this form.*

معلومات عامة

معلومات عامة عن المشارك

2. **في أي سنة أكاديمية أنت الآن؟** *

Mark only one oval.

- الأولى (التأسيسية)
- الثانية
- الثالثة
- الرابعة
- الخامسة (الأخيرة)

3. **هل كان لديك خبرات سابقة في صناعة المحتوى وإنشاء الوسائط المتعددة قبل انضمامك لمادة تقنيات التعلم؟ تحدث عنها باختصار.** *

المبحث الاول: التفاعل في العملية التعلمية في التعلم المبني على صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث مدى تأثير التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة على درجة التفاعل الطلابي قبل، وأثناء، وبعد الانتهاء من عملية الإنتاج.

الرجاء تحديد درجة موافقتك أو اعتراضك مع العبارات التالية:

4. **1. صناعة المحتوى وإنتاج الوسائط المتعددة يحسن من:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
الفهم العميق للمحتوى والمادة العلمية.					
الوعي بعمليات التفكير.					
مهارات التفكير النقدي.					
مهارات حل المشكلات.					
مهارات التفكير الابداعي والابداع.					

5. **2. صناعة المحتوى وإنتاج الوسائط المتعددة يساعد الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
تنمية مهارات الادارة الذاتية لعمليات ومهارات التعلم.					
تنمية مهارات وضع الاهداف ومهارات التخطيط للعملية التعلمية.					
تنمية مهارات المراقبة والتقييم الذاتي لمدى انجازهم للأهداف التعليمية.					

6. **3. صناعة المحتوى وإنتاج الوسائط المتعددة يساعد الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
التفكير العميق بالاستراتيجات التعليمية التي يستخدمونها.					
تقييم فاعلية الاستراتيجيات التعليمية التي يستخدمونها و العمل على مراجعتها.					
التعرف على مواطن الضعف، والأخطاء، والتعلم منها.					

7. **4. صناعة المحتوى وإنتاج الوسائط المتعددة يزيد من:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
المشاعر الايجابية مثل الحماس، والرغبة، وشغف التعلم.					
الاعتقادات والمشاعر التي تحرك بالدافعية نحو التعلم.					
الارتياح الذاتي والرضا عن التعلم.					

8. **5. صناعة المحتوى وإنتاج الوسائط المتعددة يشجع الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
تطوير مهارات التقنية و استخدام التكنولوجيا.					
تطبيق مهارات واستراتيجيات مختلفة في التعلم.					
التوسع الذاتي في المادة العلمية والبحث عن مصادر ومعلومات اضافية.					

9. **6. صناعة المحتوى وإنتاج الوسائط المتعددة يطور من:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
مهارات العمل الجماعي ومهارات تنظيم عملية التعلم.					
روح التعاون ومهارات العمل مع الاخرين.					
مناقشة المعنى مع الاخرين والحصول على التغذية الراجعة منهم.					

المبحث الثاني: منهجية التعلم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث التعلم عن طريق صناعة المحتوى وإنتاج الوسائط فيما يتعلق بأربع جوانب:

(1) التعلم التطبيقي/التعلم بالممارسة (التعلم بالعمل والممارسة)
(2) صناعة المحتوى (إنتاج الوسائط المتعددة)
(3) وضع الطالب محور العملية التعليمية
(4) التعلم بواسطة تكنولوجيا التعليم.

الرجاء تحديد درجة موافقتك أو اعتراضك مع العبارات التالية:

10. **1. التعلم التطبيقي/التعلم بالممارسة يشجع الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
التفاعل بنشاط في العملية التعلمية، والتعلم عن طريق الحواس المختلفة.					
التأمل والتفكر بعمق بالتجربة التعليمية.					
صناعة خرائط ذهنية وقواعد معرفية عامة مستمدة من التجارب التعليمية.					
تحسين مهارات اتخاذ القرار ومهارات التخطيط للتعليم المستقبلي.					

11. **2. صناعة المحتوى وإنتاج الوسائط المتعددة يشجع على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
التعلم المبني على الإنتاجية ومهارات التعبير الذاتي.					
زيادة نسبة المعرفة ونسبة الفهم للمحتوى التعليمي.					
التعلم النشط والعميق، والتدبر/التفكر في العملية التعليمية.					
الرغبة في اثراء وتطوير حقول المعرفة.					

12. **3. وضع الطالب محور العملية التعليمية يشجع الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
جعل عملية التعلم اكثر قربا، وإمتاعا، وملائمة لاحتاجاتهم التعليمية.					
التعرف على احتياجاتهم التعلمية.					
وضع الخطط واتخاذ القرارات فيما يتعلق باختيار المحتوى/المواضيع، واستراتيجيات التعلم، والأدوات التي تعينهم علي التعلم.					
تطبيق أساليب التعلم والتفكير المتوافقة مع شخصياتهم.					
التفاعل بشكل نشط في عملية التعلم (تجارب تعلمية، تقييم التجارب، تحسين الأداء المستقبلي، وتطوير الاستراتيجيات المناسبة).					
ممارسة المراقبة الذاتية والتقويم الذاتي لعملية التعلم وتطور المستوى التحصيلي.					
التعاون، ومشاركة الأراء مع الاخرين ومناقشتها.					
تحمل المسؤلية في عملية التعلم، واستقلالية المتعلم.					

13. **4. التعلم بواسطة تكنولوجيا التعليم من شأنه أن:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
يسهم في تحسين تفاعل الطلاب في التجربة التعليمية، وجعلها أكثر فائدة.					
يسهم في تحسين مهارات الطاب في التعليم والتفكير.					
يسهم في توفير فرص جديدة وأكثر ابداعا في التعليم.					
يشجع الطلاب على الإسهام في إنشاء المعارف، بشكل فردي وجماعي، وكذلك مشاركتها.					
يمكن من التعلم النشط، والتعلم الابداعي، وكذلك التدبر والتأمل في التعلم.					
يسهم في تحسين مهارات التكنولوجيا لدى الطلاب، وتعزيز ثقتهم في توظيف التكنولوجيا.					
يسهم في تحسين اندماج الطلاب في عملية التعلم، وتحسين دافعيتهم.					

المبحث الثالث: البيئة التعليمية التي يدعمها التعلم بواسطة صناعة المحتوى وإنتاج الوسائط المتعددة

تهدف هذه الجزئية الى بحث طبيعة البيئة التعليمية التي تدعم التعليم عن طريق صناعة المحتوى وإنتاج الوسائط المتعددة، ويغطي ثلاث جوانب:

(1) البيئة التعليمية
(2) طبيعة دور المعلم
(3) طبيعة النشاط التعليمي.

