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UNIVERSITY OF SOUTHAMPTON

FACULTY OF LAW, ARTS & SOCIAL SCIENCE

School of Humanities

**Towards enhancement and assessment models and a measuring scale for language
learner autonomy in a 21st century blended learning environment in tertiary
education: an intervention study in Saudi Arabia**

by

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ABSTRACT

FACULTY OF LAW, ARTS & SOCIAL SCIENCE

SCHOOL OF HUMANITIES

Thesis for the degree of Doctor of Philosophy

TOWARDS ENHANCEMENT AND ASSESSMENT MODELS AND A MEASURING SCALE FOR ENGLISH LANGUAGE LEARNER AUTONOMY IN A 21st CENTURY BLENDED LEARNING ENVIRONMENT IN TERTIARY EDUCATION: AN INTERVENTION STUDY IN SAUDI ARABIA

Sahar Matar Alzahrani

This research reports on an intervention study which aims to examine and enhance the language learner autonomy (LLA) of a group of Saudi students at tertiary level following a blended course and to assess the improvement in their LLA after the intervention. Thus, this study proposes two research models: one for the enhancement and another for the assessment of LLA in the 21st century and establishes a scale for the measurement of LLA.

The study was conducted in a semester-long (13 weeks) undergraduate Medicine ESP Course in Saudi Arabia. The blended course was taught to two groups of Medicine students in their preparatory year (online and offline).

The mixed-method design of this research uses an experiment to investigate the effect of the online mode on the enhancement of LLA and a case study to further explore the construct of LLA and the way improvement in LLA was taking place besides validating the proposed measurement scale.

Little's (1999; 2001) model for the enhancement of LLA, with its three interrelated principles, was expanded using Schwienhorst's (2008) suggestion. Learner training was provided to students to enhance their metacognitive knowledge and to improve their skills and competences in language learning. Medical English content relevant to their subject was selected for the supplementary material to increase the learners' motivation to engage. As the research goal was to enhance LLA, there was no particular focus on language skills. Language learning strategies as the underpinning

pedagogical framework were tailored in a task-based format to design the supplementary component of the blend.

A variety of learning/ teaching approaches were also deployed in the tasks chosen for the course content. These support the learners' cognitive engagement and interaction in a collaborative way to exploit the learners' cognitive and social dimensions in line with recent views of learner autonomy in the language classroom (e.g. Vygotsky, 1978; Dam, 1995; Seeman and Tavares, 2000; Thomsen, 2000; Little, 2001; Lamb, 2010; Benson, 2011; and Tassinari, 2012, 2015). The supplementary component of the blend was used with on- and off-line treatment groups and these two different modes aim to test the impact of technology on the enhanced LLA. Tools built into a Virtual Learning Environment (VLE), Desire2Learn, were used in the design of the online element of the blended course.

For the assessment of LLA, quantitative and qualitative methods were triangulated in a mixed-method research approach to look at it through the learner voice and metacognition (process perspective) as well as through the learner gained tests scores (product perspective) as LLA is a combination of observable and non-observable behaviours. A model was developed to assess LLA starting with the quantitative measurement and moving on to the qualitative part of the assessment to test the reliability of the measuring scale. To overcome the problem that LLA is an unsteady state, the assessment model integrates summative and formative assessment methods.

Findings from the integrated data types shows that the training is more important for the development of LLA than the technology, but technology is effective in making a difference between individuals in the improvement in LLA capacities mainly confidence, reflection, planning, and learning management. It also finds that learners' language proficiency is a key indicator for their LLA and that the assessment of LLA helps to better understand the process of LLA enhancement and the potential factors that might influence learners' LLA. Finally, the qualitative part of the assessment helps to capture the effect of learners' willingness (attitude and belief) on their readiness to accept the effort exerted to enhance their LLA which illustrates the need for examining learners' readiness before starting any plan for LLA enhancement.

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DECLARATION OF AUTHORSHIP

I, SAHAR M ALZAHRANI,

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

TOWARDS ENHANCEMENT AND ASSESSMENT MODELS AND A MEASURING SCALE FOR ENGLISH LANGUAGE LEARNER AUTONOMY IN A 21st CENTURY BLENDED LEARNING ENVIRONMENT IN TERTIARY EDUCATION: AN INTERVENTION STUDY IN SAUDI ARABIA

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
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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;
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Definitions and Abbreviations

ALA= attitude towards learner autonomy

ATU= attitude towards technology use in language learning

BL= blended learning

BLL= blended language learning

CALL= computer-assisted language learning

CG= control group

CMC= computer-mediated communication

CR= critical reflection

EL= e-learning

FG= focus group interview

LCG= Language course grades

LLA= language learner autonomy

LLS= language learning strategies

LPT= language proficiency test score

MBL= motivational belief about learner autonomy

MBT= motivational belief about technology use in language learning

OFTG= offline treatment group (Lama and Maha)

ONTG= online treatment group (Nora and Samia)

PSU=perceived strategy use

RWF= reflective writing forms

SA= Saudi Arabia

SAC= Self-access centre

SALL= Self-access language learning

SLA= Second language acquisition

SPR= self-proficiency rating

SRS= self-rating scale

T1= time 1 (before the experiment)

T3= time 3 (after the experiment)

TL= Target language

VLE= virtual learning environment

Chapter 1: Introduction

1.1 Overview of the research

This research concerns the interface between language learner autonomy (LLA) and the use of technology in education. It focuses in particular on the enhancement and assessment of LLA in a blended self-access language learning (SALL) environment.

In the 21st century, technological advancements have proliferated around the world including the educational field. The appearance of educational technology has highlighted the power of technology and its impact on teaching methodologies (Reinders and White, 2016). It is becoming clear that the use of technology in learning assumes a certain level of learner autonomy and there is a need for further research into the connection between Computer-assisted language learning (CALL) and LLA and for a shift in the roles of teachers and learners (*ibid*). We can argue that technology is shifting research focus from formal learning environments to tracking learning experiences outside the classrooms (*ibid*).

LLA can be found in different learning contexts such as classroom learning, online learning, self-access learning, or informal learning (Tassinari, 2015: 67). LLA can be enhanced in a formal learning context such as classroom or in a more open learning space such as self-access centres (SAC) with a learning advisor (e.g. Mozzon-McPherson, 2012). In both types of learning contexts, different means can be used to help enhance LLA such as technology or learner training.

It is argued (Everhard, 2015a) that one of the main changes that teachers need to undertake when they aim to empower their learners is to change assessment practices within their classroom. This requires exerting time and effort. Assessment of LLA is one of the most difficult tasks for the teacher (and the researcher) in SALL because other variables are in play including the use of technology (Reinders and Lázaro, 2007). Assessment is often undertaken using ‘underdeveloped methodologies and assessment tools’ (*ibid*: p. 1).

This research investigates learner autonomy in language learning in terms of its enhancement and assessment. I chose to use the term ‘enhancement’ of LLA because I intend to have this sense of positive action by the teacher in order to promote the development of LLA. I use ‘measurement’ to refer to the quantitative work which provides numerical evidence on the level of learners’ LLA; and I use ‘assessment’ for the broader process of assessment of LLA including the use of quantitative and qualitative data collection methods.

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This research aims to propose two models of autonomy: one for the enhancement and another for the assessment of LLA in the twenty-first century at tertiary level. This research is carried out with university students in Saudi Arabia (SA). It is planned in this study to explore and enhance students' LLA using both technology and pedagogy for learner training based on best practice identified in the research literature. I will examine the impact of each one of these two on students' LLA bearing in mind that there are several components underpinning the concept of LLA and that the lack of any one of these components may influence the level of students' LLA.

Chapter 1 introduces the aim of this research with the background for the choice of the terms 'enhancement', 'assessment', and 'measurement'. It will give the justification for the selection of Saudi learners, the rationale for this study, its aims, and an outline for the structure of the thesis.

1.2 Background and motivation for the study

1.2.1 Why measurement and why assessment of learner autonomy?

The literature on assessment as well as autonomy has seen lots of disagreement about the terms to use (Everhard, 2015a:16). Tassinari (2015) favours the term 'evaluation', whereas 'assessment' is the preferred term in the chapters of Everhard and Murphy's (2015) edited book (Everhard, 2015a:15), though they can be used as identical terms (ibid).

A distinction is made in the literature between evaluation or assessment and testing (Everhard, 2015a). Everhard (2015a) defines testing as the process which takes place at the end of the learning experience to examine how much of the learning experience learners can output in a testing style. Sambell (2013) illustrates that the down side about testing is its encouragement for meaningless learning which depends on memorization and less long-term effect (ibid).

Evaluation is defined as "a reflection on the learning process and its results, involving both learners and teachers or learners and advisors, according to the learning context" (Tassinari, 2015: 65) and it is used largely to examine the success of any approach or program in the field of education (Everhard, 2015a) through learners' and teachers' reflection on the improvement in language learning and teaching which will increase the awareness about and lead to other decisions (Dam & Legenhausen, 2010).

Murase (2010, 2015) made another distinction between measurement and assessment based on Bachman's (2004) definitions. She defines assessment of LLA as giving learners a score for their autonomy level by collecting information about their autonomy 'qualitatively or quantitatively' (p. 38). Whereas, measurement of LLA is the process by which the components related to LLA, which

represent the conceptual framework of LLA in a specific culture, are quantified. Tassinari (2015: 64) believes that measurement (e.g. Murase's, 2015) and assessment of autonomy (e.g. Cooker's, 2015) refer to a process related to some autonomy-related research areas.

Tassinari (2015: 64) notes that there are two approaches in the area of LLA assessment: (1) 'to do the assessment for autonomy' (2) 'the assessment of autonomy'. Assessment for learning 'becomes "formative assessment" when the evidence is actually used to adapt teaching work to meet learning needs (Black and Jones, 2006: 4)' (Lamb, 2010: 100). Lamb (2010) defines the assessment for autonomy based on Black and Jones' (2006) definition of assessment for learning and explains that assessment for autonomy is the one which is planned and undertaken for the purpose of enhancing LLA. Hence, its aim is not only to assess learners' levels of LLA, but also to enhance their metacognitive knowledge about themselves and to help teachers improve their understanding about the construct of LLA and how it can be promoted (Lamb, 2010). Assessment for autonomy improves autonomy in the same way that assessment for learning improves learning (ibid). Lamb (2010) advances that focus group interviews can work as a method for assessment for autonomy to improve learning because it gives access to learners' 'metacognitive knowledge' (p. 102).

Given the distinctions recurring in the literature of autonomy assessment, a shift from the assessment focus which 'merely measures and certifies' to the one which is embedded and designed in the learning process is being called for (Everhard, 2015a). Peer- and self-assessment (i.e. evaluation) are two examples of assessment for autonomy, a greater 'pedagogical and formative process' because they hold 'pedagogical aims' and are undertaken by learners with their teachers (Tassinari, 2015: 64).

In this research, I use the three distinct terms: 'assessment for autonomy', 'measurement of autonomy', and 'assessment of autonomy'. I start with the assessment for autonomy where learners assess themselves on different aspects of their learning on different occasions to raise their awareness and enhance their LLA: before the treatment is given, formatively while they are learning, and summatively after the learning experience. Then, I move to the level of the measurement where I use learners' self-rating on different aspects of LLA in a questionnaire to create a score for learners' LLA. From that score, I was able to create a measuring scale for LLA with ten bands. Then I moved to the assessment of autonomy in which I examine the validity of the LLA scores of four selected case studies by comparing the change they made in their LLA scores with their qualitative self-assessment; and with my observation of their offline and online performance. This comparison process helped me to identify the actual level of learners' LLA and to identify factors which can influence learners' LLA enhancement.

1.2.2 Why Saudi learners?

First, I am a teacher of English and used to be a learner in this context and I wanted to understand the nature of learner autonomy in this context. I understand that the context itself is likely to affect what I find.

Second, autonomy has been extensively discussed from different perspectives in the literature, but there are a handful number of studies addressing it in the Arab world, in particular in SA. This study can also fill a gap in the wider autonomy literature.

Third, the discussion in the literature about the cultural appropriateness of LLA made me think of exploring whether it is appropriate to seek the implementation of this concept in a non-western context (e.g. Saudi Arabia) and what characteristics I can identify in this context. I also aim to explore whether it is possible to generalize the results of the study on the population in this context (see section 8.2).

1.3 Rationale of the study

The origin of my interest in this research is my own professional experience in teaching as a teacher of English language for specific purposes in Higher Education in a context where English language is used as a foreign language. I remember that learners in this context before the launch of the preparatory year were required to take the course of English as one of the general courses and they can select the semester in which they would like to take this course. However, not all learners were excited about this course and they were trying to select the semester in which it is taught by teachers who are known of making the subject appealing. They needed help to increase their engagement with English learning and to satisfy their language learning needs and interests. Those learners are low in their language proficiency (Al-Seghayer, 2015) which encouraged me to find some innovative ways to support them in using English competently in their field of study and practice as autonomous learners.

Now, technology is used everywhere and for multiple purposes and many sorts of educational tools have emerged in the field of learning and teaching languages (Reinders and White, 2016). The number of universities offering online degrees or blended programmes is increasing in the Saudi universities (see section 4.2.3). Therefore, the administrative personnel of the English programme and the educators in the research context need to cope with the changing world and to implement new forms of support for the learners. Learners' thinking and learning strategies need to work in line with the change happening in the world of technology in the twenty-first century. The personal- and literature-informed assumption (e.g. Murphy and Southgate, 2011)

that technology can be used for the purpose of enhancing English language teaching and learning was one of my motivations. Hence, I started to think of an innovative way to turn the learning environment into an interactive, fruitful, more of a laboratory-like nature to facilitate learners' freedom to explore and try things individually or in groups. The idea of designing a blended course sprang from the belief that face-to-face instruction is very important for the learners in many respects and is unavoidable and from the belief that online instruction is in many ways advantageous.

Because I aim to support learners with skills that help them learn on their own and become lifelong learners and because I intend to give them opportunities for choice, language use, and decision-making, I knew that technology is not enough for this purpose. I had to search for pedagogy that can support the technology I will introduce to learners. I searched the literature for a pedagogy for the 21st century and I came across Little (1999a), Eck *et al.* (1994), and Schwienhorst's (2008) models for the enhancement of learner autonomy in language learning (LLA). From Schwienhorst's (2008) suggestions, I had the idea of expanding that model to fit the 21st century skills. I designed the whole program for the enhancement of LLA based on the expanded version of the model and a sequence of decisions were then made about the details of the training to be designed with the aim of exploring the effect of students' technology use in a blended course on the enhancement of their LLA.

The assessment of LLA appeared when I started thinking about the reliability of my claims after conducting the action research. I needed evidence for the impact of training and technology which led to the adoption of the experimental design with three groups of different conditions (i.e. online, offline, control) to confidently postulate my claims. Yet, I believe that all of that is not enough and that I need a tangible evidence to claim that my intervention worked successfully in the same way that all language teachers do when they give a score for their learners' language proficiency. I was unable to find an established scale to measure their LLA which shifted my focus to more reading in the literature of assessment of LLA.

Consequently, I formed my own definition of LLA with its underpinning concepts as the theoretical framework for the construct. The model for the assessment of LLA with its components was developed based on the concepts reported in the literature and which I believe to be relevant to LLA in the 21st century. Doubts about whether it is the training or the technology that caused the improvement and about the reliability of using only quantitative scores made me include students' qualitative data. Qualitative assessment methods would get some insights on whether or not their LLA was developing and how that happened if it did.

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Besides, some of the underpinning concepts are best to be assessed qualitatively (e.g. critical reflection and metacognitive knowledge).

All of these reasons made me design the model for the assessment of LLA with both quantitative and qualitative methods for formative and summative assessment which looks at both learning outcomes and learning process as represented in learners' language competences, metacognitive knowledge, metacognitive strategies, confidence, beliefs, and attitudes. I did not set out with metacognitive knowledge as a separate component in the model because I wanted to assess it through learners' qualitative expression of their beliefs and attitudes. Metacognitive strategies were assessed using learners' qualitative data through the focus group and interviews data.

Confidence was not there in the model when I started but it appeared from the qualitative data as an important factor in the enhancement of LLA. These three concepts were assessed qualitatively, but I recommend including them in the quantitative measurement scale as separate components.

The training I provided ensured to offer learners the opportunity to make decisions about their learning in terms of learning time, place, and task as well as to assess themselves in different learning aspects. This appeared to be successful that learners reported in their qualitative data engagement with the training (though with varying degrees), expressed their satisfaction about the experience, and gave recommendations to give the same training to the following cohorts. Most importantly, students' LLA levels appeared to increase with different amounts of improvement across individuals and groups.

1.4 Research aims

The study uses an experimental and case study approach to explore how to enhance LLA and how to assess it in a blended learning environment. This central goal can be broken into micro aims: enhancing students' attitudes towards and perceptions of LLA and technology use in language learning; increasing students' target language (TL) use and language proficiency; improving their reflectivity; and increasing their engagement with technology use and with the learning material.

1.5 Research questions

The experimental design is used to enhance students' LLA using technology and learner training in a controlled way in order to examine the impact of each of these two variables. The identification of this impact requires finding a way to measure the enhancement students may make in their LLA and in the individual components of LLA over time. The measurement of each component identified in the literature as a manifestation of LLA will be combined to do the overall

measurement. Therefore, this research sets out to ask the following questions (for more details, see section 4.3):

RQ1. How can we measure the development of LLA within a blended learning environment?

RQ1a. What are students' perceptions of their language competence?

RQ1b. How proficient are students in language learning?

RQ1c. What attitudes and motivational beliefs do students hold about LLA?

RQ1d. What attitudes and motivational beliefs do students hold about technology use?

RQ 1e. How reflective students are?

RQ 1f. What is students' perceptions of their use of LLS?

RQ2. What is the impact of students' technology use in language learning on the enhancement of their LLA?

RQ3. What is the impact of learner training on the enhancement of their LLA?

1.6 Thesis structure

The structure of my thesis is as follows:

The current chapter introduces an overall picture of the research. It presents background information about the research site and decisions on terms within the area of assessment, the research rationale, aims, and questions.

Chapter 2 introduces aspects related to LLA development such as definitions, learning theories, constituents, members' roles, and remedy or deconditioning for low autonomous learners. The connection of LLA with both of learner training and technology use is tackled. Examples of models from the literature and the model proposed for LLA enhancement is discussed.

Chapter 3 discusses the complexity and problems of autonomy and assessment along with researchers' responses to these problems. It reviews previous studies on LLA assessment and explain the gap in this literature. It explains the two versions of the model proposed for the assessment of LLA with their components along with the created measuring scale.

Chapter 4 is devoted to the methodological part including the research questions, design, methods, sample, phases, and data collection instruments and procedures. It discusses how the

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assessment model started, processed, and turned into a scale along with the decisions taken through the research analysis and writing.

Chapter 5 tries to answer the first research question by analysing the model components both quantitatively and qualitatively before looking at the whole picture of LLA assessment in both approaches. The conclusions about LLA enhancement taken from the measurement will go through a testing process for each of the case studies.

Chapter 6 looks at the second research question from both approaches to examine the relationship between technology use and LLA development. It will try to answer the third research question qualitatively only using four case studies to investigate the effect of the training on learners' LLA progress.

Chapter 7 provides an overview of the experiment, some conclusions about the quantitative LLA measurement, and how quantitative and qualitative approaches relate. It carries out a weighting process for the model components in both approaches and illustrates the link between the two proposed models and their underpinning theory. It explains the factors influencing LLA and what need to be done if some factors were working negatively.