الرجاء تحديد درجة موافقتك أو اعتراضك مع العبارات التالية:

14. **1. البيئة التعليمية التي تدعمها مشاريع صناعة المحتوى:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
تشجع على محورية الطالب في عملية التعليم، وتشجع التعلم الذاتي.					
تشجع على توفير مناخ تعليمي آمن للطلبة ولا يتشدد مع ارتكاب الاخطاء أثناء عملية التعلم.					
تشجع الطلاب على التعلم، وتجربة استراتيجيات متعددة، والتعلم من أخطائهم.					
تسهم في توفير جو ودي و داعم لعملية التعلم.					

15. **2. يفترض أن يقتصر دور المعلم على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
توفير الظروف الملائمة التي تعين الطلاب على التعلم بأنفهسم، بدل تلقينهم المعارف والعلوم من الكتب.	◯	◯	◯	◯	◯
تمكين الطلبة من بناء معارفهم الذاتية بأنفسهم.	◯	◯	◯	◯	◯
تشجيع الطلبة على الإدارة الذاتية والتوجيه الذاتي في عملية التعليم، وتشجيعهم على تحمل مسؤولية التعلم الذاتي.	◯	◯	◯	◯	◯
تمكين الطلبة من التفاعل والتعاون مع الأخرين، والحوار ومناقشة الأفكار معهم، وكذلك مشاركة التغذية الراجعة معهم.	◯	◯	◯	◯	◯

16. **3. التعلم عن طريق المشاريع يشجع الطلاب على:**

Mark only one oval per row.

	أعترض بشدة	أعترض	محايد/غير متاكد	أوافق	أوافق بشدة
التعرف على واستكشاف معارف ومفاهيم جديدة.	◯	◯	◯	◯	◯
الربط بين معارف ومعلومات مختلفة.	◯	◯	◯	◯	◯
الاندماج بشكل عميق في عملية التعلم، والتدبر في تجاربهم التعليمة.	◯	◯	◯	◯	◯
تجربة أساليب، واستراتيجيات ومهارات مختلفة في عملية التعليم.	◯	◯	◯	◯	◯

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Learning Through Authoring Multimedia Artefacts (AMA)

Dear respondent,
This questionnaire aims to elicit your personal views about learning through authoring multimedia artefacts (AMA), such as podcasts, online courses, etc. Three main areas are addressed in this questionnaire:
1) Learning engagement in AMA experiences
2) Learning through AMA
3) Learning environment of AMA-based learning

Your participation in this study is voluntary. If you decide to participate, kindly click (YES) below to proceed and fill out the questionnaire. Please know that your identity will remain hidden and the information you provide is intended to be used for research purposes only. Your input will be greatly appreciated.

Thank you for your time and effort,

Abdullah Said Hamed Alhasani (The researcher)
PhD researcher at Southampton Education School
University of Southampton, UK
asha1m15@soton.ac.uk

* Required

If you agree to participate, then choose YES to proceed to the qurestionnaire. *
Mark only one oval.

- ◯ Yes *Skip to question 4.*
- ◯ No *Stop filling out this form.*

Bio details

What's your academic year?
Mark only one oval.

- ◯ Year 1 (Foundation)
- ◯ Year 2
- ◯ Year 3
- ◯ Year 4
- ◯ Year 5 (Final year)

Have you had experience authoring multimedia content prior to joining the Educational Technology module? Answer briefly.

Part 1) Learner engagement in Authoring Multimedia Artefact (AMA) experiences

This part aims to explore different aspects of engagement in the process of multimedia authoring.

Please decide how much you agree or diagree with the following statements:

1. Authoring multimedia artefacts (AMA) enhances:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
deeper understanding of the topic.					
conscious thinking processes.					
critical thinking skills.					
problem solving skills.					
creative thinking and creativity.					

2. Authoring multimedia artefacts (AMA) helps students:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
self-regulate and self-manage their learning and performance.					
learn to set goals and plan the learning process.					
self-monitor their achievement of the learning goals.					

3. Authoring multimedia artefacts (AMA) helps students:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
think deeply about and review the strategies they use.					
evaluate the effectiveness of the strategies they use.					
identify their mistakes and learn from them.					

4. Authoring multimedia artefacts (AMA) helps increase:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
positive feelings of excitement, interest and curiosity in learning.					
motivational beliefs and feelings about learning.					
self-satisfation about learning.					

5. Authoring multimedia artefacts (AMA) encourages students to:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
develop technical and technological skills.	◯	◯	◯	◯	◯
apply different learning strategies and skills.	◯	◯	◯	◯	◯
research and look for additional information and resources.	◯	◯	◯	◯	◯

6. Authoring multimedia artefacts (AMA) promotes:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
team-working skills and organizational skills.	◯	◯	◯	◯	◯
collaboration and working with others.	◯	◯	◯	◯	◯
negotiation of meaning and obtaining feedback.	◯	◯	◯	◯	◯

Part 2) Learning through Authoring Multimedia Artefacts (AMA)

This part aim to explore different aspects of AMA-based learning.
Four sub-areas are explored here:
(1) Learning by doing,
(2) artefact construction,
(3) student-centred learning, and
(4) ICT-mediated learning.

Please decide how much you agree or diagree with the following statements:

1. Learning-by-doing (or experiential learning) encourages students to:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
engage actively in the learning experience and learn through using their senses.	◯	◯	◯	◯	◯
reflect and think deeply about their learning experience.	◯	◯	◯	◯	◯
create abstract concepts (i.e. mental maps) and generalizations based on their learning experience.	◯	◯	◯	◯	◯
improve their decision-making and planning for future learning experiences.	◯	◯	◯	◯	◯

2. Creating external products (e.g. podcasts) encourages:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
productive learning and self-expression.					
increased understanding and knowledge about the topic.					
active and deep learning and reflective thinking.					
interest in developing and advancing knowledge.					

3. Student-centred learning encourages students to:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
make learning more personal, motivating and relevant to them.					
identify their own learning needs.					
make decisions and choices about content, strategies and tools to use in their learning.					
apply their thinking and learning styles.					
engage actively in a process of learning discovery (i.e. learn, reflect, re-learn and improve strategies).					
self-monitor and self-assess their own progress.					
collaborate, interact with others and negotiate meaning.					
take reponsibility of their learning and become independent learners.					

4. Using ICTs in learning:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
engages students in meaningful learning experiences.					
improves students' thinking and learning.					
facilitates new and creative possiblities for learning.					
encourages students to create, co-create and share knowledge.					
enables active, creative and reflective learning.					
improves students' technological skills and enhances their confidence in using technology.					
enhances engagement and motivation in learning.					

Part 3) Learning environment of AMA-based learning

This part aims to explore different aspects of the learning environment of authoring multimedia artefacts (AMA).
Three sub-areas are explored here:
(1) the learning atmosphere,
(2) the role of the teacher as a facilitator, and
(3) the nature of learning activities.

Please decide how much you agree or diagree with the following statements:

1. The learning atmosphere provided by authoring multimedia artefacts (AMA):

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
encourages student-centred learning.					
encourages safe learning and tolerates making mistakes.					
encourages students to learn, try out different strategies, and learn from their mistakes.					
provides a supportive and friendly learning atmosphere.					

2. The role of the teacher should be to:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
create the conditions for students to learn, instead of providing ready knowledge.					
enable students to create their own knowledge and understanding.					
encourage students to self-manage, self-direct and take responsibility for their own learning.					
enable students to interact and collaborate with others, talk and discuss their ideas with them, negotiate meaning, and share feedback.					

3. Project-based learning encourages students to:

Mark only one oval per row.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
discover and explore new knowledge and meanings.					
make connections between different information and knowledge.					
engage deeply in a process of learning and reflection.					
try out different learning styles, strategies and skills.					

Appendix M Detailed Thematic Scheme for Qualitative Findings

Part 1: Thematic scheme associated with perspectives	Themes (or thematic categories)	Sub-themes	Example codes & sub-codes
	1. CREATING THE CONDITIONS FOR LEARNING	1.1 Aligned curricula/ pedagogy/ assessment	• Conducive to learning; learners & their levels; new teacher/learner new roles
		1.2 Providing suitable physical environment	• Infrastructure; resources
		1.3 Providing safe learning atmosphere	• Errors not punished; reduces anxiety; emotional & intellectual support
		1.4 Providing supporting documents	• Syllabi; rubrics; project descriptions
		1.5 Providing teacher facilitation	• Initiation phase (introductions, modelling, delegating project). • direction phase (intellectual & emotional support, follow up, assistance). • evaluation phase (General impressions; assessing outcomes; overall reflection on experience)
		1.6 Providing incentives	• Gifts; competitiveness
	2. ENABLING RELEVANT LEARNING	2.1 Meets personal preferences/styles/interests	• Personal=Preferred style; personalized approach/learning
		2.2 Meets HE pedagogy& practice	• Pedagogical=Learning in real-life; common practice in HE & beyond
		2.3 Meets authentic/real-life/sociocultural context	• Contextual=authentic tools; authentic practice (digital literacy, 21st century practice; keeping up with current practice); employment demands
	3. ENABLING FLEXIBLE & ITERATIVE LEARNING	3.1 Enabling process learning through trial & error	• Learning/re-learning; persisting
		3.2 Enabling Discovery learning	• Free exploration of apps, tools, info
		3.3 Enabling problem-solving	• Addressing/overcoming challenges
		3.4 Enabling critical thinking	• Scrutinizing relevant data
		3.5 Enabling flexible & personalized approaches/strategies to learning	• Personalized learning paths
		3.6 Enabling knowledge building	• Access to additional resources; filling knowledge gap; knowledge construction
		4.1 Enabling accountability/ownership	• Self-dependence & autonomy; self-responsibility & ownership

	4. ENABLING ACTIVE & INDEPENDENT LEARNING	4.2 Enabling self-direction/instruction	• Freedom of choice; decision making
		4.3 Enabling self-regulation	• Planning; monitoring; evaluating
		4.4 Enabling self-reflection	• Reflection on experience and for experience
		4.5 Enabling interaction & collaboration inquiry	• Teamwork; idea & opinion sharing
	5. ENABLING EFFECTIVE LEARNING	5.1 Enabling self-awareness	• Self-discovery; awareness of efficacy beliefs (learning capabilities & limitations); awareness of self-goals & life-mission
		5.2 Enabling enhanced learning outcomes	• Memorable learning; deeper understanding & knowledge
		5.3 Enabling praxis	• Applied & concrete learning; action-oriented learning; building experience
		5.4 Enabling motivational/emotional growth	• Increasing interest, confidence, enjoyment, satisfaction, empowerment
		5.5 Enabling creativity	• Nurturing talents; creative expression & innovative thinking
		5.6 Building learner capability	• Mastery; competence; skill-building
		5.7 Enabling diverse outcomes	• Different outcomes
		5.8 Nurturing individuality	• Building learner character; unique identity; personally relevant learning
		5.9 Enhancing efficiency	• Saving time; effort; costs
		5.10 Improving achievement	• Better grades
	6. ENABLING TRANSFERABLE LEARNING	6.1 Transferability to novel & future learning experiences	• Imparted to relevant/current & new/future experiences
		6.2 Transferability to wider contexts	• Shareability with others; teachability to others
		6.3 Transferability to future employment	• Meets employment demands
Part 2: Thematic scheme associated with challenges	**Themes (or Thematic categories)**	**Sub-themes**	**Example codes & sub-codes**
	1. PERSONAL	1.1 Conducting the task	Phase 1 • Finding someone to interview (Difficult to find suitable person; Difficult to arrange suitable time)

			• Finding a suitable venue (Hostel is nosy, Background noise) • Scripting (Tiring; Difficult to find suitable information) • Psychological issues (Feeling overwhelmed; Difficulty accepting own voice; Not treating AMA as a learning experience) Phase 2 • Language issues (pronunciation errors) • Disruptions (Noise; interruptions) • Delivery style (Unnatural style) • Psychological issues (Feeling nervous; Tempted to give up on quality) Phase 3 • Evaluating the outcome (Seeking feedback; Repeating their work) • Timing (insufficient) • Psychological issues (Feeling burdened by other demands)
		1.2 Heavy demands of task	• Time-consuming (requires much time; may complain). • Causing pressure to learners (given demands of other modules; given amount of autonomy) • Difficult to manage (responsibility feels heavy at earlier stages; it is challenging & overwhelming; you make many mistakes; requires critical learning) • Requires lengthy exposure (step by step learning)
		1.3 Suitability to personal styles	• Not used to this approach (enculturated to didactics; not accepting this approach; lacking experience; requires heavy guidance). • Prefer alternative preferences/styles (preference for relying on teacher; preference for test -based learning; preference for conceptual learning & didactics). • Hard to convince them otherwise (stuck in their own ways; not open to alternatives) • Not ready for responsibility (don't want to)
		1.4 Psychological issues	• Lacking readiness (unconfident, lacking self-trust; feeling at loss; blaming teacher) • Laziness (lacking desire; preferring easier alternatives; tempted to plagiarize)
		1.5 Lacking prior experience	• Lacking awareness / preparedness • Lacking/limited prior knowledge/skills
	2. TECHNICAL	2.1 Software-related issues	• Downloading software (different updates; different versions) • File conversion to MP3 • Using multiple software to achieve the job
		2.2 Equipment-related issues	• Mics didn't work well (not audible) • File transfer between phone and laptop • Laptop freeze