Chapter 8 discusses the cultural aspect of LLA and its implications in this research and a summary of the answers to the research questions. It provides the research contribution, limitations, and suggestions for future research.

Chapter 2: Enhancement of language learner autonomy

2.1 Introduction

The development of the learner capacity to take control of learning “has usually been one of the implied aims of education, it has only rarely been a central and explicit concern of pedagogical practice” (Little, 1999a). This nowadays need for reformation of language pedagogy entails the use of new ways (i.e. self-access, distance learning, information technology, or BL). Learner autonomy can be fostered through diversity of learning areas such as flexible learning, BL, metacognition and learner reflection, and using various tools (e.g. learning journals and portfolios, and formative assessment) (Lamb and Reinders, 2005).

Having said that this thesis is interested in the enhancement of LLA, it takes into account that there are multiple ways to achieve this enhancement. Based on the assumption that LLA can be enhanced, here I am looking for the use of two possible ways to enhance it (i.e. learner training and students’ technology use). In order to work on the enhancement, researchers should make sure that students’ skills are susceptible and that they can benefit from the training. There has been much discussion about the positive impact of technology use to enhance students’ LLA (see section 2.8.1).

This chapter concerns the enhancement of LLA in SALL in a blended course. It provides definitions and constituents of LLA, related learning theories, the roles of teachers and learners in this learning approach, and the deconditioning process for learners with limited LLA capacities. It introduces how technology use and learner training can work as tools to develop LLA. It presents the model proposed in this study for the enhancement of LLA with elaborated discussion of its components from the literature and how it was implemented to develop the study reported in this research.

2.2 Definitions of Learner Autonomy

Learner autonomy has been discussed and defined in the literature of second and foreign language learning. Because of the multidimensionality of learner autonomy, there have been attempts to define it from several perspectives (Smith, 2008). The definitions given by different theorists tend to differ slightly.

It is only in the 1990s that learner autonomy was linked to language learning and the development of second language proficiency (Smith, 2008; Little, 2007). Little (1991: 4)

significantly contributes to the notion of autonomy with his definition of autonomy as “a capacity-for detachment, critical reflection, decision making, and independent action” (Benson, 2001). Since LLA is often considered to be multidimensional, Benson (2001: 49) suggests that Little adds another (psychological) dimension to the Vygotskian view of learner autonomy. In this view, autonomy is looked at as a phenomenon that includes both ‘individual-cognitive’ and ‘social interactive’ notions, involves ‘interdependence’, and adopts freedom and choice (ibid). By ‘detachment’, Oxford (1999) explains that Little does not mean detachment of learners from their communities, institutions, or materials. He rather means that the development of learners’ cognition requires them to be socially engaged for assistance purposes and at the same time to be detached for individual-reflection purposes.

Prominent scholars (e.g. Dam, Eriksson, Little, Miliander, and Trebbi) put forward the Bergen definition which combines promotion of LLA and the importance of interdependence as a form of sociocultural theory which refers to LLA as “a capacity and willingness to act independently and in cooperation with others, as a social, responsible person” (Dam *et al.* 1990: 102). By the twenty-first century, autonomy has formed chapters or sections of the textbooks used for language teacher education (Smith, 2008). However, there has been little or no consensus on what (LLA) actually is (Little, 2007). The concept integrates ideas from different fields of knowledge including Philosophy, Politics, Pedagogy, and Psychology (Schwienhorst, 2008). Oxford’s (1999: 110- 111) definition involves the willingness to learn and the capacity:

learner autonomy is the (a) ability and willingness to perform a language task without assistance, with adaptability related to the situational demands, with transferability to other relevant contexts, and with reflection accompanied by (b) relevant action (the use, usually conscious and intentional, of appropriate learning strategies) reflecting both ability and willingness.

Little’s (2007: 14) view of LLA argues that “the development of learner autonomy and the growth of target language proficiency are mutually supporting and fully integrated with each other”. Benson (2010) defines autonomous language learners as “learners who are in some sense ‘in control’ of important dimensions of their learning, which might otherwise be controlled by others or by nobody at all”. Everhard (2015a: 11) quotes Benson’s suggestion that “autonomy is best defined as ‘a composite of abilities, attitudes or dispositions’”. She uses Dickinson’s view to form a definition of LLA as:

‘an attitude towards learning’, which shows a capacity (my emphasis) for ‘independent learning’ (1987, p. 166), but in order for this attitude and capacity to be developed, learners have to be able to judge the degree of success of their learning (self-assessment) and they have to be capable of making decisions about their learning (monitoring) (1987, p. 16) (p. 21).

Tassinari (2012, 2016) has a higher-order view of LLA as “the metacapacity, i.e. the second order capacity, of the learner to take control of their learning process to different extents and in different ways according to the learning situation”.

Esch (1997) illustrates that learner autonomy involves the sense of independence which is the opposite of learners’ dependence on the teacher, rather than as a reference to the individualistic view which emphasises learning in isolation. In fact, recent views of learner autonomy highlight the interdependence (Dam, 1995; Esch, 1997; Little, 1991; 1999a, Tassinari, 2015) which the advocates of the Vygotskian sociocultural theory (e.g. Little, 1996; Little, 2001; Benson, 1996; Sinclair, 2000a) believe can take place through the communication and support shared among learners or between learners and teachers. This meaning of independence which relies on interdependence as a means to move to independence (Tassinari, 2015) has an implication for the meaning intended for independent learning of autonomous learners as illustrated in the present thesis

The definition of LLA adopted in the current study is a combination of elements drawn from the definitions of Tassinari (2016), Littlewood (1996), Benson (2010), Dickinson (1987), and Little (1999a): Learners’ “metacapacity, i.e. the second order capacity” ... “to take control of their learning process to different extents and in different ways according to the learning situation” (Tassinari, 2016: 120). This metacapacity entails learners’ “independent capacity to make and carry out the choices which govern his or her actions” (Littlewood, 1996: 428), “to use the acquired knowledge and skills confidently, flexibly, appropriately and independently of the teacher” (Benson, 2010: 81), and to judge ‘the degree of success’ of their learning (self-assessment) (Dickinson, 1987: 16; Little, 1999a).

My definition has the purpose of identifying the components vital to LLA in different learning contexts and how these components can be promoted whether in a classroom or in a more open learning environment (i.e. self-access learning). The autonomy-related components underpinning my definition of LLA draw on the definitions of well-known scholars in the literature of LLA (e.g. Holec, 1981; Dam *et al.*, 1990; Little, 1991; Littlewood, 1996; Oxford, 1999; Benson, 2010; Tassinari, 2016), to mention a few of the most influential ones. These components are:

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- 1) Learners' willingness (i.e. attitude and belief) (Littlewood, 1997; Sinclair, 2000a, 2009; Chan, 2001; Tassinari, 2012; Le, 2013; Everhard, 2015a; Kohonen, 1999, 2012 cited in Everhard, 2015a);
- 2) Learners' confidence (Cotterall, 1995a; Dam and Legenhausen, 2010);
- 3) Learners' capacities
 - (3a) Language competencies (Little, 1999a; Oxford, 1999; Sinclair, 1999a; Little, 2003a; Morrison, 2005; Schwienhorst, 2008; Benson, 2010; Peek, 2015);
 - (3b) Metacognitive knowledge (of self, language, learning process, and strategies or skills) (Littlewood, 1996; Le, 2013);
 - (3c) Metacognitive strategies (i.e. planning, reflection, learning management, and self-assessment) (Tassinari, 2012; 2016).

In order for these components of LLA to be enhanced, learners have to be given opportunities to reflect and judge 'the degree of success' of their learning (self-assessment) (Dickinson, 1987: 16; Little, 1999a), to use the target language, and to explore information (Little, 1999a) with the help of empowering language learning material, technological tools, and a pedagogy (Schwienhorst, 2008). The sociocultural perspective of LLA acknowledged by Oxford (2003) can be seen in the interaction and in the scaffolding opportunities learners are offered through the teacher and the collaborative learning among learners to promote learners' autonomy in the sociocultural context of tertiary education.

I admit that this definition is lengthy and this was expected by Le (2013) when a comprehensible definition to LLA is to be considered, but I intend to have an 'explicit' definition (Benson, 2001: 94) which combines an explanation of the 'WHAT' and the 'HOW' in relation to capacities of autonomous learners as suggested by Benson (2007a: 23) in his criticism to Holec's definition. The definition adopted for LLA in the present research and the components of the model I am proposing for LLA enhancement (see section 2.11) have implications for essential elements of the learner training in this study (see section 2.12).

The models I am proposing in this research for the enhancement and the assessment of LLA have been developed to go in line with this definition. The model I am proposing for the enhancement of LLA has not been tested statistically but has been tested through practice inside and outside the classroom. Conversely, the model proposed for the assessment of LLA (see section 3.7.4 in chapter 3) has been set out quantitatively and has undergone a process of testing to validate the quantitative results of LLA levels using students' qualitative data (see section 3.7.4).

2.3 Theories of learning related to autonomy

Theories, definitions, interpretations, and practice in autonomy in language learning appeared in the literature accompanied with names of well-known figures in language research such as Holec (1981; 2007), Dam (1995; 2003), Little (1991; 2003a; 2007), and Benson (2001; 2007a; 2007b; 2007c). The practice of autonomous learning is related to several learning theories. This section discusses the most relevant theories which learner autonomy draws on, e.g. constructivism, constructionism, and the Vygotskian theory. Students' autonomous behaviours reflect the mechanism of the process of learning in these learning theories.

2.3.1 Constructivism

Little (2007) and Levy and Stockwell (2006) demonstrate that constructivism has many different forms but they all share one claim: people construct knowledge by building new information and experiences on what they have already knew. The constructivism deals with 'working hypotheses' rather than 'universal truths' (Airasian and Walsh, 1997: 45). Along with the individual-cognitive views of learning, constructivism has increasingly embraced social-interactive views in which interaction with the teacher and among learners constructs knowledge and meaning (Schwienhorst, 2008). Thus, the learner is given opportunities for construction of and ownership of ideas; while the teacher plays the role of facilitator (*ibid*). Paiva (2006) maintains that autonomy is a system where social and cognitive dimensions of the learner interact. In other words, when learning, learners deal with the linguistic structures cognitively and the social dimension of learning appears when they use language to communicate with others.

2.3.2 Constructionism

Papert (1991 cited in Schwienhorst, 2008) views constructionism as being extended from constructivism because it goes beyond Piaget's (1977) constructivism. A slight distinction exists between the two theories that constructivism (with v) focuses on knowledge being constructed by learners rather supplied by teachers; at the time that constructionism (with n) has a further dimension that this knowledge construction takes place when learners are involved in constructing external and shareable objects (Schwienhorst, 2008). It highlights learners' participation in the learning environment (*ibid*) and making personal connection with their works (Resnick, 1991 cited in Schwienhorst, 2008). This is linked to learners' need to experiment with the language material (Schwienhorst, 2008) (see section 2.11.3).

2.3.3 Vygotsky's learning theory

The difference between the Vygotskyian view of learning and the constructivist view, according to Benson (2011), is that the first puts more emphasis on social interaction. It is recently that Vygotsky has influenced theories of LLA; and, in this respect, he gives collaboration the primacy in the development of autonomy. "Constructivist and Vygotskyan theory entered the field of autonomy in the 1990s primarily through the work of David Little" (p. 42); and the main idea of these learning theories influencing LLA is the importance of active learning in achieving effective learning. Autonomy in language learning has borrowed from constructivist and Vygotskyan views the central idea that successful learning is 'active' learning (Wang and Peverly, 1986).

Implications for these learning theories will be explained in relation to the model I am proposing for the enhancement of LLA (see section 2.10).

2.4 Constituents of Learner Autonomy

When the aim is to enhance students' LLA, we need to know what skills or competences we want our students to develop in order to be more autonomous. Likewise, measuring their LLA level requires knowing what capacities or behaviours are being measured. Autonomy is claimed to be "a complex and multifaceted concept", which is difficult to be fully described in one comprehensible definition as it consists of various components (Benson, 1997: 29). Benson (2007a) asserts that it is tricky to identify disconnected components of autonomy in language and that this question remains debatable. Benson's (2011) view of the concept of autonomy is that it is complex and it comprises many constructs which are all different from the construct of autonomy itself.

Candy (1991: 459-466) in Benson (2010) lists more than a hundred components of autonomy as were found in educational research. Examples of those constructs include: language awareness, motivation, strategy use, learner beliefs, and metacognition (Benson, 2011). None of these constructs, not even the construct of autonomy itself, is a 'discrete observable construct' (Benson, 2010; 2011: 66). Due to the fact that it consists of many constructs, we can tell if a learner is to some degree autonomous when we observe those constructs and treat them as manifestations or 'indexical' behaviors of autonomy (p. 65). The result is that learners can be autonomous in totally different ways and the construct of autonomy itself can be seen in different forms (ibid).

A debate in the literature of learner autonomy about what might constitute the construct of autonomy is undeniable. Lamb (2010) maintains that the development of autonomy means the development of learners' self-regulation, i.e. learners need to develop metacognitive knowledge

to be able to control their cognitive processes of learning. In the contexts of foreign language education, Benson (2010) states that there is evidence of “relationships between autonomy and strategy use (Wenden, 1991), certain kinds of learner beliefs (Cotterall, 1995), metacognitive knowledge (Wenden, 1998) and motivation (Ushioda, 1996)”. Morrison (2005: 280) reports a comment by one of the participating teachers in his study that progress in learning in a self-access centre is related to a development in learners’ language proficiency, motivation, or engagement.

The learner-centred approach to teaching helps learners through the development of a variety of learning skills and abilities which will facilitate exploration and construction of information to ensure positive learning outcomes. A few of such skills are including interaction and use of the TL (Little, 1999a), strategy use (Oxford, 1999; Benson, 2011), planning (Little, 1991; Wenden, 1991; Cohen, 1998), self-monitoring, application of learned knowledge and reproduction of internalized experiences (Wang and Peverly, 1986), learner reflectivity (Schwienhorst, 2008; Little, 1999a; Wang and Peverly, 1986), motivation (Murphy and Hurd, 2011; Ushioda, 1996; Lamb, 2010), time-management (Jones, 2001), and decision making (Hedge, 2000; Lamb, 2010).

I believe that LLA encompasses the five main components included in my definition of autonomous learners: willingness (i.e. attitude and belief), confidence, metacognitive knowledge (of self, language, learning process, and strategies or skills), metacognitive strategies (planning, learning management, and self-assessment), and language competences (see section 2.2). These five constituents are investigated and a description of the implications for these theoretical constituents of LLA is given later in this research as the components of the two models proposed for the enhancement and the assessment of students’ LLA (see sections 2.11 and 3.7.4). Figure 1 illustrates the link between these five theoretical constituents and the two models I am proposing for the enhancement and the assessment of LLA (see also section 7.9).

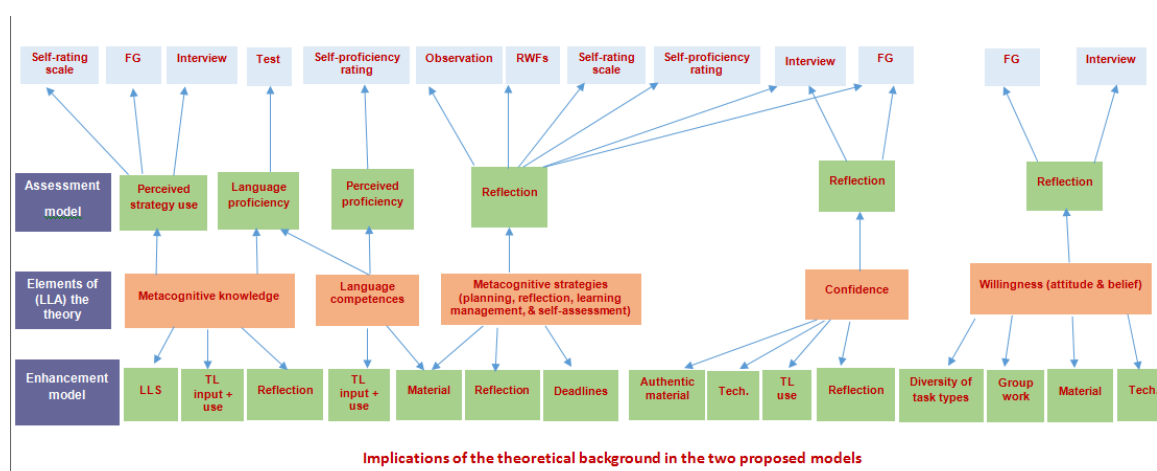


Figure 1: The link between the two models and theory (see an enlarged figure in appendix 22)

2.5 Teachers' and learners' role in learning

Because the approach of learner autonomy entails the shift in the students' and teachers' roles, both parties need to know what their role is. Dam (1995: 42) maintains that it is a must to make a shift in the focus from teachers to learners when the focus is on a learner-centred approach to teaching. Learner empowerment and responsibility for learning should be given to learners from the very beginning of the course, but teachers must not suppose that learners can control all aspects of learning or that all learners can do that from the outset (Little, 1999a). Not all learners have the same capacity for autonomous learning and not all aspects of learning can be managed at the same time (ibid). Teachers should very carefully think ahead of time about the areas and times at which learners can be allowed to take control of the learning process and those at which it is teacher's time to make decisions (Murphy and Hurd, 2011).

The teacher's role in developing learner autonomy is important and this can be fulfilled by upholding the learners' psychological aspects and abilities and by involving learners in classroom activities (Smith, 2008). Schwienhorst (2008) views teacher's role as not to assume responsibility for learners' learning process, but as to provide them with the course design and the learning environment which are appropriate for learners' level of autonomy. Encouraging learners to take responsibility of their learning requires teachers to design flexible learning tasks to enable learners to use their personal experiences as a resource for their decisions (Murphy and Hurd, 2011).

Based on Vygotsky's sociocultural theory, Levy and Stockwell (2006) look at the teacher's role as the support given to learners in order to be able to bridge the gap between what they can do individually and what they need to do within a community. Hurd (2008a) argues that teacher's guidance, support, and intervention are vital for learner autonomy and that is because the concept of learner autonomy entails interdependence among the group including the teacher. Hurd (2008a) emphasises the role of teacher in activating learners in their learning by building a community which learners belong to; by giving them support when they are anxious, isolated, or frustrated; and by giving cognitive or motivational feedback.

The teacher in blended courses plays the role of a mediator who provides feedback on assessment, takes part in online interaction, and is available during the teaching session to support learners (Murphy, 2008a) (see section 2.8.5). Teachers need to guide learners in developing skills of constructive feedback and skills of building on others' feedback (Murphy and Hurd, 2011). This kind of guidance requires teachers to give ideal answers, to comment on learners' discussions, and to ask questions, and after that to gradually withdraw from the interaction to leave the space for learners to communicate freely (ibid). To support learners, it is

vital for teachers to understand autonomy and motivation as autonomy is very important in sustaining learners' motivation in blended learning (BL) environments. This necessity increases when learners need teacher's guidance to take the right decisions in BL environments (Murphy and Hurd, 2011). Implications for teacher's role in this study will be explained later (see section 2.12).

2.6 Deconditioning process before development of LLA

Some learners find the idea of being given the control over their learning unacceptable and it may be because of this low receptiveness from learners along with the purpose of clarity, that classroom and online language learning materials are often guided and structured (Murphy and Hurd, 2011). Efforts to facilitate learning are easily received by learners who are more success-oriented than by those obliged to take a particular course, because they have clear personal and life goals to which learning is related; and, consequently, their motivation is greater (Rubin *et al.*, 2007). Students with low receptiveness to the change may need to undergo a deconditioning process before exposing them to the change (see sections 7.8 and 7.11). Achieving the change we intend to make in our learners and enhancing their learner autonomy does need time, effort, and planning (Everhard, 2015a). Everhard's (2015b) chapter demonstrates "the difficulties of changing learners' preconceptions of teacher and learner roles" (Everhard, 2015a: 12).