		2.3 Editing-related issues	• Demanding (long recording time; re-recording & fixing mistakes) • Adding music effects (finding suitable music) • Fixing volume discrepancy (among speakers; among segments) • Fixing quality (noise reduction; fixing distortion; cleaning raw file)
	3. PEDAGOGICAL	2.1 Bias towards conceptual & rote learning	• Emphasis on didactics (content delivery; covering large content; Surface learning; teacher dependence) • Teaching for the test (memorizing for the test) • Less emphasis on praxis & applied learning • Dependent upon type of module (practice of theory-based module) • Dependent upon pedagogical orientation (teacher or learner-centric) • Demands compatible assessment forms
		2.2 Teacher-related issues	• Demands much effort (having to learn new things; monitoring; follow up; keeping diligent) • Lacking technical experience (not competent in this approach; avoid tech;) • Using limited tools (overuse of PowerPoint) • Prioritize textbooks over technological alternatives (don't keep up with tech) • Afraid to let go of control (like to keep boundaries; compromises their comfort zone; like to keep a dominant figure) • Used to didactics (lecturing; not qualified in this approach) • Misunderstanding their role (fuzzy responsibility boundaries; lack of consistency in enactment; abusing power by delegating most work to students)
		2.3 Managing assessment & feedback	• Requires setting clear criteria • Hard to observe • Hard to assess (difficult to grade; very subjective) • Hard to achieve for larger classes (demanding; harder to follow up) • Requires trust students do their job on their own • Demands individualized assessment • May not assess knowledge • Huge amount of cheating in the system
		2.4 Difficulty to implement	• Demands much effort (much fore-planning; much guidance). • Requires understanding new roles
		2.5 Lacking flexibility in existing curriculum	• Limited or fixed options; Time constraints to satisfy demands of task
	4. INFRASTRUCTURAL	3.1 Equipment related	• Gear (inefficient computers on-campus; headphones; efficient computers) • Dedicated lab • Having to use/buy your own gear

			• Physical environment is not encouraging (old infrastructure, setting not appealing) • Lacking mechanism to detect reproduced words
		3.2 Availability of quality services	• Internet connection (Poor internet on campus; poor coverage off campus to enable access to resources) • Reliability of internet connection • Access to YouTube blocked • Access to resources
		3.3 High costs	• Expensive
	5. EDUCATIONAL SYSTEM	4.1 Enculturating didactics	• Emphasis on rote learning (conceptual learning; conceptual learning; textbook-based learning). • Reliance on teachers (diminishes learner autonomy and self-dependence; things served ready) • Less emphasis on praxis • Too many rigid structures (fixed schemes) • Weak readiness for tech-based learning (undermining role of technology) • Emphasis on testing culture
		4.2 weak graduate outcomes	• Ill-equipped for employment demands. • Lacking in skillset
		4.3 Unskilled teachers	• Lacking technological knowledge • Lacking technological skills
	6. SOCIOCULTURAL	5.1. Insufficient support from community	• Insufficient acknowledgement of this approach (don't see value; don't encourage creativity; criticism). • Insufficient awareness about its importance • Community expectations (teacher is provider of knowledge; don't accept learner-centric roles)
		5.2 Cultural barriers	• People refusing to record their voice/ video themselves for public display • Gender segregation bias (females shy/refusing to work with or face boys; co-education inhibits participation) • Cultural values (fear making mistakes)
		5.3 Type of content or ideas produced	• May be dangerous • Maybe faulty
Part 3: **Thematic scheme associated with suggestions**	**Themes** **(or Thematic categories)**	**Sub-themes**	**Example codes & sub-codes**
	1. PERSONAL	1.2 Conducting the task	• Appreciating the value of the task • Motivating oneself and adhering to deadlines • Consulting experts face-to-face & learning from students with previous experience • Consulting experts on language issues • Practice & rehearsing makes perfect

			• Partitioning the work into segments
	2. TECHNICAL	2.1 Software related	• Using popular software • Using other software for noise reduction • Making it pair than individual work to ease dividing up work
	3. PEDAGOGICAL	3.1 Teacher-related	• More modelling & actual examples from previous semester • Reporting actual or potential challenges & issues and ways to overcome them • initiating self-recording and reflection on themselves at earlier stages in programme • setting clearer deadlines for phases of production • allowing students to conduct work during class time
		3.2 Instructional method	• Requires extension of deadlines (more time) • Prioritizing YouTube tutorials • Freedom in choice of topic (student choice) • Attuning to learner styles (making them try different modes to see what they prefer)
		3.3 Module related	• Dividing it up to two; or adding a pre-requisite • Placing the module with less demanding modules
	4. INFRASTRUCTURAL	4.1 Equipment related	• Quality set up and maintenance • Setting up a recording venue

Appendix N Report Summaries

Report Summary for Questionnaires

1. Research Question 1: Learner Engagement in AMA Experiences

Each part begins with addressing data obtained from students, followed by data obtained from academics.

1.1 Students' Questionnaire

To begin, the descriptive data in Table 1 reveal the students' perspectives regarding their different engagement dimensions in the podcasting experience (i.e., AMA experience). These dimensions were drawn from relevant conceptual and empirical literature (as represented in the statements) and are discussed each in their relevant category.

Table 1. Descriptive data for student questionnaires on AMA engagement dimensions

	N	Minimum	Maximum	Mean	Std. Deviation
1, Cognitive engagement					
1.1.1. Authoring Multimedia Artefacts enhances deep Understanding of topic	53	2	5	4.15	.690
1.1.2. Authoring Multimedia Artefacts enhances awareness of thinking processes	53	2	5	4.02	.772
1.1.3. Authoring Multimedia Artefacts enhances critical thinking skills	53	1	5	3.77	1.031
1.1.4. Authoring Multimedia Artefacts enhances problem-solving skills	53	1	5	3.85	.949
1.1.5. Authoring Multimedia Artefacts enhances creative thinking & creativity	53	2	5	4.57	.636
2. Metacognitive engagement					
1.2.1. Authoring Multimedia Artefacts helps students self-regulate & self-manage learning and performance	53	3	5	4.34	.618
1.2.2. Authoring Multimedia Artefacts helps students learn to set goals and plan the learning process	53	3	5	4.21	.600
1.2.3. Authoring Multimedia Artefacts helps students self-monitor achievement of learning goals	53	1	5	4.09	.838
3. Reflective engagement					
1.3.1. Authoring Multimedia Artefacts helps students think deeply about & review strategies used	53	3	5	4.15	.662
1.3.2. Authoring Multimedia Artefacts helps students evaluate the effectiveness of strategies used	53	3	5	3.96	.706
1.3.3. Authoring Multimedia Artefacts helps students identify mistakes & learn from them	53	3	5	4.23	.697
4. Affective engagement					
1.4.1. Authoring Multimedia Artefacts helps increase positive feelings of excitement, interest & curiosity in learning	53	1	5	4.23	.954
1.4.2. Authoring Multimedia Artefacts helps increase motivational beliefs & feelings about learning	53	1	5	4.09	.883
1.4.3. Authoring Multimedia Artefacts helps increase self-satisfaction about learning	53	1	5	4.00	1.038
5. Behavioural engagement					
1.5.1. Authoring Multimedia Artefacts encourages students to develop technical & technological skills	53	3	5	4.60	.566
1.5.2. Authoring Multimedia Artefacts encourages students to apply different learning strategies & skills	53	3	5	4.34	.678
1.5.3. Authoring Multimedia Artefacts encourages students to research & look for additional information and resources	53	2	5	4.53	.608

6. Social engagement					
1.6.1. Authoring Multimedia Artefacts promotes team-working and organisational skills	53	1	5	3.89	.824
1.6.2. Authoring Multimedia Artefacts promotes collaboration & working with others	53	2	5	3.85	.841
1.6.3. Authoring Multimedia Artefacts promotes negotiation of meaning & obtaining feedback	53	1	5	3.91	.925
Valid N (listwise)	53				

1.2 Academics' Questionnaire

The second part reports results from academics. Table 2 reveals academics' perspectives regarding the different engagement dimensions in the podcasting experience (i.e., AMA experience).

Table 2. Descriptive data for academics' questionnaires on AMA engagement dimensions

	N	Minimum	Maximum	Mean	Std. Deviation
1, Cognitive engagement					
1.1.1. Authoring Multimedia Artefacts enhances deep Understanding of topic	3	4	5	4.33	.577
1.1.2. Authoring Multimedia Artefacts enhances awareness of thinking processes	3	4	5	4.67	.577
1.1.3. Authoring Multimedia Artefacts enhances critical thinking skills	3	3	4	3.67	.577
1.1.4. Authoring Multimedia Artefacts enhances problem-solving skills	3	3	5	4.00	1.000
1.1.5. Authoring Multimedia Artefacts enhances creative thinking & creativity	3	5	5	5.00	.000
2. Metacognitive engagement					
1.2.1. Authoring Multimedia Artefacts helps students self-regulate & self-manage learning and performance	3	4	5	4.33	.577
1.2.2. Authoring Multimedia Artefacts helps students learn to set goals and plan the learning process	3	3	4	3.33	.577
1.2.3. Authoring Multimedia Artefacts helps students self-monitor achievement of learning goals	3	3	5	4.00	1.000
4. Reflective engagement					
1.3.1. Authoring Multimedia Artefacts helps students think deeply about & review strategies used	3	3	5	4.00	1.000
1.3.2. Authoring Multimedia Artefacts helps students evaluate the effectiveness of strategies used	3	3	4	3.33	.577
1.3.3. Authoring Multimedia Artefacts helps students identify mistakes & learn from them	3	3	4	3.67	.577
4. Affective engagement					
1.4.1. Authoring Multimedia Artefacts helps increase positive feelings of excitement, interest & curiosity in learning	3	4	5	4.67	.577
1.4.2. Authoring Multimedia Artefacts helps increase motivational beliefs & feelings about learning	3	4	5	4.67	.577
1.4.3. Authoring Multimedia Artefacts helps increase self-satisfaction about learning	3	4	4	4.00	.000
5. Behavioural engagement					
1.5.1. Authoring Multimedia Artefacts encourages students to develop technical & technological skills	3	4	5	4.67	.577
1.5.2. Authoring Multimedia Artefacts encourages students to apply different learning strategies & skills	3	4	5	4.67	.577
1.5.3. Authoring Multimedia Artefacts encourages students to research & look for additional information and resources	3	4	5	4.33	.577
6. Social engagement					
1.6.1. Authoring Multimedia Artefacts promotes team-working and organisational skills	3	4	5	4.33	.577
1.6.2. Authoring Multimedia Artefacts promotes collaboration & working with others	3	4	5	4.33	.577

1.6.3. Authoring Multimedia Artefacts promotes negotiation of meaning & obtaining feedback	3	4	5	4.33	.577
Valid N (listwise)	3				

2. Research Question 2: Pedagogical Approach of AMA

Each part begins with addressing data obtained from students, followed by data obtained from academics.

2.1 Students' Questionnaire

The descriptive data in Table 3 reveal the students' perspectives regarding the main pedagogical principles of AMA-based learning, which include learning by doing, artefact construction, student-centred learning, and ICT-mediated learning. The findings of each of these principles are presented in a corresponding order, drawing on relevant conceptual and empirical literature (as represented in the statements).

Table.3. Descriptive data for student questionnaires on AMA pedagogy

	N	Minimum	Maximum	Mean	Std. Deviation
1, Learning-by-doing					
2.1.1. Learning by doing encourages students to engage actively in the learning experience & learn through senses	53	1	5	3.94	.949
2.1.2. Learning by doing encourages students to reflect & think deeply about the learning experience	53	2	5	3.89	.847
2.1.3. Learning by doing encourages students to create abstract concepts & generalisations based on experiences	53	2	5	4.09	.791
2.1.4. Learning by doing encourages students to improve decision-making and planning for future learning experiences	52	2	5	4.06	.895
2. Artefact construction					
2.2.1. Creating external products encourages productive learning & self-expression	53	2	5	4.04	.759
2.2.2. Creating external products encourages increased understanding & knowledge about the topic	53	2	5	4.11	.670
2.2.3. Creating external products encourages active, deep & reflective learning	53	1	5	4.06	.770
2.2.4. Creating external products encourages interest in developing & advancing knowledge	53	1	5	4.23	.933
5. Student-centred learning					
2.3.1. Student-centred learning encourages students to make learning more personal, motivating & relevant	53	1	5	4.02	.888
2.3.2. Student-centred learning encourages students to identify own learning needs	53	1	5	3.83	.893
2.3.3. Student-centred learning encourages students to make decisions and choices about content, strategies & tools to use in learning	53	2	4	4.00	.784
2.3.4. Student-centred learning encourages students to apply thinking & learning styles	53	2	5	3.74	.902
2.3.5. Student-centred learning encourages students to engage actively in a process of learning discovery (learn, reflect, re-learn & improve)	53	2	5	3.98	.747
2.3.6. Student-centred learning encourages students to self-monitor and self-assess progress	53	2	5	3.79	.863
2.3.7. Student-centred learning encourages students to collaborate, interact with others and negotiate meaning	52	2	5	3.94	.826
2.3.8. Student-centred learning encourages students to take responsibility for learning & become independent	53	2	5	4.11	.913
4. ICT-mediated learning					
2.4.1. Using ICTs in learning engages students in meaningful learning experiences	53	2	5	4.38	.627
2.4.2. Using ICTs in learning improves students' thinking & learning	53	2	5	4.42	.692
2.4.3. Using ICTs in learning facilitates new & creative possibilities for learning	53	3	5	4.45	.695

2.4.4. Using ICTs in learning encourages students to create, co-create & share knowledge	53	2	5	4.19	.761
2.4.5. Using ICTs in learning enables active, creative and reflective learning	53	2	5	4.13	.833
2.4.6. Using ICTs in learning improves technological skills & enhances confidence in using technology	53	3	5	4.60	.531
2.4.7. Using ICTs in learning enhances engagement & motivation in learning	53	3	5	4.28	.662
Valid N (listwise)	51				

2.2 Academics' Questionnaire

The second part reports results from academics. Table 4 reveals academics' perspectives regarding the different engagement dimensions in the podcasting experience (i.e., AMA experience).