One of the changes teachers need to do when they aim to empower their students is changing the practices of assessment they hold within their classroom, which requires exerting time and effort (Everhard, 2015a). This is all because "attitudes towards testing, evaluation and assessment (TEA) are so deeply ingrained within the mindset of individuals and the culture of the community within which they operate (Harris, 1997, p. 12; Valdez Pierce, 1999, 131)" (p. 26). "Those unaccustomed to reflection in any aspect of their lives, may find it difficult to accept" participation in reflective activities if their awareness about its importance is not raised and their attitude towards it is not altered (Hurd *et al.*, 2008: 343). Accuracy in self-assessment, as Kohonen 1999 argued in Everhard 2015a, is a capacity for which learners need 'encouragement', 'support', and 'time' in order to develop due to individual differences among learners (see section 2.11.2.2).

Learners' autonomous behaviour can be affected by the existence or the lack of any one of the components of LLA such as confidence (Cotterall, 1995a) (see sections 2.4 and 7.10). Indeed, teachers aiming to enhance their students' LLA need to specially treat their low autonomy students and to undertake a 'deconditioning process', as was suggested by Holec (1981: 22), to prepare them for autonomous learning before starting the learner training. The deconditioning process involves exploration of their readiness for learner autonomy, as explained in the Bergen

definition (Dam, 1995:1), in terms of their willingness (attitude and belief) and capacities in relation to knowledge of and skills among other factors in the process of learning (Le, 2013: 36) (e.g. reflection and self-assessment). Readiness for LLA is also “related to the capacity to use technology in autonomous learning” (Thang and Alias, 2007; Le, 2013). “Cotterall (1995a: 196) posits that learners’ behaviour is governed by beliefs and experience” (Le, 2013). When students happen to lack a capacity and they are provided with the needed training, they will not be able to develop this capacity if they have a negative attitude and belief about exercising this skill (Sinclair 2000b; Sinclair 2009).

If learners lack any element either in the psychological or the metacognitive domains, a preparation for LLA needs to be considered, as recommended by Holec (1981) (Le, 2013) (see section 7.11). Learners with a teacher-centred background need to be exposed to psychological preparation for the learner-centred approach (Benson, 2011). The psychological preparation is meant to improve students' willingness (i.e. attitudes, beliefs, and perceptions) to move away from the beliefs they hold as dependent learners and to accept ideas that are vital to LLA, such as roles shifting and skills transferability across subjects, in order to be able to perform autonomously (Le, 2013). The psychological preparation is more difficult than the practical as the most difficult job of the teacher in learner training is to encourage learners to take control of their learning especially if they come from teacher-centred backgrounds (Oxford, 1999). Thus, the value of learner training appears when our learners perform passive roles in learning because of their previous educational experiences (ibid). The metacognitive preparation aims to provide them with sufficient knowledge and skills that are needed for the learning process (Le, 2013).

In the present study, the two low autonomy students from both groups- Samia and Maha- were expected to improve as a result of the provided opportunities in the learner training and the offered opportunities for technology use along with the increasing means of change made in LLA by the groups they belong to; however, they were not improving in LLA as was expected. Learners’ individual differences in willingness were not considered before providing learner training, because their psychological readiness was not explored. However, the qualitative data after the training showed that willingness negatively affected their LLA improvement as it revealed mostly negative willingness which suggests that this hindered the expected improvement.

Although I carried out needs analysis to identify students' needs before designing the learner training, I did not consider exploring their attitudes towards and beliefs about LLA as well as technology use in language learning with the purpose of dealing with students whose willingness is low. However, it is interesting that the assessment of LLA undertaken in the present study captured this impact of students' willingness and capacities to establish argument lines about how

LLA improves and what might influence its development along with what needs to be considered before giving them the training. Similarly, because students' readiness in terms of their capacities was not explored in this study before providing the training, I was unaware that some of them have low self-assessment capacity, low reflective capacity, and low capacity to use technology.

2.7 Learner training

As explained at the beginning of this chapter, I seek to enhance students' LLA in two ways. Learner training is one of these and in my study it is designed based on recommendations from the literature on how we can maximize the benefit of the pedagogy we are providing to our students.

2.7.1 Learner training for the development of learner autonomy

Learner autonomy has been tackled by many researchers in the field of language learning; yet, many of them have focused the discussion on its definitions, models, versions, and levels. Therefore, many of the practitioners in the area are not yet sure about how to implement the promotion of LLA in their classrooms (Le, 2013) and only a 'few systematic and pedagogically applicable theories' have been produced for its development (Hsu, 2005: 61). The aim of this section is to give a justification for the use of learner training in this study to promote learner autonomy.

The literature on learner autonomy clearly suggests that the development of learner autonomy cannot take place only by providing learners with new conditions (e.g. giving them access to a 'self-access centre') to learn in isolation and independently from the teacher or by giving them the responsibility to make decisions about their learning (Le, 2013: 58- 59). On the contrary, a preparation for autonomous learning and continuous guidance should be provided to learners either via a learner training inside the classroom or via technological tools to facilitate distance counselling with the teacher when they are outside the classroom (ibid).

Learners would be able to use their personal experiences as a resource for their decisions if their psychological state and capacities are maintained. That could be achieved by incorporating interactive classroom activities (Sheerin, 1997; Smith, 2008), providing the course design and the learning environment which are appropriate for learners' level of autonomy (Schwienhorst, 2008), and designing flexible learning tasks (Murphy and Hurd, 2011). Overall, the aim of the development should be to enhance learners' capacity and willingness to learn autonomously (Little, 1991; Sinclair, 2000a, b).

Trim (1997: v-vi, cited in Benson, 2010) argues that schools should prepare learners with quite good language proficiency level in a particular language together with the provision of the necessary attitude and skills to make them more in control of their language learning process before they reach the level where career is starting. Little (1999a; 1997a: 94) maintains that schools should aim to improve students' skills and attitude (i.e. 'capacity to apply the knowledge and skills learnt in the classroom') as well as language proficiency (i.e. 'capacity to update.. knowledge and .. skills') . In educational policy documents, foreign language learning is increasingly expected to enhance LLA, though no official step has been taken to consider the accountability of this expectation (Benson, 2010).

When LLA is sought to be measured, as Benson (2010) puts it, the aim is to foster autonomy, not for its sake, but to benefit learners in their language learning including proficiency in the foreign language. In other words, the aim is to develop better learners. Lamb (2010) agrees with Benson on the first part that the purpose of the measurement of autonomy is not for its own sake; however, he believes that it is for the sake of both learners and teachers. It aims to enhance learners' awareness of their autonomy and teachers' awareness of what autonomy consists of and how to improve their teaching to have autonomous learners (ibid). Compatible arguments were posited by Benson (2010) and Sinclair (1999a) about the importance of looking at both language proficiency and autonomous learning behaviours when we aim for measuring LLA (see sections 3.4 and 3.7.4).

2.7.2 Terms commonly used for learner training

Though they sprang from two different schools (Benson, 2001, 2011; Wenden, 2002) and they have different terminology, strategy training and learner training now share the same aim, which is the enhancement of the effectiveness of learning and helping learners to learn 'content' and 'approach', but they do that differently (Le, 2013: 59-60).

Benson (2011) and Sheerin (1997) prefer the term 'learner development' but the latter uses it in a broader sense 'the broad range of practices involving training, instruction, and self-directed development' (Benson, 2011: 154). Researchers now (e.g., Ding, 2012) use 'learner training' and 'learner development' with the same meaning (Le, 2013). "The techniques and approaches to helping learners develop greater autonomy can be referred to as pro-autonomy pedagogy, and is most often termed 'learner training'" (Le, 2013: 58-59).

In this research, learner training is used to cover the broader sense (Sinclair, 2006; Benson, 2011) including learner development and learning to learn. Learner training in this study aims to help learners to improve their capacities and willingness for autonomous learning using the

interrelated principles of the model I am proposing for the development of LLA (see section 2.11). I will illustrate how I designed learner training to implement this model to develop the autonomous learning of the university students (see section 2.12).

2.7.3 Designing and teaching learner training

Dörnyei (2005) emphasises one of the recent shifts in strategy training which calls for an integration of explicit strategy tasks with language learning tasks in the design of materials for strategy training. Nunan (1996) supports the idea that language classroom focuses on both the content of language teaching as well as the development of learning processes (i.e. learner strategies). Murphy (2008b) refers to learners' reluctance to work with materials for strategy training when they think that this material is for extra language learning. Learners appeal more to an integrated approach of strategy instruction with focus on learners' awareness raising (ibid). This leads to the teacher's role in facilitating the acceptance of the provided strategy training.

When the aim is to facilitate construction of learner's strategy knowledge, the material design should ensure that the instructions are all contextualized and are directly related to learners' immediate problem. Having strategies anchored in a relevant context and presenting learners with a problem they feel the need to solve would facilitate learners' acceptance of the teacher's help (Rubin *et al.*, 2007). Strategy use differs depending on learners, tasks, and goals which entails presenting strategies based on their usefulness to the context (ibid).

"... Simply teaching about strategies is not effective in enhancing language learning and does not support "autonomization"" (Murphy, 2008b: 92). And so, teachers should use the course materials and manage the class time for learners to engage in reflections, collaborative work, and self-assessment (ibid). Teachers can assign credits for reflective activities and strategy use to promote autonomous approaches to language learning (Hurd, 2008a). Rubin (1987) asserts that metacognitive knowledge should come before any attempt to teach metacognitive strategies, because the knowledge is the basis for the choice of metacognitive strategies. Wenden (1996), however, holds an opposing view which considers strategy training as the main focus of learner training (see sections 3.7.4.1 and 3.7.4.15).

Learner's self-awareness can be promoted by teachers when they confront learners with their linguistic output and their metalinguistic and metacognitive data (Schwienhorst, 2008). Scharle and Szabó (2000: 15-47) prepare a catalogue of classroom activities which teachers can usefully employ to raise learners' awareness (Schwienhorst, 2008). Lamb (2010) recommends finding new ways to access learners' metacognitive knowledge to formatively assess autonomy, which will improve learning (see section 3.7.4.1).

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Explicit strategy instruction was advocated by research evidence. Murayama (1996) stresses that it is vital to ensure that learners share the teacher's intention and that teachers explain the strategies while working on each task. Hedge (2000) emphasises that teachers provide learners with a variety of strategies and guide them to diagnose which ones are helpful for them. Explicit strategy instruction was also supported by Cohen (1998) with emphasis on the development of several learner capacities related to learner autonomy. Along with the disclosure of the course aims and learning outcomes, teachers need to brief learners about the relationship between each learning task and the underlying skills and strategies (Murphy and Hurd, 2011).

Awareness of strategies and matching tasks goals with learner's goals is crucial for the successful use of learner strategies (Rubin *et al.*, 2007). Learners' awareness of the importance of strategies to have more effective learning can be raised using different teaching strategies such as think-aloud protocol, questionnaires, focus groups, 'ask a question' technique, journals, reading about the topic, and strategy assessment (*ibid*). The implementation of the literature on the design and teaching of learner training in this study will be described in the following section (see sections 2.7.4 and 2.12).

2.7.4 Learner training in this study

Because of Little's (1994) argument that learner strategies are vital for the promotion of LLA and because they form the pedagogical focus of the proposed LLA development model, they are central to the learner training program proposed in this study. Using O'Malley and Chamot's (1990: 44-5) classification of the strategies, the language learning strategies (LLS) given as the core of the tasks in the supplementary material that was designed for the learner training belong to the cognitive strategies which "operate directly on incoming information, manipulating it in a way that enhance learning" e.g. summarising and visualisation.

In addition, learners are encouraged to apply metacognitive strategies (i.e. 'higher order executive skills') to work at the overall learning process and to control their learning. This type of strategies is considered in the way the parts of the material are organized within the training program, e.g. planning and learning management. Reflection is another metacognitive strategy which is heavily considered in the design and implementation of the learner training as learners are asked to fill in a weekly reflective writing form immediately after each module and to reflect on the learning experience as a whole in the interview and the focus group.

Social/affective strategies (i.e. 'either interaction with another person or ideational control over affect') are also considered in the collaborative work and the given opportunities for interaction using the TL. This latter type aims to help learners within their sociocultural context. The aim of

having the learner training focused on strategies is to raise learners' awareness of learner strategies and to provide practice opportunities for using them. More information on the design of the training and its implementation can be found in two sections (see sections 2.8.10 and 2.12).

2.8 Technology in language teaching/ learning

2.8.1 Link between LLA and technology

Pedagogy and technology are strongly connected (Schwienhorst, 2008), which means that we also need technology with supportive features just as we need a coherent pedagogical framework. This necessity forms a key component of my own research. A relationship has always been observed between educational technology and LLA (Motteram, 1997). Allwright (1988: 35, cited in Benson, 2011) expresses the view of the late 1980s that autonomy was "associated with a radical restructuring of pedagogy, a restructuring that involves the rejection of the traditional classroom and the introduction of wholly new ways of working".

Nevertheless, Benson (2011), influenced by Sonaiya's (2002) critique of autonomy in language learning in Africa, observes that there seems to be no relationship between development of autonomy and technology use. He adds that the use of technology can foster autonomy but only when technology is an integrative part of learners' everyday life and when autonomy development is sought through technology use for pedagogic rather than economic purposes.

Cameron (2001) notes that it might be mandatory for language learners to experience autonomy due to the changes happening in the world. Benson (2011) asserts that the significance of autonomy in the field of computer-assisted language learning has increased. Because the development of learner autonomy is one of the issues underpinning the use of educational technologies (Schwienhorst, 2008), teachers and researchers need learner autonomy as a pedagogical concept when a decision is made to implement technological tools for language learning. He suggests the three fundamental elements in the development of LLA (interaction, reflection, and experimentation) to emphasize "the need for a learner-autonomy-based pedagogy in CALL" (p. 43) (see section 2.11).

The relationship between LLA and technology use is usually tackled by researchers either in theoretical discussion or as a drive for discussions about design principles and decisions (Blin, 2004). Schwienhorst (2008) views Bax's (2003) call for a shift towards integrated CALL as a shift not only directed towards integration of different media, but also of various technological tools within a sound pedagogical framework (i.e. LLA in the case of the present study).

Schwienhorst (2002) describing the connection between LLA and virtual reality tools, he asserts that they both form “an ideal combination for language learning” (p. 196). Using virtual reality will raise learners’ language and linguistic awareness; support learners’ interaction and collaboration with peers and with native speakers; provides a learner-centred environment for experimental learning (ibid). Based on Chapelle’s questions for CALL evaluation, Benson (2011) explains his rationale for the expected positive effect of technology-based approaches on autonomy development: giving learners the control over the technological device leads to (1) their control over the learning process; (2) having access to authentic TL materials; and (3) participating in authentic interactive TL use.

2.8.2 Blended learning concept

Blended learning is not a separate approach or a substitute to online environments or to classrooms (Hinkelman 2005). It is not new as a concept nor as a practice (Marsh, 2012). It is believed that BL as a concept is increasingly becoming important in the area of instructional design (Vaughan and Garrison, 2005). The term BL first appeared around 2000 combining supplementing conventional (physical) classroom with self-study e-learning materials (Marsh, 2012), but the concept of BL in language contexts, where technology is employed in conventional physical classroom, is quite new (Marsh, 2012). Recently, providing learners with BL experiences has gained more pedagogic significance, and the term has developed to incorporate a variety of learning approaches and environments (ibid). It is a flexible variety of many language learning environments (Hinkelman 2005). Nowadays, BL may refer to the integration of any different learning methods, different learning environments, or different learning styles (Marsh, 2012).

Tomlinson and Whittaker (2013) note that BL is sometimes called ‘hybrid or mixed learning’ (Stracke, 2007b: 57); ‘e-learning’ (Shepard, 2005); or ‘b-learning’ (Banados, 2006: 534). Although the term ‘Blended Learning’ is widely used and is given multiple definitions, he indicates that it is still ill-defined as the definitions are varying and there is no agreement on its meaning (ibid).

A comprehensive account on BL definitions from the literature was provided by Oliver and Trigwell (2005) and all of the various definitions stem from the perspective of the course designer or instructor. Murphy and Hurd (2011) argue that BL implies that the blend is not simply to bring together different ways to achieve the same goal and that learners’ role is only to choose from these ways to get to the target. Nevertheless, the blend is an integration of different modes of learning (ibid). Garrison and Vaughan (2008: 5) see it as “the thoughtful fusion of face-to-face oral communication and online learning experiences”.

Nicolson *et al.* (2011a) comment that Garrison and Vaughan's (2008) view of BL has come out of an understanding of the power of both face-to-face and online learning which makes their integration successful in achieving the goals of a program. Garrison and Vaughan (2008: 7) describe BL as 'multiplicative not additive'. Furthermore, Garrison and Kanuka (2004) note that the integration of learning experiences rather than just having a mixture of experiences accumulated one on the other is necessary in BL. In a nutshell, the successful employment of BL is basically exploiting the offered tools and opportunities to establish an ideal learning environment (Marsh, 2012). Watson (personal communication, 2016) definition views BL as:

online learning blended with a face to face taught course - the online part could be blended with classroom teaching or complement face-to-face teaching (i.e. student preparation for class online or homework/consolidation after class online) and it might take place when students are at home or in self access sessions on campus, or anywhere else (mobile learning). It could also refer to a course that is taught online for one phase of it and face-to-face for another (e.g. our preessional which is first 5 weeks wholly online and then 10 weeks face-to-face).

The definition used in this study is a combination of many of the definitions found in the literature in particular Watson's definition: "web-based online approaches both synchronous and asynchronous integrated with a traditional face-to-face taught course- the online part can take place either blended with classroom teaching, complementing face-to-face teaching as homework to do online after a class, or complementing face-to-face teaching in self access sessions on campus, at home, or on the go (mobile learning)" (see section 2.8.9). BL forms a key component of the current research.

2.8.3 The pedagogical rationale of blended learning

"The pedagogical rationale behind BLL [blended language learning] is the desire to allow for a higher degree of learner independence in the teaching and learning of second/foreign languages" (Stracke 2007c: 1). The aim of blended language courses is to promote learner autonomy, which is completely different from learners learning on their own. The online element of BL provides learners with flexibility to learn when and where they want (Marsh, 2012). They can choose the time they study away from the constraints of the physical classroom and its fixed hours (*ibid*). When learners sit in front of their computer screens outside the classroom, the online community serves to give them the needed encouragement (*ibid*).

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The flexibility of the communication tools and resources in Blended learning gives learners more choices appropriate with their needs and circumstances; and the increased collaboration opportunities it offers provides more feedback and greater motivation (Murphy and Hurd, 2011). These two advantages led Murphy and Hurd (2011) to believe that BL caters for autonomy and motivation. A few recent studies such as Pena-Sanchez and Hicks (2006); Stracke (2007b); and Stracke, (2007a) suggest that BL when properly carried out can considerably enhance learning (Marsh, 2012). It offers learners with many opportunities for authentic online interaction, but that all depends on the technology being used (Marsh, 2012). Forums are one of the communication tools that can be used to monitor this interaction in order to facilitate and not to direct the interaction (ibid).

The most of foreign language teaching largely takes place in face-to-face classrooms; however, the proliferation in the use of technologies, chiefly the Internet and Web-based communication, provides increasing opportunities to language teachers and learners to determine the appropriate components of the blend (Marsh, 2012).