Table 4. Descriptive data for academics' questionnaires on AMA pedagogy

	N	Minimum	Maximum	Mean	Std. Deviation
1, Learning-by-doing					
2.1.1. Learning by doing encourages students to engage actively in the learning experience & learn through senses	3	5	5	5.00	.000
2.1.2. Learning by doing encourages students to reflect & think deeply about the learning experience	3	4	5	4.67	.577
2.1.3. Learning by doing encourages students to create abstract concepts & generalisations based on experiences	3	3	5	4.00	1.000
2.1.4. Learning by doing encourages students to improve decision-making and planning for future learning experiences	3	3	5	4.33	1.155
2. Artefact construction					
2.2.1. Creating external products encourages productive learning & self-expression	3	4	5	4.67	.577
2.2.2. Creating external products encourages increased understanding & knowledge about the topic	3	4	5	4.67	.577
2.2.3. Creating external products encourages active, deep & reflective learning	3	4	4	4.00	.000
2.2.4. Creating external products encourages interest in developing & advancing knowledge	3	4	4	4.00	.000
6. Student-centred learning					
2.3.1. Student-centred learning encourages students to make learning more personal, motivating & relevant	3	4	5	4.67	.577
2.3.2. Student-centred learning encourages students to identify own learning needs	3	3	4	4.67	.577
2.3.3. Student-centred learning encourages students to make decisions and choices about content, strategies & tools to use in learning	3	4	5	4.33	.577
2.3.4. Student-centred learning encourages students to apply thinking & learning styles	3	4	5	4.33	.577
2.3.5. Student-centred learning encourages students to engage actively in a process of learning discovery (learn, reflect, re-learn & improve)	3	4	5	4.67	.577
2.3.6. Student-centred learning encourages students to self-monitor and self-assess progress	3	4	4	4.00	.000
2.3.7. Student-centred learning encourages students to collaborate, interact with others and negotiate meaning	3	4	5	4.33	.577
2.3.8. Student-centred learning encourages students to take responsibility for learning & become independent	3	4	5	4.33	.577
4. ICT-mediated learning					
2.4.1. Using ICTs in learning engages students in meaningful learning experiences	3	4	5	4.67	.577
2.4.2. Using ICTs in learning improves students' thinking & learning	3	4	5	4.33	.577
2.4.3. Using ICTs in learning facilitates new & creative possibilities for learning	3	5	5	5.00	.000
2.4.4. Using ICTs in learning encourages students to create, co-create & share knowledge	3	5	5	5.00	.000
2.4.5. Using ICTs in learning enables active, creative and reflective learning	3	4	5	4.67	.577
2.4.6. Using ICTs in learning improves technological skills & enhances confidence in using technology	3	4	5	4.33	.577

2.4.7. Using ICTs in learning enhances engagement & motivation in learning	3	4	5	4.67	.577
Valid N (listwise)	3				

3. Research Question 3: Learning Environment of AMA

Each part begins with addressing data obtained from students, followed by data obtained from academics.

3.1 Students' Questionnaire

The descriptive data in Table 5 reveal students' perspectives regarding the learning environment of AMA-based learning, with emphasis on teacher facilitation, learning atmosphere and PBL. The three areas are discussed in corresponding order, drawing on relevant conceptual and empirical literature (as represented in the statements).

Table 5. Descriptive data for student questionnaires on AMA environment

	N	Minimum	Maximum	Mean	Std. Deviation
1, Teacher facilitation					
3.1.1. The role of the teacher should be to create the conditions for students to learn, instead of providing ready knowledge	53	1	5	3.51	1.171
3.1.2. The role of the teacher should be to enable students to create their own knowledge & understanding	53	1	5	3.74	1.041
3.1.3. The role of the teacher should be to encourage students to self-manage, self-direct and take responsibility for their own learning	53	1	5	3.94	.908
3.1.4. The role of the teacher should be to enable students to interact & collaborate with others, talk & discuss their ideas, negotiate meaning & share feedback	53	2	5	4.08	.851
2. Learning atmosphere					
3.2.1. The learning atmosphere provided by Authoring Multimedia Artefacts encourages student-centred learning	53	1	5	3.79	.948
3.2.2. The learning atmosphere provided by Authoring Multimedia Artefacts encourages safe learning & tolerates making mistakes	53	1	5	3.87	.962
3.2.3. The learning atmosphere provided by Authoring Multimedia Artefacts encourages students to learn, try out different strategies, and learn from their mistakes	53	2	5	4.21	.817
3.2.4. The learning atmosphere provided by Authoring Multimedia Artefacts provides a supportive & friendly learning atmosphere	53	2	5	3.96	.831
3. Project-based learning					
3.3.1. Project-based learning encourages students to discover & explore new knowledge & meanings	53	2	5	4.13	.761
3.3.2. Project-based learning encourages students to make connections between different information & knowledge	53	1	5	4.00	.707
3.3.3. Project-based learning encourages students to engage deeply in a process of learning & reflection	53	2	5	4.08	.781
3.3.4. Project-based learning encourages students to try out different learning styles, strategies and skills	53	1	5	4.34	.732
Valid N (listwise)	53				

3.2 Academics' Questionnaire

The second part reports results from academics. Table 6 reveals academics' perspectives regarding the different engagement dimensions in the podcasting experience (i.e., AMA experience).

Table 6. Descriptive data for academics' questionnaires on AMA environment

	N	M	M	M e	S td

Appendix N

1, Teacher facilitation					
3.1.1. The role of the teacher should be to create the conditions for students to learn, instead of providing ready knowledge	3	4	5	4.33	.577
3.1.2. The role of the teacher should be to enable students to create their own knowledge & understanding	3	4	5	4.67	.577
3.1.3. The role of the teacher should be to encourage students to self-manage, self-direct and take responsibility for their own learning	3	5	5	5.00	.000
3.1.4. The role of the teacher should be to enable students to interact & collaborate with others, talk & discuss their ideas, negotiate meaning & share feedback	3	4	5	4.67	.577
2. Learning atmosphere					
3.2.1. The learning atmosphere provided by Authoring Multimedia Artefacts encourages student-centred learning	3	5	5	5.00	.000
3.2.2. The learning atmosphere provided by Authoring Multimedia Artefacts encourages safe learning & tolerates making mistakes	3	3	4	3.67	.577
3.2.3. The learning atmosphere provided by Authoring Multimedia Artefacts encourages students to learn, try out different strategies, and learn from their mistakes	3	4	4	4.00	.000
3.2.4. The learning atmosphere provided by Authoring Multimedia Artefacts provides a supportive & friendly learning atmosphere	3	4	4	4.00	.000
3. Project-based learning					
3.3.1. Project-based learning encourages students to discover & explore new knowledge & meanings	3	4	5	4.33	.577
3.3.2. Project-based learning encourages students to make connections between different information & knowledge	3	5	5	5.00	.000
3.3.3. Project-based learning encourages students to engage deeply in a process of learning & reflection	3	4	5	4.67	.577
3.3.4. Project-based learning encourages students to try out different learning styles, strategies and skills	3	4	5	4.67	.577
Valid N (listwise)	3				