2.8.4 What is the appropriate blend?

There is no perfect blend in BL, nor is there a particular recipe for the good blend; though, there is a number of imperative factors to accomplish a successful blend (Marsh, 2012). When planning for teaching in a blended context, the physical conditions in the classroom, the instructional mode, the group of learners, and the individual learners will all influence the lesson aims, resources utilization, classroom administration, task selection for the course (Nicolson *et al.*, 2011a).

Online learning environments, according to Marsh (2012), can combine different ways of learning and produce a hypothetically better-off learning environment that affords new approaches to learning fitting with different learning styles and a variety of access to learning. Murphy and Southgate (2011: 13) list a number of different teaching modes, tools, and resources that could be deployed by teachers in blended contexts such as “text-based, audio and video, synchronous and asynchronous, physical and electronic, internally produced within the institution for a specific course or externally published”. The produced learning environments may serve as a supplement or complement to the traditional face-to-face learning environments; or as a standalone learning material with little face-to-face meeting (ibid).

Blends, in language learning, have been developed to fulfil an array of needs and to provide learners with flexible support which goes beyond the supports given to them in other materials such as teach-yourself or self-study types of materials (Nicolson *et al.*, 2011a). The different

components of the blend should complement each other; and the identification of the learning outcomes, learners' needs, and the range of possible available components is the starting point for the establishment of this complementarity (Marsh, 2012).

The BL course proposed for this study provides online practice tasks to extend language learning for Medical purposes as well as learning strategies practised in virtual and face-to-face synchronous teaching sessions with other asynchronous communicative tasks for home online work. The online home tasks aim to provide learners with communicative opportunities to offer them scaffolding and language practice. They also aim to collect the potential signs for learners' proactiveness when they are committed to perform the extra materials at home in the absence of the teacher.

2.8.5 Learners' and teachers' roles in blended learning

The variation in the roles of language teachers is due to the differences in the 'institutional context' and the intended blend of technology for teaching (Nicolson *et al.*, 2011a: 9). The institutions to which teachers belong influence the extent to which teachers are involved in the design or choice of the blended components, tools, and resources (Murphy and Southgate, 2011). However, no matter what institution they work for, teachers have to make knowledgeable decisions and to support learners by raising their awareness of the available learning opportunities in order to help learners take their own decisions and take responsibility in learning (ibid).

When e-learning is adopted and the focus is on the development of autonomy, teachers play the roles of designers, organizers, and coordinators of the learning process (Lu *et al.*, 2008). Edge (2001: 6) comes up with a new concept of teachers called 'the thinking teacher' in which the teacher theorizes practice rather than just applies theories. This concept is significant in bridging the gap between teachers and researchers. Schwienhorst (2008) argues for the necessity of having an interaction between pedagogy and technology. The teacher should decide on which of the technologies more promote learner autonomy; and should think of a good way to integrate them with the classroom teaching (ibid). The development of autonomy depends on the technology nature and on how it was used (Benson, 2011; Strake, 2007b). The teacher may need to select the suitable resources for use in formal classrooms and to provide guidance on how to implement the available resources to develop learners' language skills and to raise their cultural awareness (Murphy and Southgate, 2011).

Strake (2007a) reassures, out of her study on blended language learning, that teacher's role is vital in having a successful blending and highlights the importance of the connection between

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autonomization and self-instruction. Murphy and Hurd (2011) declare that autonomy is not guaranteed in the use of computer-mediated communication (CMC), although CMC provides learners with control and choice.

Schwienhorst (2008) maintains that teachers play a significant role in preparing both technology and learners for each other, in integrating the online and offline work in a proper order, in analysing learners' performance, and in discussing learners' produced work with them. Teachers should understand autonomy and motivation as a fundamental step to support learners in blended contexts where learners need teacher's guidance (Murphy and Hurd, 2011). Teachers have to encourage learners to use technology more in learning when learners are not familiar with a particular technology or when technology changes so quickly and learners need to cope with the change (Nicolson *et al.* 2011a).

Though the online element of BL provides flexibility of time and place of learning, yet, this is not to say that learners are required to work independently, make their own decisions, and take responsibility for their own learning (Marsh, 2012). Some learners will need, at least at the beginning of the course, guidance on when and how to make decisions (*ibid*). Teachers should make sure that learners understand that flexibility does not encourage them to postpone all the online work until the end of the course (*ibid*). In BL, learners are provided with tools and opportunities of interaction of which they better learn how to make the most use (*ibid*).

In blended contexts, in contrast to the conventional forms of teaching, teachers are no more the primary source of input nor the leader, but are rather facilitators or mediators of learning (Nicolson *et al.*, 2011a). As a facilitator, the teacher may adopt learning environments which support them to set up automatic reminders for learners with important deadlines or targets; or they may provide computerized, peer, or teacher feedback to evaluate their work (Schwienhorst, 2008). Teachers have a supporting role as a contributor in online discussions with learners, "responding to postings, encouraging, commenting, questioning, and modelling participation strategies" (p. 26); and the teacher has an assessor role when the time comes to assess the activities (Murphy and Southgate, 2011).

The researcher played a number of teaching roles in the blended course designed for this study and these are: a designer, organiser, and mediator of learning. Other roles were played by the researcher in teaching this course, roles expressed by Murphy and Southgate (2011), such as a guide or a trainer who facilitates learning and directs learners to use additional resources along with the core text that was assigned for their face-to-face teaching sessions (see sections 2.8.10 and 2.12).

2.8.6 Learners' receptiveness to technology use in language learning

The perception of a particular technology ease of use significantly impacts the attitude towards its use through the two mechanisms of self-efficacy and instrumentality (Davis, *et al.*, 1989).

Likewise, individuals' experiences with technology shape their usage behaviours towards that particular kind of technology (Agarwal and Karahanna, 2000).

Gerbic (2006) notes that some learners did not consider the online component of the blend as valuable as the face-to-face element; and that teacher's consideration of the online activity in class would give it some respect as part of the course and would increase awareness of its significance (Murphy and Southgate, 2011). On the other hand, Figura and Jarvis' (2007) study found that the majority of learners possessed positive attitude towards computer-based materials for language learning.

2.8.7 Virtual learning environments (VLE)

Recently, a shift towards the integration of a variety of technological tools is being called for (Schwienhorst, 2008). From the learner's perspective, the integrated tools should provide opportunities for reflection, communication, and active participation and involvement; and, from the teacher's perspective, they should support for learner's language storage and analysis and provide data for empirical analysis (*ibid*). These integrated technological tools have often been called virtual environments, virtual learning environments (VLE), 'Virtual communities', or 'virtual realities' (p. 43).

A VLE may be sometimes called a learning management system (LMS). An online LMS is defined as "a suite of software tools that enable the management and facilitation of a range of learning and teaching activities and services" (Naidu, 2006: 29). Perez and Perez (2011: 2) define it as: "a loose term used to refer to systems that organize and provide access to learning content". Designers are increasingly adopting LMSs such as WebCT, BlackBoard (Arneil and Holmes, 2003; Godwin-Jones, 2003; Levy and Stockwell, 2006), FirstClassTM, MoodleTM, and Lotus Learning SpaceTM (Naidu, 2006: 40) to present and manage courses.

Between early to mid- 1990s, virtual reality has appeared to be exploited in teaching (Schwienhorst, 2008). All 'technology-mediated systems' have advantages and constraints (Levy and Stockwell, 2006). An LMS has the advantage of providing a general purpose environment which allows for the integration of useful tools in the delivery of the course material, in the learner communication with each other and with the teacher, and in the design of simple quizzes (*ibid*). On the other hand, one significant limitation of the LMS lies in its tendency to constrain the

designer in a limited zone (ibid). Sometimes the specific browser requirements of the LMS does not allow hybrid exercises created by some authoring tools to be uploaded into the LMS because of the lack of compatibility between the functionality of the two systems (ibid).

Schwienhorst (2000) provides an overview of VLEs and describes how LLA is connected with virtual reality tools and how they both form “an ideal combination for language learning” (p. 196). VLEs can help to enhance the educational processes in terms of ‘speed and effectiveness’, ‘communication among learners’, and also ‘staff and students’ (Naidu, 2006: 39). By using virtual reality, learners’ language and linguistic awareness will be raised; learners’ interaction and collaboration with peers and native speakers will be supported; a learner-centred environment is provided for experimental learning (ibid).

The adoption of the VLE for teaching at university level requires universities to prepare learners for the use of it. To help learners and faculty to have a successful online experience, they should be presented with technology early in their academic careers (Volery and Lord, 2000). When VLEs are used for the first time, the attention is more to gain better information technology skills than to gain better skills of teaching or learning (O’Neill, *et al.*, 2004). This can make it a big burden for the faculty and learners with low skills and few experiences to succeed in using it (ibid).

Therefore, they should be given the necessary training to learn about the strengths and weaknesses of the use of technology in learning which will increase the chances of becoming successful learners (Fein and Logan, 2003; Okojie and Olinzock, 2006).

Morrison’s (2005) claim that self-access centers contribute to learner’s language proficiency but rarely to their autonomy, highlights the importance of the existence of the teacher when using technology in learning the TL. Murphy and Hurd (2011) argue that BL places greater demand on language teachers to provide to students the needed guidance with the offered choices and the knowledge needed with the offered opportunities for decision-making. Otherwise, autonomy and motivation are not likely to be fostered (see section 2.11). Further details about the implication of the VLEs’ affordances for the development of learner autonomy will be presented in the following section.

2.8.8 Affordances of VLEs for learner autonomy development

This section will present the affordances of VLEs that can help to enhance LLA, e.g. reflection, flexibility, communication and collaboration, and assessment and feedback.

2.8.8.1 Reflections

When learners do not just consume the provided material and they work actively in the VLE, the likelihood that they use their own products as cognitive tools increases (Schwienhorst, 2008). He asserts that learners are given more opportunities for reflection in the VLE. The development of learners' awareness is much easier when an online learning environment is used than it is in conventional classrooms (ibid). The virtual identities of learners on the VLEs work as a scaffold and as experimental identities for them which will give them more opportunities for the detachment required for reflections and processes of awareness (ibid) (see section 2.11.2).

2.8.8.2 Flexibility

As asynchronous tools are built in the VLEs, they provide learners with flexibility in many different ways (Murphy and Hurd, 2011). Learners can choose the time they can participate to the online tasks according to their circumstances and lifestyle and they can decide on the amount and frequency of their participation (Murphy and Hurd, 2011; Whitelock, 2004). They can choose the time they study away from the constraints of the physical classroom and its fixed hours (Marsh, 2012).

2.8.8.3 Communication and collaboration

TL use plays a major role in both the communicative approach to language learning and in LA. The dominant TL use and the collaborative work, which are needed for LLA, are among the likely functionalities of the VLE (Schwienhorst, 2008). VLEs provide learners with partners for communication from around the world with different varieties of English, different purposes, and different settings (ibid). VLEs can provide synchronous and asynchronous online interaction (Murphy and Southgate, 2011).

In virtual environments, the tools for collaborative writing make it easy for learners to edit and re-edit the texts continuously (Schwienhorst, 2008). Interaction with the environment supports learners by establishing a stress-free learning environment which works like a laboratory for them (Kelly, 1955, repr. 1991: 112-116, cited in Schwienhorst, 2008). In written interaction on the VLE, learners may be required to post a response to a thread on the forum- to which other learners post a comment- or to the teacher's comments (ibid).

2.8.8.4 Assessment and feedback

Individual learners could be provided feedback to support their control of tasks and to enhance their self-efficacy and this feedback could be built in the VLE on different levels including hints, stronger tips, or elaborated explanations (Whitelock, 2004). Moreover, the virtual characters in

the VLE serve as a scaffold for learners (Schwienhorst, 2008). It is worth mentioning that the built-in asynchronous forums provide teachers with a long-lasting record of learners' online work to facilitate the grading and analysis process of the products (Murphy and Southgate, 2011).

2.8.9 CALL Design

Design is a complex and challenging process for designers because it implies the integration of many ideas and elements which may be conflicting (Levy and Stockwell, 2006). "CALL design can be complex, and it requires the careful integration of a number of elements, both pedagogical and technical, in a principled way" (p. 19). It also requires the designer to be creative in the work to be produced (ibid). Though design is essential in the early thoughts and plans for any educational project exploiting technology, the role of language teachers as designers is not always considered (Levy and Stockwell, 2006).

Design is dynamic as decisions made at the beginning of the design process may change when the design process advances because designers get to recognize more details of the pedagogical framework and the technological resources limitations (Hudson and Bruckman, 2002). Design does not only depend on what the designer likes to do but also on what they are able to do (Levy and Stockwell, 2006). When limitations are found in a certain technology, another kind of technology can be combined to overcome the existing limitation (Levy and Stockwell, 2006). Contemporary CALL practitioners and designers when discussing design, they talk about the integration of technological components with non-technological components or an integration of more than one type of technology (Levy and Stockwell, 2006). The hybrid combination can never be effectively created if the designer has not come to an understanding of the strengths and limitations of the used technologies (ibid).

A wide range of designed products (e.g. computer-enhanced language course, an online distance language course, website, tasks, and even exercises) stem from many different goals, points of focus, and orientations of CALL designers (Levy and Stockwell, 2006). The point of departure for the design could be "a theory, pedagogical model, course or syllabus, task, exercise, language skill, technology, or some kind of mix, the whole design unfolds from that point on" (p. 12). Sometimes the design is shaped by the nature of the project it belongs to and that is called a theory-driven design such as Van de Poel and Swanepoel's (2003) design (Levy and Stockwell, 2006). In other cases, regardless of the theoretical and pedagogical frameworks, the considerations of the development environment determine the focus of the design whether the focus is to develop materials on the Web or on a CD or it is to be developed using a VLE such as WebCt or BlackBoard (ibid).

Although most CALL designers adopt language-learning task as their starting point for their design, others establish their design on the level of the course (Levy and Stockwell, 2006). At this level, there are three possible scenarios: (1) the course may already exist as a conventional face-to-face form and the designer only aims to add an online element; (2) the designer may wish to convert the whole course into an online course for distance learners; or (3) the online component may be created at the time the whole course is under planning (ibid). Examples on the last scenario include Weinberg (2002); Rogerson and Revell (2003); and Zhang (2002) (ibid).

“Designers are often concerned primarily with meeting local needs, typically related to their own institution, learners, or curriculum” (Levy and Stockwell, 2006). The point of departure is what establishes the direction of the design, but the final product is shaped by the initial considerations in the first stages of the project (e.g. the assessment of learner needs) (Levy and Stockwell, 2006) because learners’ and users’ needs, capabilities, and expectations form one kind of design constraints (Arneil and Holmes, 1999; Levy and Stockwell, 2006). Learners may not look at the tasks the way the designers look at them and to avoid this mismatch designers can share with learners the design process and tasks selections (Breen, 1986). Designers should be aware of learners, their technical backgrounds, their needs, their goals, their characteristics, and the learning context to save a considerable amount of time and effort in learner training (ibid) (see section 2.12).

2.8.10 CALL design in the present study

The blended course was designed in this study for Medical and Medical Sciences students in their foundation year. Those students are required to pass an English-for-Specific-Purposes course in the second semester. In this course, two textbooks- published by Oxford University Press (i.e. Nursing 1 and Nursing 2)- focusing on the functional language contextualized in a medical framework, are normally taught in a traditional face-to-face classroom in thirteen weeks. Sixteen hours per week are devoted for this ESP course. The blended course was delivered only to the ONTG, whereas the OFTG used the material of the learner training in a printed form in face-to-face sessions.

The blended course consists of two elements: the conventional face-to-face taught course (87.5% of the blended course) integrated with web-based medical material in a face-to-face classroom learning (12.5% of the blended course), with both synchronous and asynchronous tools. The face-to-face learning time delivers core language teaching content using the textbooks assigned by the institution. This was integrated with the designed learner training as a supplementary component. One session (of 110 minutes) per week was granted to the research experiment to deliver the

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learner training through the VLE, as an e-course, to the ONTG and via a printed copy in face-to-face classes to the OFTG. Students in the ONTG can use the material on the VLE from anywhere when they are off campus to do homework tasks, optional tasks during mid-term break, and further exploration of the extra learning resources (e.g. puzzles).

The timetable for teaching English to Medical students is normally tight and there was no room for giving more sessions to conduct the experiment. I decided to add this extra component as a supplement to the traditional classroom teaching because creating a whole new course is a radical change which is not acceptable to the institution's authority. Therefore, the main teaching input in this blended course is the content of their textbooks which does not interfere with the experiment and the supplementary material contains the learner training intended for this study. The blended course designed in this study, according to Marsh's (2012) classification of learning environments functions, serves as a supplement to the traditional face-to-face instruction. It can also work as a standalone medical English learning material which presents learner training clearly stated learning objectives and language learner strategies (LLS) in each task in the course design.

The design of the course is stimulated by the point of departure of a theory. The starting point of the design of the course in this blended course is the hypothesis (theory) that the online mode in a blended course would enhance LLA and the whole design unfolds from that point on. The final product was shaped by the initial considerations in the early stages of the design (i.e. knowledge of the learners' technical backgrounds, needs, goals, characteristics, capabilities, expectations, and learning context including the institution's infrastructure and policy) (Levy and Stockwell, 2006). Considerations of the available infrastructure at the research site led to the adoption of the university VLE for the delivery of the learner training. The design of the blended course was established on the level of the course, rather than the task level, with the scenario that the course already exists as a conventional face-to-face form and the designer only aims to add an online/offline element (see section 2.8.9).

This blended course makes the use of Marsh's (2012) pathway template in particular the second (i.e. In Class: Focus on Communication) and the third parts (i.e. Online: Review, extend, and consolidate) of the template. The aim of these two parts is to provide learners with effective classroom time, more opportunities for language use outside the classroom, and much more opportunities for review and practice. In the blended course designed for this research, the focus was to increase learners' language use through communicative pair and group work in the classroom which will provide scaffolding, enhance their confidence and willingness and improve their language use. After the class, communication tasks are to be extended for online/offline work mainly through forum discussions/ face-to-face discussions which will provide scaffolding

and language use practice that they need. The online discussion forums will develop learners' writing skills at their own time and pace.

The use of the VLE supports the delivery of the supplementary component to the ONTG, learners' communication with each other and with the teacher, and the production of simple quizzes because it provides a general purpose environment which enables users to integrate useful tools to be used for different purposes (Levy and Stockwell, 2006). The VLE has the functionalities that can improve the speed and effectiveness of the educational process (Schwienhorst, 2000) and can provide a laboratory-like setting for exploration of the resources and construct knowledge (Schwienhorst, 2008; Schwienhorst, 2000).

The adopted VLE, Desire2Learn, has a number of built-in tools which can be helpful for the designer to deal with the implication of LLA, e.g. discussion forums for asynchronous communication, dropbox for files sharing and submission, a multiple types of quizzes for designing tasks, a news panel to communicate teacher's announcements or updates, small groups restrictions to provide small learning communities, modules content release restriction with specific times increase learners' excitement and group work, instant messaging for learners' synchronous communication and quick questions or tips (see Alzahrani and Wright, 2016).

Delivering the training through the VLE provides the teacher with a tracking system based on the number of learners' logins, and grades management with progress report for teacher's management (see figure 2 below for a sample of the news panel and appendix 1 for further illustrative pictures of the VLE and the course design). Additionally, the VLE enables the teacher to monitor learners' performance of the extra tasks at home which will help to identify committed and proactive learners'. More information on the design and management of the online component of the blended course are fully discussed in Alzahrani and Wright's (2016) paper.