Report Summary for Semi-Structured Interviews

Code System	Frequency
Code System	1826
edTech module	7
Interviews	0
Stages & phases (additional entries - temporary)	22
Bio details	23
Previous experience @ multimedia authoring	42
A. Learning engagement	0
Stages-phases of learning design (by teacher & students)	0
1. Teacher (Shadow of SRL model)	0
1. Initiation phase	0
1). Introductions (Relevant literature; software)	16
1. background literature/knowledge	2
2. linkages to other knowledge/info	5
3. case studies/examples to analyze	8
2). Modelling (workshop; various sources/inputs; hands-on	29
1. workshops/hands-on practice	0
2. exploring tools/equipment/software	4
3. facilitating interaction/collaboration)	2
4. access additional sources	2
3). Communicating project (goals; rubrics, deadlines, expectations	30
1. introducing project	2
2. task requirements/expectations/options they have	15
3. supporting docs (rubrics)	5
4. inquiries/questions/clarifications	1
challenges	**7**
student-related	7
2. Direction phase	25
1). intellectual/emotional support/encouragement	15
2). Following up	4
observing progress/performance	1
3). providing assistance (suggestions/help)	5
Challenges	**1**
student-related	1

3. evaluation phase	41
1. general impression about outcomes (performance/achievement)	10
2. Grading/assessment/evaluating/judging	11
3. Giving further chances	2
4. feedback/reflection on experience	13
Challenges	**5**
technical	2
pedagogy	1
personal (student-related	1
project-related	1
2. Students (SRL model)	0
1. Planning & organization phase	0
knowledge/skill building/learning phase	42
self-efficacy/belief	7
choice of venue.	28
choice of equipment;	34
planning, sequencing, training, & familiarizing with software;	18
scripting;	27
choice (topic, interviewee, audience, delivery style)	44
Challenges	**27**
pedagogical	1
technical	2
personal	8
Unnatural delivery style	2
person to interview	5
2. Creation-execution phase	95
trying/recording/re-recording	19
repeating, re-recording-modifying	1
Editing, modifying & adapting	16
adding effects (intro; outro; background music);	19
challenges & dealing with them	**41**
personal	3
venue	7

technical	9
interruptions	1
noise	8
delivery styles was unnatural	2
3. Post-production phase	0
Evaluation/judgment	58
Reaction (satisfaction/affect)	8
seeking feedback	18
reflection;	48
challenges	**13**
personal	4
technical	7
Suggestions for improvement (for future iterations)	33
technical	2
personal/student-related	6
pedagogical	14
infrastructural	2
B. Learning pedagogy	0
1. Learning by doing	2
ACTIVE & INDEPENDENT LEARNING	**12**
Promotes self-awareness/discovery	7
self-learning	5
FLEXIBLE & ITERATIVE/PROCESS LEARNING	**7**
trial & error (process learning)	2
safe learning	1
discovery	2
problem-solving	2
CREATING CONDITIONS	**5**
requires compatible curricula/pedagogy/assessment	4
Additional incentives/kudos	1
RELEVANCE	**0**
matches personal styles/preferences (teachers' & Students')	10
suitable to learning in HE	8
EFFECTIVE LEARNING	**53**

Enhanced learning	22
promotes praxis	9
motivational/emotional growth	7
Creativity	5
Build self-efficacy/capability	10
TRANSFERABLE	**28**
to future learning	2
to novel experiences	5
to wider contexts	4
to employment demands/needs	17
challenges	**17**
Personal (student-related/teacher-related)	17
doesn't fit personal style/ preference	3
habits hard to break	1
unfamiliar/unpopular approach to learning	2
Pedagogical	15
Infrastructural	5
Edu system	8
2. Construction of artefacts	0
ACTIVE & INDEPENDENT LEARNING	**10**
self-awareness/discovery	7
creative expression/articulation	1
metacognitive reflection	1
interaction & collaboration	1
FLEXIBLE & ITERATIVE LEARNING	**9**
safe learning	1
flexible/personalized approaches/strategies to learning	1
problem-solving	2
Discovery	4
CREATING OCNDITIONS	**5**
requires compatible curricula/pedagogy/assessment	5
RELEVANCE	**14**
matches sociocultural context	1
Matches current practice in HE & beyond	6

Employment	1
Meets students' learning style/preferences/interests	6
EFFECTIVE LEARNING	**29**
enhanced learning	2
promotes praxis	1
motivational/emotional growth	7
creativity	4
self-efficacy (mastery of learning)	9
individuality	3
Enhances efficiency	1
achievement	1
TRANSFERABILITY	**26**
links to future learning	2
novel experiences	8
wider contexts	2
skill is transferable	1
future employment demands	14
Challenges	**66**
Personal (student-related/teacher-related)	26
pedagogical	9
infrastructural	2
technical	1
Edu system	1
societal/cultural/ ethical	14
3. Student-centred learning	0
ACTIVE & INDEPENDENT LEARNING	**9**
self-awareness/discovery	4
self-regulation	1
self-direction	2
self-learning	11
FLEXIBLE & ITERATIVE LEARNING	**0**
Discovery	3
trial & error	2
promotes diverse paths to learning	4

Appendix N

CREATING CONDITIONS	**9**
requires compatible curricula/pedagogy/assessment	5
teacher facilitation	4
RELEVANCE	**7**
matches personal style	3
matches current HE learning/practice	3
to real-world	1
EFFECTIVE LEAERNING	**19**
enhanced learning	6
enhances learning & outcomes	4
enhances motivation/emotional growth	2
enhances creativity	5
enhances self-efficacy	3
nurtures individuality	3
TRANSFERABILITY	**6**
Key to future employment	6
Challenges	**58**
Personal (student-related/teacher-related)	29
lacking necessary skills	2
avoiding responsibility	1
lacking prior experience	1
lacking readiness	5
Challenging	2
Unfamiliar with this approach	3
Pedagogical	6
Infrastructural	3
Edu system	6
Sociocultural	6
4. ICT-mediated learning	0
ACTIVE, INDEPENDENT & ENGAGED LEARNING	**1**
interaction & collaboration	1
FLEXIBLE & ITERATIVE/PROCESS LEARNING	**2**
access to rich/diverse resources	2
CREATING CONDITIONS	**1**