Figure 2: A sample of the news panel on the VLE

2.9 Models for fostering LLA

Efforts on enhancement of LLA have been extensively discussed in the literature of LLA using different approaches and focusing on different components of LLA. This section presents examples of the models proposed in the literature of learner autonomy for the development of autonomous learning. I will illustrate how each of these models is different from the model I am proposing in the current research for the enhancement of LA.

Littlewood's model (1997: 81) proposes three stages addressing three aspects: language acquisition, learning approach, and personal development. These aspects depict learners' capacity for autonomous learning as a 'communicator', a 'learner', and a 'person' (Le, 2013). Autonomy as a person is the more advanced level in this model (ibid). This model highlights four components of LA, i.e. motivation, confidence, knowledge and skills. This model is similar to the one I am proposing for the development of LLA in this thesis in the three domains it addresses, i.e. autonomy as a communicator, as a learner, and as a person; however, my model uses these three domains in an integrated way for the design of the learning environment intended for the development of students' LLA. Although my model takes into account students' motivation, it does not treat it with this name. I look at students' motivation when I examine their engagement with the learner training through my observation of their face-to-face and online autonomous behaviours.

Benson produced a three-level model (1996, 2001, and 2011) which encompasses learner's control in three mutually dependent levels: cognitive processes, learning management, and learning content. The last two controls demonstrate metacognitive factors which enable learners to self-manage their learning (Wenden, 1991) by setting goals, defining content, monitoring and assessing achievement and progress (Little, 1991: 91). This model focuses on the cognitive aspect of the learners which is one of the focuses of the model I am proposing in the present thesis, but Benson's model does not look at the affective and social aspects. In my model, learners' willingness (affective factors) and interaction with peers or instructor (social factors) are very influential to facilitate students' autonomous learning.

Nunan's model (1997) with the five hierarchical levels (i.e. awareness, involvement, intervention, creation, and transcendence) has 'practical implications to learner development materials' (Hsu, 2005: 99). These five levels were considered when I planned the design of the learner training for the students in this study. Nunan's model aims to achieve goals of both language learning content and process which come under the big umbrella of focus for the model I am proposing for the assessment of LLA in this study. An increasing number of models can be found in the literature of the promotion of LLA and these are just a few of the frequently cited models. Three more models

will be discussed in the following section as the models which inspired me when I developed the model I am proposing in this thesis for the promotion of LLA.

2.10 Influencing bodies on the proposed model for LLA enhancement

Because the model proposed in this study for the development of LLA was not developed from the scratch and it builds on previous work from other scholars whose interest is to develop LLA, I will discuss in this section the work of three scholars in a chronological order along with the impact of these works on the current study before I present the model components and the course design (see figure 3 and section 2.11).

The model proposed in this study was influenced by the works of three scholars in the literature of LLA enhancement. The first of these influential studies was established by Eck and his colleagues (1994). In this model, learners are assumed to have three different but complementary roles (Schwienhorst, 2008). Learners in light of this model play the role of the communicator, the intentional learner, and the experimenter or researcher (*ibid*). Schwienhorst (2008), in his model which will be discussed below, equates the three roles suggested by Eck *et al.* (1994) with his three important elements for autonomy as follows: the communicator role with interaction and collaboration, the intentional role with the reflection and awareness, and the experimenter or researcher role with experimentation and collaboration.

A similar model was developed by Little (1999a) to encompass three interrelated principles for autonomy development in foreign language contexts: learners should be (1) engaged and empowered from the beginning with responsibility for their learning; (2) encouraged from the outset to use the target language (TL) as the main channel of learning and reflections; (3) engaged in reflecting on all aspects of the learning process; and the best means to ensure the empowerment and the appropriate TL use is through written language in reflections. These three principles serve as three focuses for pedagogical interventions (*ibid*). Little (2001: 53) highlights that “the sustained pursuit of the three principles produces a learning community in which there is harmony between the quantitative dimension of learning (how much is learned) and the qualitative dimension (the value that learners attach to what is learnt)”.

Likewise, Schwienhorst’s (2008) three approaches for conceptualizing LLA- interaction, reflection, and experimentation (also used the terms exploration and active participation for the principle of experimentation) - have a significant impact on the model set out to develop LLA in the current study. Certain implications for the roles of the teacher and the learner exist in these three approaches to learner autonomy (*ibid*). The first approach (interaction) reflects Vygotsky’s social-interactive view of learning; the second (reflection) illustrates Kelly’s individual-cognitive view of

learning in Psychology which highlights learners awareness; and the final approach (experimentation) indicates “the view of the learner as an experimenter with authentic TL materials through the use of exploratory tools in authorable environments” (p. 8) (see section 2.3).

2.11 The proposed model for LLA enhancement

This section will present the pedagogical model proposed for the development of learners' autonomous learning and will discuss its constituting components- main and dependent ones. The model proposed in the current study for the enhancement of LLA was based on the conceptualisations made in these three previous works but in particular by Little's three principles. This emphasis on Little's theory was because Little (1999a) highlights that these principles should be interrelated and should be implemented in the learning environment from the beginning of the course. He stresses on having learners practise the three principles continuously in their language learning. It is because of the elements of continuation and interrelatedness that Little's model was adopted to foster learners' LLA in this research.

Nonetheless, the achievement of the principle of learner empowerment needs to be implemented in a well-thought-through and an interesting way to ensure its effectiveness in the improvement of LLA. A suggestion was made by Schwienhorst (2008) to ensure the availability of three elements in order to effectively achieve learners' empowerment (i.e. easy-to-use tools, learning material, and a pedagogical framework). Therefore, Little's (1999a) model with the three interrelated principles was expanded using Schwienhorst's (2008) suggestion and resulting in an expanded model for the promotion of language learners' autonomy. The two-level components of the model will be explained in detail in the following sub-sections.

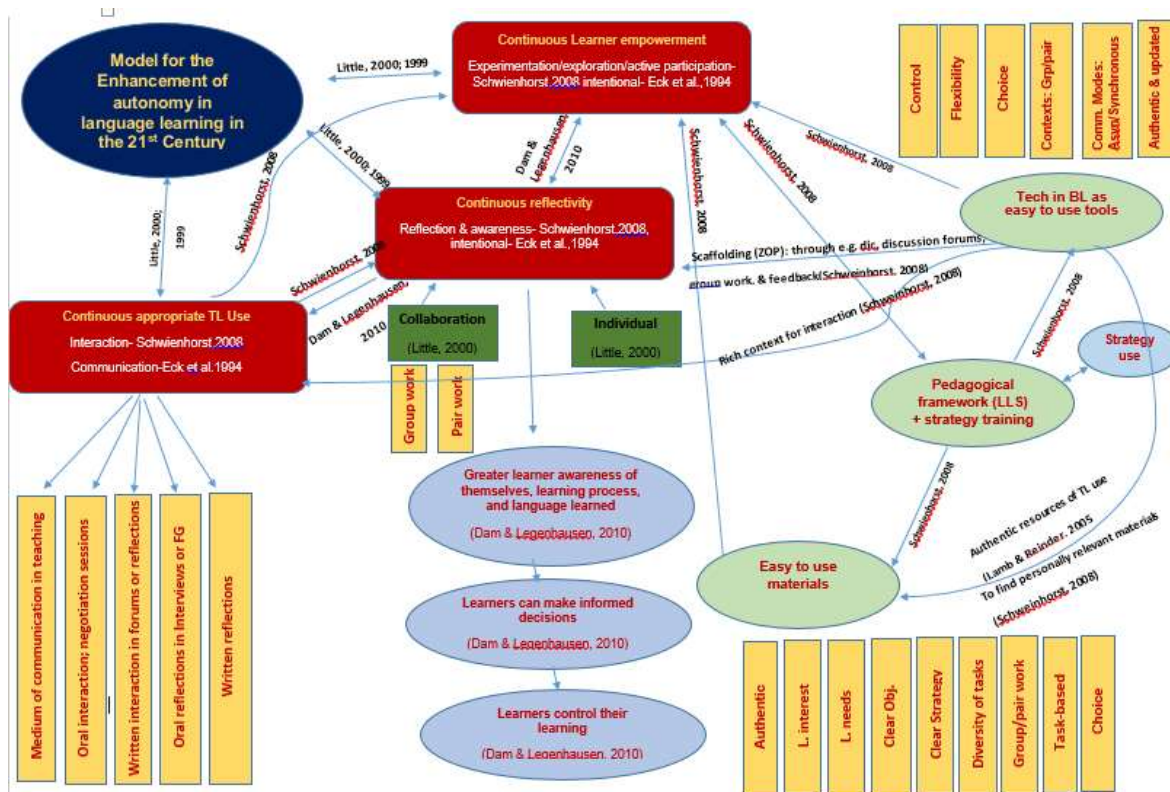


Figure 3: The proposed model for the enhancement of LLA in the 21st century (see an enlarged figure in appendix 23)

2.11.1 Continuous target language (TL) use

Debski (2003: 138) argues that “person-to-person” interaction is needed for language acquisition more than the “passive input” taken from media (Schwienhorst, 2008). Similarly, Little and his colleagues’ (1989) view that environments providing learners with plenty of opportunities for interaction in and with the TL will contribute to the development of language learning. Little (1999a:84) asserts that “proficiency in any language is a procedural skill ... it develops through use”. This communication principle is central in the communicative approach and reflects Ellis’ (1985) belief that language learning is in essence language use (Schwienhorst, 2008). It implies that the TL should be the dominant medium of teaching and learning from the beginning of the course; but the teacher needs to ensure that language is simplified and reformulated for learners to understand (Little, 1999a). Learners need to be put under continuous pressure to use the TL after they have been given access to a wide range of discourse roles and this will raise their TL proficiency (Schwienhorst, 2008).

It is equally important for the development of autonomy to have independence together with interdependence in the classroom (Schwienhorst, 2008). Littlewood (1996) argues that the use of TL is very important in learning a language; and learners need to develop autonomy not only as

language learners, but also as language users. Schwienhorst (2008) relates TL use in interaction to the development of learners' control of their language learning; and supports Krashen's (1981: 1) principle of "meaningful interaction in the target language" where learners are more concerned with their fluency and the meaning of the interaction rather than with the form of their language product. Vygotsky's (1978, 1986) argument is that "higher cognitive functions (i.e. those that are unique to humans) are internalized from social interaction, which is shaped by language" (Little, 1999a: 80). Little (2003a) argues that learners' mastery of complex procedural skills can be achieved through TL use and it influences the effectiveness of their communication. The control over a full range of discourse roles is not a challenge for socially autonomous learners (ibid).

The discussion about learner autonomy in foreign language learning has been increasingly influenced by the work of Vygotsky in Psychology (Schwienhorst, 2008). The Vygotskian view of social interdependence emphasises the importance of providing learners with a collaborative learning environment to be able to interact and collaborate easily in the second language (Nunan, 1992). Collaborative interaction fosters LLA (Dam, 1990) and group work is significant in the collaborative constructions of knowledge, too (Little, 1999a). Bruner and Ratner (1978) and Ninio and Bruner (1978) observe that scaffolding is a concept underpinning the support given by the more knowledgeable peer in Vygotsky's ZPD principle, whether it was from a teacher or another learner in the classroom (Schwienhorst, 2008). Feedback, especially the written form, could be more than just a correction. It could improve learners' language and linguistic awareness (ibid).

Language use in written communication and the process of writing have a significant impact on the development of linguistic and metalinguistic awareness (Hedge, 2000). According to Schwienhorst (2008), a number of scholars argue that the pedagogical implementations of LLA principles are mostly to have learners communicate in writing such as (Dam, 1995, 2000; Thomsen 2000; and Little, 1997a, 1997b). Little (2001: 12) emphasises that "writing makes language visible". Interactive writing among peers discloses their learning processes and encourages them to deal with these processes in fruitful negotiations (Little and Ushioda, 1998: 48); it raises their awareness of their implicit learning strategies; and takes them to higher compositional tasks of editing and structuring in groups (Schwienhorst, 2008). Many teachers exploit technology with its varied potentials to promote classroom interaction (Littlejohn, 2004). Written texts are more valid in the digital writing media in two ways: the process of writing helps learners to plan, monitor, organize, and evaluate what they are doing while they are writing; and the written piece serves as an external source for analysis, re-use, exploration, and editing in different ways (Olson, 1991 cited in Schwienhorst, 2008).

The use of the TL in the classroom does not only refer to language practice in role plays and communicative tasks, but also to the dominant use of the TL as the channel through which teaching and reflections take place (Little, 2001). Learners should use the TL in written and oral communication with other learners in the classroom as well as in the reflective processes (ibid). Learners' reflective interaction whether in speaking or in writing helps them to develop their voices which is important for the enhancement of their LLA (Little, 2016, personal communication). Little (1999a) emphasises that learners' cognition is best stimulated through their interaction. It is emphasised that learners are trained to use the TL as a metacognitive tool to develop their level of language proficiency; or else there would be no progress in their proficiency (ibid). The use of the TL is also linked to the talk about the micro and macro levels of learning and about the TL itself (i.e. metacognitive and metalinguistic use) (Little, 1999a) (see section 2.11.2). Interaction facilitates learner's involvement when experimenting with language learning tasks which makes this principle related to the learner empowerment principle because learners share the responsibility for classroom learning when they are exposed to different discourse roles (Little, 1999a) (see section 2.11.3).

2.11.2 Continuous Reflection (language as a cognitive tool)

Reflection has gained importance in learning since Dewey's (1933) work, but relatively few researchers investigated the role of reflection in language learning (Benson, 2011). It was treated by a few researchers 'as a key psychological component of autonomy' (p 104). Little (1997b) notes that autonomous learners are characterized by consciously reflecting on their learning processes and Sinclair (2009: 38) stresses that LLA is associated with learners' 'conscious reflection on learning' (see sections 7.5.1 and 7.5.4). Critical reflection and decision making using the TL are not only important for the improvement in language proficiency (Little, 1999a), but they are two essential elements highlighted by Holec (1981), Van Lier (1996) and Little (2003a) for the development of learners' autonomy (Murphy, 2015). Schwienhorst (2008) links autonomy to reflection by declaring learners' responsibility for their learning to be the essence of LLA and that this responsibility involves learners' reflections (in Kelly's words 'validating data') and linguistic as well as metalinguistic awareness.

The heading awareness has usually been used for the discussion of reflection on language learning and learning in general (Little, 1999a). Dam and Legenhausen (2010) link the development of LLA to learners' capacity to do critical reflections giving a big possibility for learners' awareness of the different dimensions of learning to be raised. In fact, "it is the most important goal in learner autonomy" (Schwienhorst, 2008). Little (2003a) argues that learner's

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engagement in reflective processes when learning plays a significant role in being effective learners.

The principle of language use as a cognitive tool entails the use of written language to create learning plans, to remind learners of tasks, to have a record of parts of the learning process and evaluations whether individual or collaborative (Little, 1999a). The role of written language in learners' reflections is significant in the development of their awareness of the learning process and also their metalinguistic awareness (i.e. awareness of the TL) (Little, 1999a). In CALL environments, the medium of writing has the merit over audio and video media in terms of learners' reflections (Schwienhorst, 2008).

Based on Broady and Kenning's (1996) and Little's (1997) works, Lamy and Goodfellow (1999a: 458) define reflection as "... having a critical internal conversation about our own language learning". Critical reflection refers to "processes of which the individual is consciously aware" (Murphy, 2015: 144). It is similar to Bruner's (1960) 'analytical thinking' and contrary to his 'intuitive thinking' (Ridley, 1997: 28) (ibid). This distinction was also made by Vygotsky (1986) when he differentiates between conscious and intuitive thinking (ibid). Critical reflection is characterized by conscious thought processes and interrogation of actions and thoughts (ibid).

Reflection and awareness are best explained through Kelly's (1955, repr. 1991 cited in Schwienhorst, 2008) personal construct theory which "emphasizes the importance of reflection and self-awareness for the development of new constructs and their internal hierarchy, and thus learning. Kelly emphasises that man always tries to integrate new constructs within an existing construct system" (p 12). This personal construct theory is well-known in the field of Psychotherapy as well as the second language pedagogy; and it plays a significant role in the definitions given to LA.

Reflection works as a contributing factor for both the development of autonomy and the assessment for autonomy (see sections 2.11.2 and 3.7.4.9). Learners' reflections are also important for teachers to ensure that the pedagogical framework was appropriate with the learners' level of autonomy (Schwienhorst, 2008). In addition, Breen and Littlejohn (2000) point out that reflection provides learners with genuine topics for their communication from which learners get the most benefit in language learning (see section 2.11.1). One drawback of regular reflections is that it may lose its meaning and turns into a routine; and teachers can overcome this problem by increasing the scope of learners' responsibility and accordingly their reflections to go beyond the classroom environment (Little, 1999a). This was done when they were given the opportunity to reflect in the interviews and the FG.

This principle of reflection is embodied in the principle of empowerment that learners' conscious acceptance of responsibility and consequent work cannot be accomplished without thinking about what they are doing (Little, 1999a). In talking about the importance of reflection in the development of autonomy, Dam and Legenhausen (2010: 123) state: "reflection and awareness constitute some of the prerequisites for learners' involvement in all the decisions that need to be made and for being able to take cognitive as well as pragmatic control of the procedures" (see section 2.11.3).

2.11.2.1 Reflection and self-assessment link

Reflection gives students the opportunity to self-assess their learning and judge its success (Hedge, 2000; Dam and Legenhausen, 2010). It reveals their capacity to make decisions about their progress in learning (Dickinson, 1987; Everhard, 2015a). Holec's definition requires 'decision-making' as one of "the core constructs in subsequent conceptualisations of learner autonomy in the 80's and early 90's (e.g., Dickinson, 1987; Boud, 1988; Little, 1991)" (Hsu, 2005). Self-assessment is one of the secrets of successful language learners because it covers all the three interrelated principles of learner autonomy (i.e. experimentation, reflection, and TL use) (Little, 2007). A strong link was expressed by Everhard (2015a:33) between learners' capacity to self-assess, to reflect, and to be autonomous learner:

The greater the learners' ability to reflect, the greater is their ability to assess, and particularly self-assess. As the learners' ability to self-assess increases, their dependence on authoritative others to judge their progress decreases, their need for scaffolding diminishes and their degree of autonomy increases. At the same time, learners have acquired skills which are both sustainable and transferable to other fields of study and possibly also to other aspects of their lives.

The involvement of learners' in the assessment process whether in self-assessment or peer-assessment would make learners more able and more aware of how to continue learning without the need for a more knowledgeable person, able to think about and assess their learning, able to make decisions and actions (Boud, 1995; Boud and Falchikov, 2007 cited in Everhard, 2015a). The two preconditions for LLA suggested by Holec (1979) demonstrate that learner capacity to make decisions about learning is a must and that learning must be structured so learners can take responsibility of their learning. Self-assessment is a fundamental skill which helps learners to become lifelong learners and peer-assessment is the facilitator for self-assessment (Little and Perclová, 2001) which makes the combination of both types of assessment "provides the ideal

conditions for the cultivation of learner autonomy” (Little, 1996b: 31 cited in Everhard, 2015a: 21; Dochy *et al.*, 1999 cited in Hung *et al.*, 2016).

2.11.2.2 Accuracy of self-assessment

Oscarson (1997) acknowledged in his comprehensive review of research on self-assessment in the second and foreign language field that research in self-assessment is limited (Brantmeier and Vanderplank, 2008). It is believed by some researchers that self-assessment is a skill that is beyond learners’ capacities and others stress that giving self-assessment opportunities to learners who may overestimate their learning will lead to lower standards of assessment (Ross, 2006). Brantmeier and Vanderplank (2008) and Kruger and Dunning’s (1999) studies drew the same conclusion that “high-performing students tend to underestimate their performance, while low-performing students often over-estimate their competence” (p. 470). A similar result specific to the Asian context was found in Hung *et al.* (2016) “particular in Asian contexts, low achievers over-marked, and high achievers under-marked”.