Suitable physical environment (infrastructure/resources)	1
RELEVANCE	**42**
learner styles/preferences	1
Employment	2
Matches 21st century learning styles	14
natural/authentic/Real-life (personal experiences/practices	4
Relevance to current practices	21
EFFECTIVE LEARNING	**22**
enhances learning	1
builds self-efficacy	1
improves motivation for learning	2
promotes efficiency	13
TRANSFERABLITY	**2**
links to future learning	1
Employment	1
Challenges	**52**
personal (student-related/teacher-related)	13
Pedagogical	8
Economical	3
infrastructural	15
Edu system	4
Societal	1
C. Learning environment	434
1. Role of expert facilitation	0
ACTIVE & INDEPENDENT learning	**15**
self-learning	5
awareness/discovery of self/abilities/independence	7
FLEXIBLE & ITERATIVE LEARNING	**4**
trial & error	2
discovery	0
awareness of self	1
knowledge building	1
CREATING CONDITIONS	**25**
compatible curricula/pedagogy/assessment	12

supporting docs	1
facilitation (guidance/direction/support)	11
supporting conditions (incentives)	1
RELEVANCE	**12**
current practices/trends	1
matches personal styles/preferences	2
matches learning style in HE	9
EFFECTIVE LEARNING	**0**
diverse outcomes	2
promoting creativity	2
enhances learning outcomes	2
enhances motivation	1
builds self-efficacy	8
nurtures individuality	1
promotes increased learning/engagement	1
TRANSFERABILITY	**0**
prepares for future employment	4
Challenges	**12**
personal (student-related/teacher-related)	24
Pedagogical	15
Edu system	5
Sociocultural	5
2. Learning atmosphere	0
ACTIVE & INDEPENDENT learning	**1**
awareness of self/discovery	4
self-learning	3
self-regulation	1
self-direction	1
interaction & collaboration	13
FLEXIBLE & ITERATIVE/PROCESS LEARNING	**1**
trial & error	31
safe learning	4
promotes discovery	4
promotes creative learning	3

personalized approaches/strategies	1
knowledge/skill building	1
CREATING CONDITIONS	**1**
requires compatible curricula/pedagogy/assessment	3
physical environment	1
Facilitation	5
emotional/intellectual support	1
Additional supporting conditions (incentives e.g., Kudos)	4
RELEVANCE	**0**
matches personal style/preferences	2
matches current practice	1
natural & authentic learning	3
EFFECTIVE LEARNING	**0**
enhanced learning	4
Motivation	2
Creativity	2
builds self-efficacy	1
promotes diverse outcomes	1
TRANSFERABILITY	**0**
prepares for future employment	4
Challenges	**5**
personal (student-related/teacher-related)	23
Pedagogical	4
infrastructural readiness	5
Edu system	4
Sociocultural	4
3. Nature of learning activities	0
ACTIVE & INDEPENDENT LEARNING	**0**
self-learning	2
facilitates reflective practice	1
awareness/discovery of self and abilities	4
FLEXIBLE & ITERATIVE LEARNING	**0**
trials & error	2
promotes creativity	2

Open-ended inquiry/discovery	2
CREATING CONDITIONS	**7**
suitable physical environment (infrastructure/resources)	3
requires compatible curricula/pedagogy/assessment	4
Additional supporting conditions (incentives e.g., Kudos)	2
RELEVANCE	**0**
current practice	1
matches student styles/preferences	6
EFFECTIVE LEARNING	**0**
enhanced learning	7
promotes praxis	8
improves motivation/emotional growth	4
Creativity	12
builds self-efficacy	6
Promotes constructive competition	1
enhances efficiency	1
improve achievement	3
TRANSFERABILITY	**0**
novel experiences	4
future employment	8
sharing learning with others	1
Challenges	**57**
working conditions (unstable)	1
personal (student-related/teacher-related)	25
minimal effort/commitment to make it work	1
Resistance	2
Pedagogical	11
resources/infrastructure	3
Edu systems/cultures	11
Sociocultural	2

Report Summary for Reflective Journals

Code System	Frequency
Code System	648
AMA Engagement	399
A. Pre-production	132
1. Creating the conditions for learning	3
2. Relevant learning	0
3. Flexible & iterative learning	1
4. Active & independent learning	38
5. Effective learning	0
6. Transferable learning	0
CHALLENGES	47
Personal	33
Technical	9
Infrastructural	3
NO challenges	2
SUGGESTIONS	0
Personal	36
Technical	4
Pedagogical	3
B. Production	141
1. Creating the conditions for learning	0
2. Relevant learning	0
3. Flexible & iterative learning	27
4. Active & independent learning	15
5. Effective learning	0
6. Transferable learning	0
CHALLENGES	58
Personal	14
Technical	43
NO challenges	1
SUGGESTIONS	0
Personal	17
Technical	21
Pedagogical	2

Infrastructural	1
C. Post-production	126
1. Creating the conditions for learning	0
2. Relevant learning	0
3. Flexible & iterative learning	8
4. Active & independent learning	37
5. Effective learning	2
6. Transferable learning	2
CHALLENGES	41
Personal	10
Technical	27
NO challenge	4
SUGGESTIONS	0
Personal	23
Technical	12
Pedagogical	1
AMA Pedagogy	0
A. Learning by doing (LBD)	0
1. Creating the conditions for learning	0
2. Relevant learning	3
3. Flexible & iterative learning	0
4. Active & independent learning	3
5. Effective learning	19
6. Transferable learning	3
Challenges	0
Personal	17
Technical	4
Pedagogical	5
NO challenges	1
B. Artefact construction	62
1. Creating the conditions for learning	0
2. Relevant learning	6
3. Flexible & iterative learning	0
4. Active & independent learning	1

5. Effective learning	22
6. Transferable learning	6
Challenges	0
Personal	13
Technical	8
Infrastructural	1
No challenge	5
C. Student-centred learning (SCL)	0
1. Creating the conditions for learning	1
2. Relevant learning	2
3. Flexible & iterative learning	2
4. Active & independent learning	11
5. Effective learning	16
6. Transferable learning	1
Challenges	0
Personal	11
Technical	1
Pedagogical	2
Infrastructural	1
NO challenges	13
D. ICT-Mediated Learning	1
1. Creating the conditions for learning	0
2. Relevant learning	23
3. Flexible & iterative learning	0
4. Active & independent learning	0
5. Effective learning	18
6. Transferable learning	1
Challenges	0
Personal	6
Technical	6
infrastructural	7
pedagogical	4
NO challenges	5

Appendix N

Report Summary for the Two-Part Validation Phase Consisting of One-To-One Interviews and a Follow-Up Focus-Group Discussion

Code System	Frequency
Code System	60
Part 1. One-to-one interviews	0
1. The analysis matches their views	2
2. Really captures their views	4
3, Clear representation of their ideas	4
Part 2	0
1. Holding similar views	0
2. Adding additional views	12
Nothing to add	2
3. Modifying/changing their views	3
Part 2. Focus group	0
Participant validation process/procedures	12
Examples to substantiate	17
How can the analysis be done differently	4

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