The accuracy of learners’ self-assessments can be influenced by several factors such as “academic record, peer-group and parental expectations, career aspirations, lack of training in self-assessment, cultural background, and self-management skills” (Brown *et al.*, 2014: 264). Knowing about the impact of these factors will aid educators to make decisions about how to enhance “accuracy and interpretation of self-assessment data” (p. 264).

Oscarson (1989: 11) asserts that ‘learner autonomy’ and ‘self-assessment’ are very connected and Everhard (2015a) points to his belief that self-assessment “is suited to learners at all levels of ability, regardless of the language learning setting, as it encourages the notion of self-reliance’ (p. 20) (see section 7.5). Self-assessment is central to autonomous learning (Holec, 1981; Dickinson, 1987; Boud, 19981; Little, 2003a; Murphy, 2015) and learners’ ability to self-assess and awareness of competencies at the end of a course can enhance their self-esteem and confidence (Blue, 1994). Because “self-assessment accuracy is a condition of learner autonomy” (Blanche and Merino, 1988), it is important to give learners the needed training on self-assessment (Oscarson, 1984) and critical reflection (Murphy, 2015). Murphy’s (2015) chapter presents the “debate about the extent to which learners can be trained to reflect critically and make decisions about their learning” (p. 143) (see sections 7.5 and 7.11).

Practicing self-assessment is more rewarding and can be accurate when it is connected with tasks relevant to language learners’ circumstances and experience (Oscarson, 1997; Brown *et al.*, 2014). Accuracy of self-assessment increases when learners are provided with ‘concrete descriptions’ for very specific ‘linguistic situation’ (Oscarson, 1997:183) such as ‘Can-Do statements connected

with tasks' which can help learners to do reliable assessment for their language progress (Brown *et al.*, 2014: 264). Dochy *et al.* (1999) recommends the combination of peer and self-assessment to facilitate accuracy of learners' self-assessment (Hung *et al.*, 2016) (see section 2.6).

Critical reflection capacity played a role in the decision-making of some of the case studies in the present thesis (i.e. Samia, Maha, and Lama)- from both online and offline groups- and in the amount of change they made in their LLA over the course. These three case studies over-rated their self-assessment while they were reflecting on their learning and capacities. The high autonomy student in the ONTG (i.e. Nora) had a high but apparently an unchanging reflective capacity which led to having a high but slightly changing level of LLA. In spite of her good reflective capacity, she under-rated her self-assessment in many of the components of LLA which indicates that learners may need training on self-assessment (see sections 2.6, 7.11, and 7.5).

2.11.3 Learner continuous experimentation

Along with processes of reflection, interaction activities in collaborative tasks, learners need to be given the opportunity to experiment with language material (Schwienhorst, 2008) and to accept responsibility for their learning (Little, 1999a). Different terms were given to this principle, e.g. 'involvement' (Schwienhorst, 2008; Lamb, 2010), 'active participation' (Little, 2003a), 'empowerment' (Little, 1999a). Learner empowerment and responsibility for learning should be given to learners from the very beginning of the course but teachers must not suppose that learners can control all aspects of learning or that all learners can do that from the outset (Little, 1999a). Not all learners have the same capability for autonomous learning and not all aspects of learning can be managed at the same time (*ibid*). In many studies dealing with successful language learners, learners expressed how important was exploration for them to get to the strategies that work for them (Schwienhorst, 2008).

Learner empowerment and capacity to take responsibility is not an action that takes place on one go; but rather a gradual process which develops with practice and requires continuous negotiation between teacher and learners about the curriculum and learning in general. It implies a pedagogical dialogic process (interaction) as a joint exploration (Little, 1999a; Schwienhorst, 2008; Tassinari, 2015) (see section 2.11.1). To experiment in language learning, learners need to be involved in the learning environment and in the performance of the tasks (Schwienhorst, 2008). This involvement provides learners with opportunities to focus on the tasks and to exclude any distraction (*ibid*). Learner experimentation and active participation can be seen in second language pedagogy to be connected with constructivism and constructionism as well as authenticity (Little, 1999a). Wolff (1994: 8) draws the attention to the resemblance between

building a creative construction and language learning; and points to the fact that there are “sever constraints on the teachability of language”.

Several factors may influence the achievement of this principle (i.e. empowerment). Learners’ participation in the process of setting learning goals (Jones, 2001) and in choosing and designing the learning tasks (Adams and Nicolson, 2011) increase their engagement in the learning process and their comfort to deal with the task when learning (Jones, 2001; Adams and Nicolson, 2011). Moreover, teachers’ acknowledgement of the positive learning behaviours and comment on their written work and reflection enhances learners’ enjoyment, engagement, and achievement (Jones, 2001). Although teachers should disclose the course aims, objectives and learning outcomes within the course design when they aim to foster LLA, they also need to brief learners about the learning outcomes from each task in each part of the blend, about the relationship between tasks and the underlying skills, the expectation that they should make choices, decisions, and study plans (Murphy and Hurd, 2011).

Schwienhorst (2008) advances that learner experimentation can only be achieved when easy-to-use tools, materials, and a pedagogical framework exist in the learning environment. For example, search tools help learners to find materials relevant to their needs; and large variety of authentic material, for instance, will support their experimentation with language (ibid). The pedagogical framework is fundamental to bring the materials and the tools together and to facilitate their use within the limits of learners’ autonomy, which will make parts of the materials meaningful to them (ibid). The following part forms the extension in Little’s (1999a) model for LLA development using Schwienhorst’s (2008) speculation.

2.11.3.1 Material

Teachers can promote LLA by encouraging learners to choose the material that they feel relevant to their subject matter or to their needs which will greatly affect their motivation and attitude to the course (Murphy and Southgate, 2011) and eventually these positive effects foster their LA. In BL environments, where the blend is composed of face-to-face and online components, the teacher is not present with learners for the most part of the course and, therefore, learners’ autonomization lies in the learning material as well as the designer’s dedication to the achievement of this goal (Murphy, 2007; 2008a).

Levy and Stockwell (2006) state that “the task construct is frequently used as a means of converting a language teaching approach, or a theory of language learning, into a practical activity for students to complete” (p. 15). They believe that the task represents the basic principles of the

design and examples from the literature include Chapelle (1999b), Mills, J. (1999), Salaberry (1996), Sheild *et al.* (1999), Gass (2003), Doughty and Long (2003), and Mishan and Strunz (2003).

Hurd *et al.* (2001) present an argument about how the design of tasks in a course material can enhance the skills and strategies of the autonomous approach such as organization, reflections on learning, progress monitoring, identification of gaps, and problem solving. Because the task works as the means of learning in contemporary language learning, some aspects of the language learning tasks are also central such as its structure, content, and sequencing (Levy and Stockwell, 2006).

Authenticity: Authentic materials were defined by Dickinson (1987: 68) as “materials which have not been prepared for language teaching”. Authentic texts were defined by Little (1997b) as: the record of any natural communication whether written or said for personal or social purposes other than for teaching purposes; or any communicative event that can be recorded and produced in radio, television, or electronic communication.

Authenticity has two cognitive functions: learners could be either consumers or producers of authentic TL materials. If the aim is to promote LA, the focus should be more on learners’ role as producers of authentic material (Littlejohn, 1997). Learners can take on the producers’ role when they are involved in the design of tasks (*ibid*) or when they produce authentic language in their communication (Little, 1997b).

McGarry (1995) attributes the importance of authenticity in fostering LLA to two reasons: when learners work on tasks with interesting topics, their attitude to the tasks improves and the task becomes more meaningful to them (Little and Singleton, 1988); besides, greater willingness to use inferencing and other strategies to get to the text meaning takes place on the part of learners when the learning material encourages them to employ their existing knowledge of the subject and language (McGarry, 1995). Jones (2001) suggests that exposing learners to short, straightforward, and authentic texts where possible builds their confidence. Confidence is said to be important to development of LLA (Littlewood, 1997; Le, 2013).

More devoted language learning environments provide learners with access to authentic materials and dictionaries- with different functionalities such as resources with searchable operators vs. others with no search functions- and a wide range of resources which could be used to personalize the language learning that is taking place (Dam, 1995). Bishop and Thorpe (2004) followed the SOLO approach to course design in their study on the relationship between learners’ work on materials of personal interest and their successful language learning.

The implication for the importance of authentic resources for learners lies in teachers' effort to ensure the availability of certain facilities.

Collaborative and communicative tasks: Collaborative learning is also important to the design of the material. Research on LLA draws on sources from the humanistic, communicative, and task-based approaches to language education (Benson, 2011). The Vygotskian theory, which have recently influenced the understanding of LLA, implies that the goal of learning is to develop learners' independence, self-regulation, and problem-solving skills, the accomplishment of which depends on the availability of scaffolding (i.e. the help from more capable others whether peers or teachers) (Oxford, 1999).

Because the development of learner autonomy and the growth of target language proficiency are fully integrated with each other and are mutually supporting learners' development (Little, 1999a), designers should consider the provision of interaction opportunities. Richards (1990) suggests two approaches to teaching the skill of speaking in English and to provide learners with opportunities for classroom interaction: the direct and the indirect. In the direct approach, learners go through a program to raise their awareness and to practice speaking; whereas they take part in conversations through problem-solving and role-play tasks in the classroom in the indirect approach. Hedge (2000) recommends a number of factors to ensure success of the indirect approach such as examples of conversational strategies provided in the task input, helpful practice created by the speaking task, individual practice opportunities provided in the speaking tasks.

Teachers can use various fluency-based tasks to improve learners' TL use (Hedge, 2000). Three types of tasks can be used with this aim such as free discussion, role-play, and gap activity (ibid). Free discussion tasks engage learners in talking about topics relevant to them, encourage them to use the language required to keep the conversation going, and to practice interpersonal communication strategies (ibid). However, because it is not guaranteed that all learners would participate in the free discussion even if they worked in small groups, free discussion tasks need to be structured to support learners in performing it (ibid). Support could be given in the form of a linguistic input presented first in the discussion task as a context for learners' discussion (ibid).

Diversity of tasks: In addition to task-based syllabuses, there are project-based, content-based, thematic, and text-based syllabuses. Despite their differences, they all have one thing in common – they do not rely on prior analysis of language into its discrete points (Nunan, 2006: 14). ELT supports the adoption of project-based approach because learners need to do several thinking processes (e.g. plan, negotiate, analyze and discuss ideas to put the project in its final form) in

which language is used for authentic communication needs (ibid). Oxford (2006: 102) talks about skills implied in tasks and states:

Many task types involve multiple skills and subskills, such as reading a passage for comprehension and then doing something with the information that has been read, such as answering questions, discussing the information, making a decision, solving a problem, and expressing how one feels about a given situation.

Hedge (2000) points out that project work has gained popularity as an implementation of the process approach. Projects have a learner-centred nature and they imply Postman and Weingartner's (1969) educational principle that the significance of a learning experience lies in the process by which the learning occurs (Hedge, 2000). Doing a project work involves practicing a variety of skills such as planning, collecting information- through reading, listening, interviewing, and observing- managing group discussions, problem-solving, reporting in a spoken or written form, and displaying creatively (Hedge, 2000).

Shin and Wastell's (2001) interpretation of constructivism in the CALL environment expresses the centrality of motivating learning by encouraging learners to take part in problem-solving activities to experience the individual satisfaction. The main feature of problem-based learning is the inquiry in small groups to solve problems (Hmelo *et al.*, 2000). Role-play approach to teaching requires learners to play out roles they have identified, to reflect upon the task, and to analyse it with the aim of finding out the expected learning outcomes for the task. In role-play-based learning, the role-play serves as 'anchor' and 'scaffold' for the tasks (Naidu, 2006: 26).

In the problem-based approach, a problematic situation forms the context and backbone for all learning and teaching tasks and it is the starting point for the task design (Naidu, 2006). The problem can be in the form of a short video clip, a picture with text, or just a text (ibid). Learners are expected to work in small groups to analyse the problem, decide how to approach the problem situation, and work to resolve it agreeably (ibid). By the completion of this process, they will have achieved the intended learning outcomes (ibid).

2.11.3.2 Easy-to-use tools

Nowadays, technological tools allow teachers to offer choices in many different ways. For many learners around the world, the internet serves as a significant language learning resource (Schwienhorst, 2008). It brings infinite number of language resources at learners' disposal and shortens the distance between learners and native speakers as well as users of the TL (ibid). It can provide them with static authentic language resources to consume and with resources to which learners can contribute while learning such as communicating on forums or web quests,

interacting with native speakers, and creating their own websites (ibid). The implication for the importance of authentic resources to learners lies in teachers' effort to ensure the availability of certain facilities. Every classroom should not only have a master computer, but also one for every learner (Schwienhorst, 2008). The computer of every learner should be networked with the same operating system and with the same interface (ibid). Search engines are, similarly, one of the easy-to-use tools offered to learners through the internet to search for language resources.

Schwienhorst (2008) notes that the focus is not only on one medium, but on a wide variety of tools for communication including "text, visuals, sound, and virtual environments, virtual characters, etc." (p. 50). There is no ideal communication tool neither in mediated nor in non-mediated communication. Schwienhorst (2008) emphasises that teachers give learners the choice from communication modes (synchronous vs. asynchronous) and from contexts (pair vs. group communication) to allow learners to go through the experience of participating and experimenting with the materials when learning.

To design the course, teachers may take from the internet audio and video resources around which they design learning tasks (Murphy and Southgate, 2011). Search engines are, similarly, one of the easy-to-use tools through the internet to search for language resources. They can also use these resources to provide learners with extra information on language skills and cultures (ibid). The designer/ teacher should consider the functionality of the VLE, the interface that takes learners to the functionalities, and the pedagogical framework that brings together the learner and the learning environment (ibid) (see sections 2.8.1 and 2.12).

2.11.3.3 Pedagogical framework

A pedagogical framework is necessary to achieve the principle of experimentation- a basic component of the proposed LLA enhancement model (Schwienhorst, 2008). The pedagogical framework is fundamental to bring the materials and the tools together and to facilitate their use within the limits of learners' autonomy, which will make parts of the materials meaningful to them (Schwienhorst, 2008). Learner strategies were adopted as the pedagogical framework for the learner training designed for the treatment of the experiment in the present study.

Learner autonomy had a minimal impact at the initial stages of research in learner strategies and it was only when Wenden published her book (1991) that the link was established very clearly (Benson, 2011). This link was buttressed by Little's (2003a) argument that increasing learners' awareness of skills and strategies to motivate themselves will enhance their self-regulations and will support their autonomization.

Discussion in the field of learner autonomy about the connection between LLA and learner strategies is inconclusive. For instance, Benson (2011) views the relationship between strategy use and learner autonomy as complex and claims that it should not be completely assumed that improved language learning outcomes and greater autonomy result from strategy training. Benson (1997) is against linking strategy training with learner training (Le, 2013). However, learning strategies are relevant and even essential for LLA (Oxford, 1999; Dickinson, 1992; Littlewood, 1996; Wenden, 1991; Cotteral, 1995a, 1995b). Learning strategies are of a chief importance to learner autonomy (Oxford, 2008) and learning as well as autonomy can barely be achieved without it (Wenden, 1991). Oxford (2001: 166) emphasises that “autonomy requires conscious control of one’s own learning processes.”

Cohen (1998) contends that strategy training helps learners to find their ways to be successful learners and Oxford (1999) maintains that learning strategies signpost the extent of learner’s autonomy and help to promote learning. Learner autonomy helps learners to achieve better learning and better language proficiency that the most competent learner in the classroom would use a variety of strategies and would be the most autonomous learner in the classroom (*ibid*). A link between strategies, language proficiency, and LLA is highlighted in Oxford's (1999) illustration of the penultimate (doing learning tasks) and the ultimate goal (improvement in language proficiency) of learner strategies.

Erler (2007: 118) states: “Learner autonomy and self-regulation have always been at the heart of the SLA language learner strategy research and remain the goal in strategy research ... with all the complex variables which such research entails”. Rubin *et al.* (2007: 157) contends that the 'most striking characteristic of strategic learners' is the successful management of learning where they identify 'weaknesses' and 'strengths' to 'evaluate' and improve their learning. Rubin *et al.* (2007) claim that if strategy-based instruction was effectively done, it will lead to an increase in learners’ ability to manage cognitive and affective strategies; motivation; performance; and knowledge and skills to learn independently. Implication of this link between learner strategies and learner autonomy for the design of learner training in this study will be discussed in the following section.

2.12 Implementation of the model in course design

Before the course was designed, content was negotiated with the learners to explore their needs, provide them with opportunities for decision making, raise their language learning awareness, and increase their confidence with the conscious choices and decisions they make about aspects of their learning. Giving them this opportunity for decision making can promote their attitudes and increase their engagement in learning (Jones, 2001) and accordingly greater learner control.

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After the course was designed, I shared with the learners the design process and the task selection as was recommended by Breen (1986), because learners do not look at the tasks the way the designer does.

The training presents learners with LLS tailored in a task-based framework. It provides practice tasks to extend Medical English learning and to extend language use outside the classroom in face-to-face settings for the OFTG and in an online space for the ONTG which will give them the needed scaffold. The given training offers a good stimulation for information exploration, problem-solving enquiries, and accessing unlimited authentic materials.

2.12.1 Content

The training was mixed of strategy training and medical language learning. Learner strategies are the pedagogical framework selected to achieve the principle of experimentation- a basic component of the proposed LLA enhancement model (Schwienhorst, 2008). Explicit strategy tasks were integrated with language learning tasks in the material design in order not to add extra work for learning strategies (Murphy, 2008b). Learners were provided a variety of LLS for practice with the aim of raising their awareness of LLS and training them on LLS use as a way to help them become better language learners and users (Hedge, 2000). Development of metacognitive strategies lies in the offered opportunities for reflection, self-assessment, and planning (see section 2.7.4). All types of strategies were designed to be practiced within groups to facilitate the process expressed in Vygotsky's social theory of learning that the assistance learners get from their interaction with more competent individuals helps to internalize the cognitive learning strategies (Oxford, 1999). The objectives and strategies underpinning the tasks were stated clearly in the course design (Murphy and Hurd, 2011) to raise learners' awareness and improve their decision making capacity.

Medical content was decided to be the focus of the material designed for the experiment and it was tailored within the tasks. The aim from selecting course content relevant to their subject matter is to feed into the content of students' English-for-Specific-Purposes course. The focus group discussion conducted in the baseline study showed that those learners feel motivated to learn English if the content of the material is medical. Moreover, medical content complies with the policy of the English Language Institute (i.e. the authority in the research site of the current research) to focus on the enhancement of students' English in their specific field.

2.12.2 Structure

The designed material encompasses seven modules, one per week, and three optional separate tasks to be released to students during the three-week break (see figures 12, 13, and 14 in Appendix 1). Each module consists of a number of tasks introducing a variety of LLS and training learners on how and when to use them. At the end of each module, a block was allocated for the reflective writing forms to be filled in light of the content of that module (see figures 15 and 16 in Appendix 1). The learning objectives of each task, feedback, and hints were looked after in the course design (see figures 17, 18, and 19 in Appendix 1).

2.12.3 Sequencing

I was hoping to attract their attention to the material when the material design started with grammatical tasks because grammar is the most familiar area of English to those learners. Then other communicative, reading comprehension and listening comprehension tasks were presented in the following modules. Writing was practiced indirectly in the performance of the majority of the tasks, but it was not the focus. More details about the tasks, LLS, learning objectives can be found in appendix 2.

2.12.4 Final product shaping

The design of tasks in the course material delivered to students in the current study focused on how to enhance the skills and strategies of the autonomous approach. It provides learners with access to authentic materials and dictionaries. It provides them with static authentic language resources to consume and with resources to which learners can contribute while learning, such as communicating on forums. Search engines are, similarly, one of the easy-to-use tools offered to learners through the internet to search for language resources.

The course makes use of audio and video resources from the internet to design the learning tasks. Because the teacher is not present when learners are off campus, learners' autonomization lies in the learning material and on the designer's dedication to the achievement of this goal. Scaffolding is considered in the design (e.g. collaborative tasks, pair work, discussion forums, and instant messenger for quick inquiries) to develop learners' independence, self-regulation, and problem-solving skills. The tasks are selected from a variety of teaching approaches which have been said to be supportive to the development of LLA including project-based, problem-based, and role-play-based tasks.

2.13 Summary

This chapter discusses the literature on the promotion of language learner autonomy: definitions and the nature of the concept and its constituents. It explains how the roles are shifted in a learner-centred classroom and what needs to be considered before putting in plan for its promotion. It provides a lengthy discussion of the literature on the tools used to improve LLA in this study (i.e. training and technology). The proposed model which informed the practice of LLA enhancement in the present study is introduced with its components and implementation.

Chapter 3: Assessment of language learner autonomy

3.1 Introduction

This chapter is about the research literature and practical steps that can be taken for the measurement and assessment of LLA. It presents what the literature says about the complexity of the concepts of LLA and assessment. It discusses the problems of assessing LLA and the researchers' responses to these problems. It reviews the previous studies on LLA assessment and the gap in this area. It ends with the introduction of the two versions of the model proposed for the assessment of LLA: the first version that was derived from the research literature and the final modified version of the model. The research data informs the final version of the assessment model. This chapter provides the components of the final modified version of the assessment model including the components which emerged from the data and which are recommended to be considered in future studies.

3.2 Complexity of autonomy assessment

The term 'secret garden' was used to describe the complexity of assessment (Weeden, *et al.*, 2002: 150) and autonomy (Everhard, 2015b). Everhard (2015a) stresses that autonomy, assessment, and language learning are very interrelated. The assessment of LLA is 'a challenging topic' from which we come up with fundamental research questions such as, how individuals' LLA in different contexts can be described using observable behaviours or descriptive criteria; whether levels of LLA development can be defined; whether LLA growth can help to generate new methods for developing LLA; and whether the development in language proficiency and in LLA are connected (Tassinari, 2015: 64).

Even when teachers find evidence for the development of their students' LLA, it is difficult to 'justify its promotion through tangible scales of measurement' (Everhard, 2006: 11). This question was under investigation by the authors in Everhard and Murphy's (2015) edited book along with the identification of how assessment in language learning can be used to practice and improve autonomy (Cotterall and Malcolm, 2015). There is a dearth of research with sufficient evidence on the enhancement in learners' LLA although researchers are aware of the importance of this approach to learning. This is because learners cannot get rid of their dependency on the more expert 'others' in taking responsibility for learning and in judging success (Everhard, 2015a).

The measurement of autonomy became more problematic because researchers fail to address its problems (Benson, 2010) (see sections 3.3 and 3.6).

3.3 Problems of the measurement of learner autonomy

The problems of measurement of LLA which were reported in the literature of the assessment of LLA fall into two categories: technical and conceptual problems. The technical problems are related to whether we can do it and the conceptual one refers to the appropriateness of the concept of LLA to be tested.

3.3.1 Technical problem- Can we measure LLA?

Five points come under this category of the problems of LLA measurement: multidimensionality of the concept, change and degrees, behavioural description, mask of autonomy, and readiness for autonomy. Each one of these problems is explained in the following sub-sections.

3.3.1.1 Multidimensional concept

The technical problem of measuring LLA is related to its complex nature (Sinclair, 2000a) which leads to difficulty in using a quantitative measure to capture all the dimensions (Dixon, 2011) (see section 3.2). Defining the aspects of the construct of autonomy and discussing its assessment practices is not a straightforward job (Cotterall and Malcolm, 2015: 168). Murase (2015), referring to Benson's (2011) claim, attributes the problem of LLA measurement to the complexity of the construct itself because it makes it hard for learners to control all the areas of their learning and hard for assessors to compare their autonomy level (Benson, 2010) (see section 3.4).

3.3.1.2 Change and degrees

Another difficulty in measuring LLA is the assumption that learners will improve in the degree of their LLA when they join an intervention (Murase, 2015). Because autonomy is a collection of capacities and 'dispositions', we can say that autonomy is not a permanent 'steady' state (Little, 1990, 1991: 3), but an 'uneven' process (Benson, 2001: 53) in which 'learners' willingness to engage with autonomy fluctuates considerably' (Le, 2013: 46) depending on persons, contexts, and time (Benson and Cooker, 2013: 7).

Tassinari (2015: 64) attributes the variance in LLA to both 'internal factors' and 'external circumstances'. Everhard (2015b: 12) observes that autonomy varies "depending on the activity being pursued, the way it is being pursued and the amount of guidance or supervision from the

teacher or advisor, from peers and from the technology or the materials being used, whether learning is in a classroom context, using self-access resources or at a distance”.

Therefore, it is helpful to avoid thinking of autonomy as ‘full autonomy’ or ‘zero autonomy’ (Murase, 2015: 39) or what Nunan (1997: 192) terms ‘all or nothing’, but to look at it in terms of degrees on a continuum with two ends, i.e. autonomy vs. heteronomy (Benson, 2001; Holec, 1981; Everhard, 2015a). These two ends work as the two poles which are condemned from a pedagogical perspective (Little, 1990; 1994; Sinclair, 2000b) and between which ‘a great deal of fluctuation and vacillation’ take place as ‘progression’ or ‘regression’ (Everhard, 2015a: 13). This continuum will enable us to describe learners either as “‘more’ autonomous or ‘less’ autonomous in their engagement on a particular task” (Murase, 2015: 39). “To date, the construct of learner autonomy has been a matter of ‘degree’ by many researchers (Nunan, 1997; Aoki & Smith, 1999; Benson, 2001)” (Murase, 2015: 39) (see section 3.4).

3.3.1.3 Behavioural description (constituents)

This problem is experienced by researchers when they want to identify learners’ behaviours which are related to LLA (Le, 2013). Describing a behaviour of LLA is not a simple thing to do because it is not only one behaviour to measure. It is rather a composite of elements which all influence the autonomous level at a point of time and this makes it difficult to just use the observable behaviour for the measurement (Sinclair, 1999a) (see section 3.2). They are unreliable manifestations.

The fundamental components of the construct of autonomy (e.g. metacognitive knowledge and beliefs) are unobservable behaviours and may not be easily measured with quantitative methods such as tests (Dam and Legenhausen, 2010). Thus, the observable behaviours are unreliable manifestations of learners’ real intentions (Confessor and Park, 2004 cited in Benson 2010) (see section 7.5). Consequently, the problem of Breen and Mann’s (1997:141) “mask of autonomous behavior” appears. It describes the situation where non-autonomous learners pretend to be autonomous to please the teacher although wearing this mask may lead to the development of autonomy (ibid) (see section 3.3.1.4).

Although the measurable constituents of autonomy could be quantified, it is not easy to determine which observable behaviour is important in the measurement of autonomy and which one is not (Benson, 2010). Even if the behaviours which indicate autonomous learning were traced, “we have little evidence to suggest that autonomy consists of any particular combination of these behaviours” (Benson, 2001: 51) (see section 3.4).

3.3.1.4 Mask of autonomy

This problem is related to authenticity of autonomous behaviours. It is called 'mask of autonomous behaviour' from which Breen and Mann (1997) warned. If the teacher requires learners to show a set of behaviours as an evidence for their LLA when the measurement relies solely on observable behaviours, learners will identify these behaviours and pretend to do them in order to please the teacher when they show the expected development (Le, 2013) (see section 3.3.2). When they do that, "they give up their autonomy to put on the mask of autonomous behavior" (Breen and Mann, 1997: 141) and teachers have to distinguish the true from fake indications of autonomy (Le, 2013).

Benson (2011) reasons that this phenomenon could happen when a confusion takes place between autonomous behaviour and capability, for instance, a task may directly or indirectly require some observed behaviours and learners respond and perform these behaviours though they are actually not as capable as the behaviour indicates (Benson, 2001: 52). On the other hand, a learner with an autonomous capacity may take into account all resources before they make the decision of asking the teacher and this behaviour would sound like a non-autonomous behaviour to the teacher (c.f. Sinclair, 1999a). Therefore, reliable LLA measurement requires ensuring the authenticity of the behaviours (see sections 3.3.1.4 and 3.4).

3.3.1.5 Readiness for autonomy

Le (2013) considers learners' readiness for autonomy as one of the technical problems that might face researchers when they want to measure LLA (see sections 7.5.1 and 7.5.4). Learners' readiness depends on having favorable willingness (i.e. attitude and belief) to act autonomously, a certain level of awareness of learning, capacity (Le, 2013). Learners also need to have the capacity to perform skills in the process of learning which will help them to actually learn autonomously (ibid). If learners lack any of the fundamental elements to LLA, they need to be prepared for LLA and to go through a 'deconditioning process' (Holec, 1981: 22) (see sections 2.6, 3.4, and 7.11).

3.3.2 Conceptual problem- Should we measure LLA?

Benson (2010; 2011) raises the issue of whether we can measure the extent to which learners are autonomous (i.e. the technical problem) and he (2010) talks about the similarity between the complexity of autonomy and foreign language proficiency, their multidimensionality, and their conceptualisation as capacities. However, measuring autonomous learning is unlikely to be in the same way that language proficiency is done (Benson, 2011). This is because we can test students'

proficiency in any language skill, but it is 'hardly reasonable to give the learners a 'test' for their autonomy (Benson, 2001: 52).

The conceptual problem entails that even if we assume that we can 'technically' measure LLA, we have to discuss whether we really need to measure it and we have to deal with two questions: 'Should we measure it?' and 'Is it feasible to measure the construct of autonomy?' This last question is related to the fact that even if we can measure LLA (Murase, 2015: 40), measurement is still problematic because it 'may not be the "right" way to think about autonomy' (Benson, 2010: p.76). This issue was raised by Champagne *et al.* (2001: p. 49) when they argued that 'testing itself is anti-autonomy, serving to reinforce (on the crucial first and last days of the participants' experience on the program) traditional notions of teacher control and student accountability' (see section 3.4). Given that tests are prepared by teachers and responded to by students, the idea of testing autonomy is conflicting with the concept of autonomy and can bring up Breen and Mann's (1997) 'mask of autonomous behaviour' (Murase, 2015) (see section 3.3.1.4).

However, "because broader educational discourses encourage us to view everything we do as being potentially measurable" (Benson, 2010:96); and because some courses have greater learner autonomy as a learning outcome but this is not clearly translated into accountability mechanisms. Thus, the need to measure LLA (Benson, 2011) and the need to recognize it as measurable has emerged. Another motivation for the need to measure learner autonomy is that it is believed by many educators to be one of the key aims in language learning (Little 1999b) and as a result there is a growing interest in the measurement of LLA (Murase, 2015) to test the effectiveness of an intervention which aims to promote LLA in order to develop strategies to enhance it (see section 4.9.1).

3.4 Researchers' position on the problems of measurement

Murase (2015) suggests that we can overcome the debate on the appropriateness of LLA measurement (Champagne *et al.* 2001, p. 49) if we put lots of efforts to avoid the 'anti-autonomy' practice when an autonomy 'test' is enforced on learners (see section 3.3.2). She takes a positive position from the multidimensionality of the concept of autonomy and believes "it should, technically, be possible to measure learner autonomy if the construct can be conceptualised and operationalized" (p. 39) (see section 3.3.1.1).

However, Little (1990, 1991), Benson (2011), and Dixon (2011) believe that the variability in how autonomy develops makes it difficult to claim a measurement level at a certain time (see section 3.3.1.2). On the other hand, Everhard (2015a) and Murase (2015) take a different position from

the measurement. Autonomy should be described in terms of degrees from the end of 'autonomy' to the opposite end (i.e. heteronomy) (Everhard, 2015a), accordingly, "like autonomy, assessment is also (re-)considered as a matter of degree" (Everhard, 2015a: 9). "Murase (2015) believes that autonomy has 'measurable levels' (Cotterall and Malcolm, 2015: 168) because if we claim that there are degrees of autonomy, we should be able to measure where learners sit on the continuum at a time and "how much his/her autonomy develops along the continuum over time" (Murase, 2015: 39).

On the other hand, Benson (2001: 68) affirms that "[i]f we are to measure learner autonomy reliably, we will somehow have to capture both the meaning of behaviours and their authenticity in relation to an underlying capacity for autonomy". To carry out a reliable unmasked measurement, it is vital that teachers do it with "less influence over students' behavior" (Murase, 2015: 41) and this will help us avoid the issue of appropriateness of measuring learner autonomy (ibid) (see section 3.3.1.4). Given that the fundamental components of the construct of autonomy are unobservable behaviors and may not be easily measured with quantitative methods (e.g. tests) learners' self-evaluation of their learning through qualitative methods which use learners' voices in evaluative reflections is the best way to capture the authenticity of the behaviours (Dam and Legenhausen, 2010) (see sections 4.9.2 and 4.9.3).

In addition, Benson (2010) hypothesises that "if we are able to define autonomy and describe it in terms of various aspects of control over learning, we should also in principle be able to measure the extent to which learners are autonomous". He left his hypothesis, that autonomy can be measured, open to other researchers to build on. He concludes his chapter with the argument that it is possible to test autonomy in foreign language learning contexts when LLA is reduced to measurable observable behaviours which work like manifestations of control over the aspects of language learning. Even though the behaviours of autonomous learners are diverse, it could be measured through noticing the behaviours which illustrate learners' control over one or more dimensions of their learning process (ibid). Thus, autonomous learners could be identified by their behaviours (Little, 1991) (see section 3.3.1.3).

When the intention is to measure autonomy, what we measure is not how independent the students are from the teachers, but "the degree to which they are actually in control of their learning" (Benson, 2010: 81). Similarly, Sinclair (1999a: 96) argues that the development of learners' independence is not as beneficial as when it leads to better language learning. Benson (2010) believes that it is acceptable to test language proficiency but not to count only on that in the determination of how autonomous learners are in language learning. To aim for a broader accountability for autonomy-oriented programs, he suggests making a balance between looking

at the progress in language proficiency and the development in learner autonomy (ibid). These arguments are in line with opinions of a group of researchers about the need for the integration of the development in language proficiency and LLA skills in learner training (see section 2.7.1).

There are many implications for the arguments speculated by the authors in this section in the measuring scale and the assessment model I am proposing in this study (see section 3.7.4).

3.5 Previous studies on the assessment of LLA

The literature on LLA reports on attempts of indirect assessment of LLA through looking at the relationship between the individual's LLA and the observable behaviours (Le, 2013). Dam and Legenhausen (2010) maintain that the fundamental indicative features of LLA (e.g. metacognitive knowledge and beliefs) are untestable and cannot be accurately measured through quantification, but they can only be measured through learner self-evaluation and self-report which unfolds the need for qualitative instruments for this purpose. They assert that there is evidence on the reliability and validity of learners' self-evaluation especially when they have been encouraged to longitudinally monitor their progress in testable areas such as language skills (ibid). Mynard (2006) lists various qualitative assessment methods used by researchers e.g. diaries (Dam, 1995; Matsumoto, 1996; Porto, 2007), portfolios (Gottlieb, 1995; Gradner & Miller, 1999; Yang, 2003; Nunes, 2004), and/or interviews (Sinclair, 1999a).

Nevertheless, Kohonen (1988 cited in Dam and Legenhausen, 2010) holds that introspective data where learners self-report on their internal feelings and processes are more subjective and non-reliable compared to quantitative tests (see section 4.9.2). Correlational studies can prove the compatibility of learners' self-evaluations with teacher's assessment and objective tests (ibid). Quantitative instruments are 'more convincing' for the measurement of autonomy (Murase, 2015: 36), but there is a lack of effective quantitative instruments (Murase, 2006 cited in Murase, 2015) (see sections 3.6 and 4.9.1).

Benson (2010) reviewed a number of practical studies with the shared concern of the assessment of degrees of autonomy; but differing in the way autonomy was looked at when being assessed (i.e. what component of autonomy was looked at) and how the assessment was done (ibid). These studies investigate means of autonomy assessment or at best detect its existence (ibid). Examples of these studies: Rowsell and Libben (1994); Simmons and Wheeler (1995); Rivers (2001); Sinclair (1999b); Lai (2001); Ravindram (2001); Morrison (2005); and Champagne *et al.* (2001). The instruments used in these studies are for the assessment of degrees of LLA and are all 'context-sensitive' and might be designed for one use, because otherwise they would not be able to show how language learning autonomy has many forms (Benson, 2010). The authors do not claim to

exploit reliable instruments; however, their studies only give hope that it is possible to produce a workable instrument for autonomy measurement in research projects (ibid).

Cotterall and Malcolm (2015: 167), in their epilogue to Everhard and Murphy's (2015) book, gave a summary of the recent discussion in the literature of the assessment of LLA: the concepts of assessment and autonomy (e.g. Everhard, 2015a; Murase, 2015), 'assessment-focused interventions in language curriculum' (e.g. Everhard, 2015b; Murphy, 2015), development of tools to measure or describe autonomy (e.g. Murase, 2015; Cooker, 2015), and a 'dynamic model for assessing autonomy' with advisors' 'dialogues' (e.g. Tassinari, 2015). Discussion about how these studies are related to the present thesis will be presented in the following section (see section 3.7.2).

3.6 Gap in the literature of LLA assessment

As compared to the increasing number of discussions on the enhancement of LLA, the assessment of LLA and the link between the concepts of learner autonomy and assessment are both neglected (Everhard, 2015a). "this neglect [of LLA assessment] is surprising" and "It is therefore striking that the relationship between assessment and autonomy in language learning, which so clearly warrants rigorous investigation regarding the influences of the one on the other and the resultant implications and ramifications, remains relatively neglected" (Everhard, 2015a: 8).

A great volume of research in the literature of learner autonomy focused on the investigation of the aspects related to the concept, but only a few addressed the assessment of it (Benson, 2007b; 2010). Benson (2010: 77) observes that there is only a small volume of the literature on the 'measurement' of autonomy including his writings (2001, 2010, and 2011); and that his thoughts in his writing (2001: 51-54) on how problematic the measurement of autonomy is are not empirically-tested. The literature on the assessment of LLA does not give sufficient attention to the main question 'Should we measure learner autonomy?' apart from Lai (2011) and Benson (2010, 2011). However, Lai (2011: 48) only throws a set of questions on assessment, for example, 'Why should we assess learner autonomy?' and 'Is this a necessary step to take? If so, for whom?', but she does not answer the main question.

However, there is a growing interest in the assessment of LLA (Murase, 2015) but this interest was only able to produce ways of indirectly assessing LLA using its relationship with "observable and measurable factors" (Le, 2013: 76). With this increasing interest in the notion of assessment of LLA, it "seems that any actual attempt to measure learner autonomy tends to be perceived in a rather negative way, such as 'problematic' (Benson, 2001: 54) or even a combination of 'problematic' and 'difficult' (Mynard, 2006: 3; Lai, 2011: 43-5)." (Murase, 2015: 38). At this point,

we can ask questions about what makes it difficult and how we can overcome this difficulty (see section 3.3).

Benson (2011) explains that the slow progress in dealing with these problems is because the institutions did not translate autonomy into their credibility requirements although it is practiced as an education goal (see section 4.9.1). Additionally, researchers refuse to address the issue of autonomy assessment because they believe that assessment itself goes against the concept of autonomy (Champagne *et al.*, 2001; Benson, 2011) (see sections 3.3.2 and 3.4). In fact, it is possible to find ways to address these problems (Benson, 2011). Benson (2001) maintains that 'the measurement of autonomy is problematic' but it 'does not necessarily mean that we should not attempt to measure it' (p. 54) (see section 3.4).

Benson (2010) describes the need for research to develop tools for LLA measurement and he comments that these tools are needed to provide empirical evidence for our understanding of how LLA develops in different contexts. Murase (2015) asserts that "some form of measurement of autonomy is needed for research purposes at least" and she uses Benson's (2011) acknowledgement of the need for such measurement when the aim is to investigate the effectiveness of an initiative to promote LLA. The quantitative instruments to measure autonomy are 'more convincing to some researchers' (Murase, 2015: 36), but there is a lack of effective quantitative instruments or measurement of autonomy (Murase, 2006 cited in Murase, 2015). Cooker (2012: 164) states "I am aware of three studies which have developed statistically-based measures of learner autonomy (i.e. Murase, 2010; Dixon, 2011; Confessore and Park, 2004) but feel they all lacked the important aspect of tapping into subjective learner perceptions of learner autonomy". Reinders and Lázaro's (2007) review has put together the quantitative instruments that were developed in previous studies to measure LLA, e.g. Reinders and Cotterall (2001); Mynard (2004, 2006); Lai (2001); Dixon (2011); Murase (2015) (see sections 3.5 and 4.9.1).

Even when measurement of LLA is attempted to prove that learners improved in LLA (e.g. Murase, 2015), a scale which can show learners' profile of LLA was not achieved (Cotterall and Malcolm, 2015; Murase, 2015) and this is because the researcher had to come to an understanding of how LLA develops to be able to develop the instrument before she continues with the work on the measurement.

I believe that measurement of LLA is technically possible and conceptually appropriate because if LLA is composed of several dimensions of control over learning (Benson, 2010) and a matter of degrees (Everhard, 2015a), we should be able to measure the extent to which learners can control these dimensions and the degree of their LLA. Also, it was thought to be possible if the construct of LLA was conceptualised and operationalised (Murase, 2015) and if we reduced it into

observable concepts that can be measured (Benson, 2010). I am aware that this is not enough to have a reliable measurement of LLA, but the authenticity of learners' behaviours should be checked (Benson, 2001) by including their own self-evaluation using qualitative methods to validate these self-assessment (Dam and Legenhausen, 2010) and by avoiding enforcing any influence on learners' behaviours during the measurement (Murase, 2015) (see section 3.4).

Due to my belief that measurement of LLA is possible and appropriate, I developed the model I propose for the assessment of LLA with a measuring scale in this study. First, I re-conceptualised the construct of LLA to get a theoretical framework for my work on development and measurement of LLA (see section 2.11), then I designed a learner training program for the enhancement of students' LLA (see section 2.7.4), after that I developed the proposed assessment model (see section 3.7.4), and I operationalised the assessment model to establish a measuring scale (see section 4.10.6). I used the established scale and bands for the measurement of the change in students' LLA over the course (see tables 25, 26, and 27 in Appendix 3). Then, I test the measuring scale using qualitative case studies (see section 7.5).

3.7 The proposed model for the assessment of autonomy

A framework for the assessment of LLA is proposed in the current study with the intention of using the implications of the recommendations in the literature of LLA regarding the assessment of LLA. It aims to provide a comprehensive picture of the evaluation of LLA in the context of language learning. This section introduces how I respond to the problems of the measurement of LLA, the studies which influenced my decisions about the measurement of LLA in this study, and the model components.

3.7.1 Responding to the measurement problems

The contention of researchers in the field of LLA (e.g. Little, 1990, 1991; Benson and Cooker, 2013; Everhrad, 2015b; Murase, 2015; Nunan, 1997) that autonomy is not fixed can be a challenge to this study in which autonomy is promoted among university students and the level of autonomy they attain after the intervention is assessed. However, if the assessment was conducted only at the task level or in one setting, we will make a distorted judgment on the changing LLA level from task to another. In order to avoid this challenge, the assessment I conducted looked at the level of LLA at the micro level as well as the macro level which gives an overall picture of students' LLA over time.

To overcome the challenge from which Little (1991) warns when learners' willingness to engage with autonomy changes, the assessment I conducted here looked at the change happening in

learners' willingness and capacities in relation to learner autonomy over a long period of time (i.e. 13 weeks) and in different contexts of learning (i.e. online, offline, and on/off campus).

Additionally, I take Murase's (2015) and Everhrad's (2015b) position that if it grows in degrees, then these degrees can be measured and we can also measure how many degrees they move 'along the continuum over time' (p.39).

Equally, to overcome the problem of behavioural description raised by Sinclair (1999a) and Benson (2001) (see section 3.3.1.3) where observable behaviour are not enough for the measurement, the present study uses more than one source of evidence to ensure the authenticity of the behaviours and to validate the findings about the change the students made in autonomous behaviours. These evidences reveal the combination of behaviours that demonstrate control over learning and represent the construct of LLA.

3.7.2 Sources of influence on the assessment model

The current study shares some elements with the assessment approaches of other studies in the literature of LLA as demonstrated in table 1. It shows the similarities with: (1) a number of studies attempting to assess LLA and (2) linguists' conceptualisations upon assessment for LLA.

| | Similarity | Source of influence |
|---|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Language learning process as a basic element of LLA | Sinclair (1999); Ravindram (2001); Lai (2001); Lamb (2010) |
| 2 | Perceived strategy use as an indicative element of learner autonomy | Oxford (1999) |
| 3 | Learner attitude & willingness | Oxford (1999) |
| 4 | Language learning outcome as an indicative element of LLA | Oxford (1999); Little (1999a); Benson (2010); Champagne <i>et al.</i> (2001); Rowsell & Libben (1994) |
| 5 | Formative | Rivers (2001); Lai (2001); Lamb (2010) |
| 6 | Summative | Lai (2001) |
| 7 | Qualitative data from learners | Lamb (2010); Rowsell & Libben (1994); Morrison (2005); Dam & Legenhausen (2010); Chamagne <i>et al.</i> (2001); Simmons & Wheeler (1995) |
| 8 | Quantitative data | Lai (2001); Chamagne <i>et al.</i> (2001) |

Table 1: LLA assessment studies influencing the proposed assessment model

Chapter 3

As a researcher studying the effect of an autonomy-oriented program, I needed empirical evidence for the enhancement of students' LLA after the intervention. Following Murase's (2015) suggestion about the need for a measuring scale when researching the effect of a program on LLA or the relationship between LLA and other concepts and responding to the calls made recently in the literature about the need for a scale, I aimed to create a measuring scale for university students' LLA (see section 4.9.1).

I follow Benson's (2010) recommendation to reduce the construct of autonomy into measurable observable behaviours to demonstrate the aspects of students' control over language learning. I aim to assess LLA through quantitative measurement and students' qualitative self-report on these observable behaviours. Following Little's (1991) observation, I also identify autonomous students by noticing their observable behaviours (i.e. observation).

I am also influenced by Lamb's (2010) method for the assessment of LLA and, therefore, I use formative evaluation of students' reflectivity; conduct a focus group as a qualitative assessment method for the observable behaviours; and focus on the learning process (i.e. learner metacognitive knowledge and belief) as manifestation of LLA for assessment purposes. Tassinari's (2015) study had a strong impact too on my decision to include formative self-assessment of language competencies and autonomy-related competencies besides the emphasis on dialogic reflection in the FG and interviews.

Murase (2015) recommends combining qualitative tools with the quantitative measurement which I have done to inform the quantitative measurement. In this study, each student obtained a score for the degree of autonomy using the proposed scale, then I followed Murase's recommendation to compare these scores with the observation of students' actual learning behaviours inside and outside the classroom, and their qualitative responses about the behaviours and willingness. I used the measuring instruments to measure LLA components and also to help the students know more about their own learning which can develop their metacognition and can accordingly improve their self-assessment process, as suggested by Murase (2015).

3.7.3 The assessment model drawn from the literature (first version)

Reviewing the literature of LLA and its constituents, many researchers recommend the inclusion of course grades, language proficiency scores, self-proficiency rating scores, attitudes, motivational beliefs, and perceived strategy use (see section 3.7.2). Consequently, I decided to look at all of the aspects I felt to be important for students' LLA in a twenty-first century learning environment and also to reflect the concepts underpinning my definition for LLA.

The elements included in the design of this autonomy-oriented environment are implications for the components of the LLA assessment model, i.e. critical reflection, language course grades (LCG), language proficiency test scores (LPT), self-proficiency rating scores (SRP), perceived strategy use (PSU), attitude to learner autonomy (ALA), attitude to technology use in language learning (TULL), motivational belief about LLA (MBL), and motivational belief about technology use in language learning (MBT) (see figure 4). Also, metacognitive knowledge was used in this version as the umbrella which covers the attitude and belief about LLA and about technology use. Figure 4 demonstrates the components of the assessment model which were drawn from the literature and which were planned to be applied to students' data to assess their LLA.

However, I decided not to include LCG in the final LLA assessment model and measurement scale in this study (see section 4.10.2). During the analysis of the qualitative data, I elicited the level of students' metacognitive knowledge while they were revealing their attitudes and beliefs. Then metacognitive knowledge component was recommended to be added to the model as a separate component and to be included in the measuring scale to be able to compare its quantitative measurement with the qualitative assessment (see section 7.12). Therefore, another version of the model, which will be presented in the following section, is used for the operationalisation of the components and the creation of the scale.

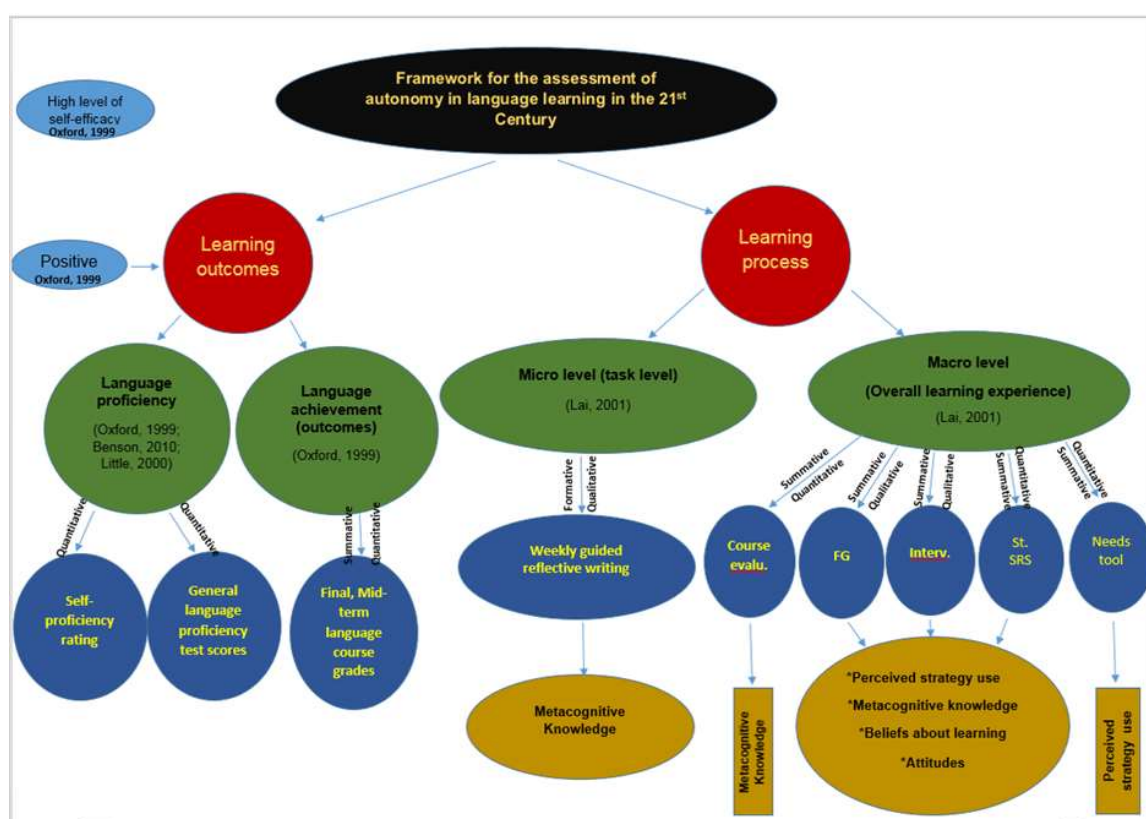


Figure 4: The proposed model drawn from the literature on the assessment of LLA (first version)
(see an enlarged figure in appendix 24)

3.7.4 The final version of the assessment model (modified version)

In this modified version of the model, I included the components of attitudes motivational beliefs (about LLA and about technology use), language proficiency (i.e. external assessment using a test), self-proficiency rating (i.e. students' internal assessment), critical reflection, and perceived strategy scores (see figure 5). Figure 5 illustrates the components of the final (modified) model for the assessment of LLA including the components which appeared from the data and which are explained in the following paragraph.

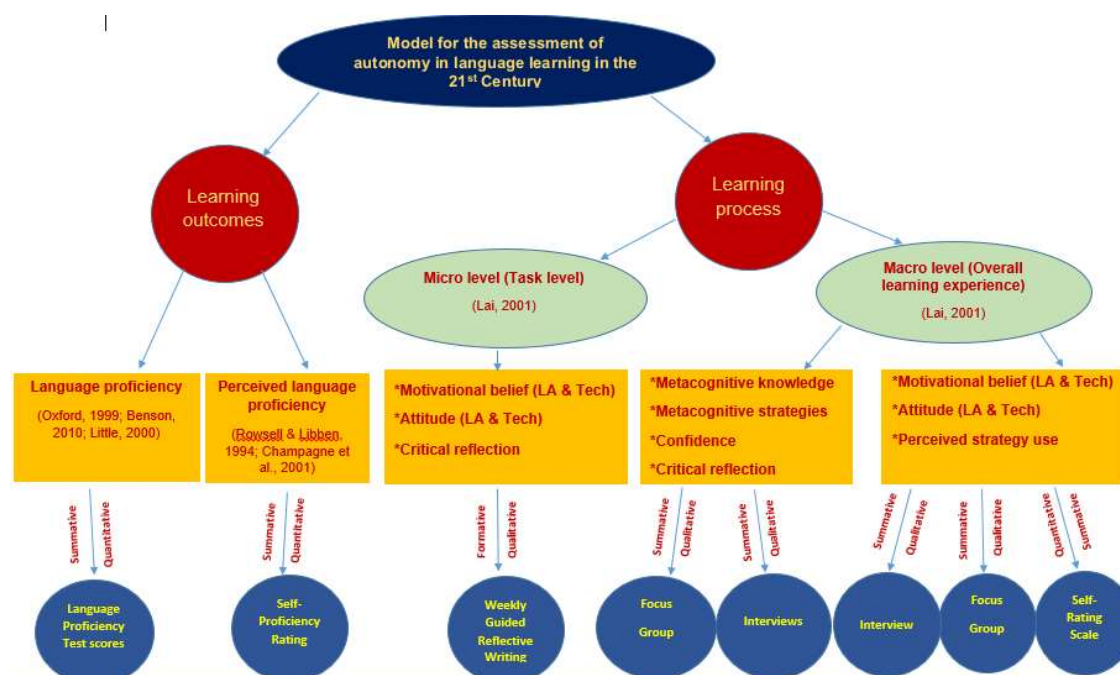


Figure 5: The final version of the LLA assessment model (modified version) (see an enlarged figure in appendix 25)

In fact, confidence, metacognitive strategies, and metacognitive knowledge were not included in this version of the model before I started the analysis of the data. However, because I take the position of being open to accept what the qualitative data show, I found these three components emerging from the qualitative analysis. They were found fundamental to the process of LLA enhancement and consequently to have a valid assessment. Hence, they are part of the final version of the assessment model and I recommend the addition of these three components to the measuring scale to ensure that they are measured quantitatively before being assessed qualitatively.

Each component of this version was measured using suitable measurement methods including quantitative and qualitative as well as summative and formative kinds (see section 5.2.1).

Confidence, critical reflection, metacognitive knowledge, metacognitive strategies were only investigated qualitatively. However, language proficiency scores, self-proficiency rating, perceived

strategy use, and motivational belief about LLA, attitude towards LLA, motivational belief about technology use, and attitude towards technology use in language learning were measured quantitatively and investigated qualitatively. This latter group of components was statistically operationalised to create the scale for measuring LLA as in figure 6. This figure presents the proposed measuring scale with its components (in yellow rectangles) and the recommended components for future studies (in green rectangles).

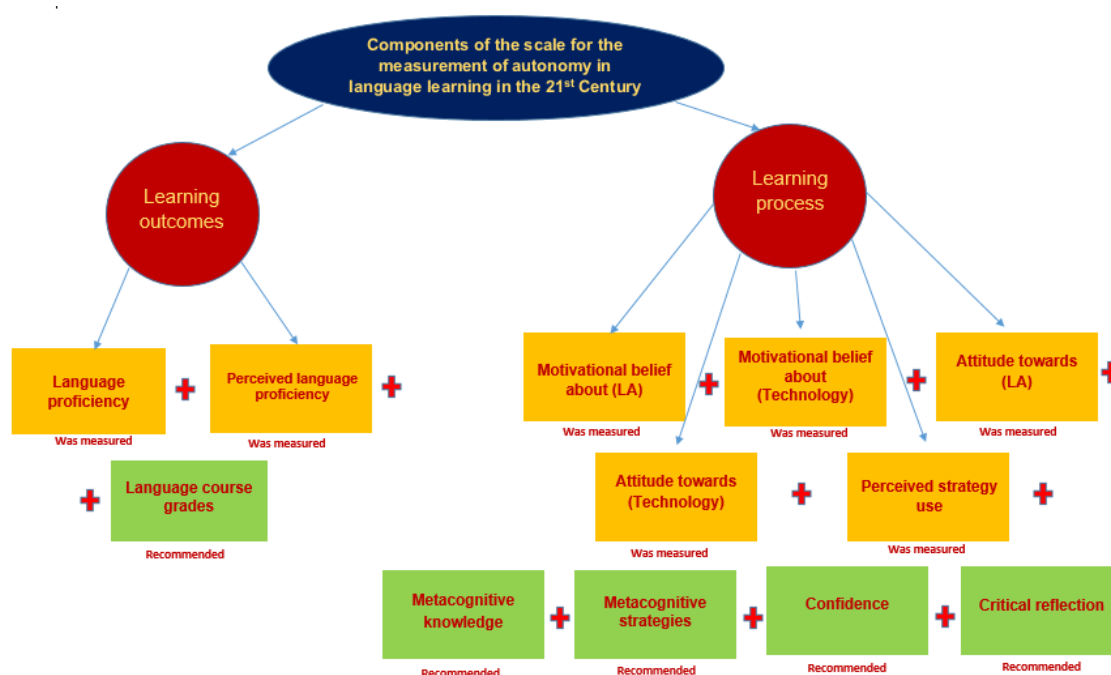


Figure 6: The scale for the measurement of LLA (see an enlarged figure in appendix 26)

The coming sections will cover all of the concepts which, I believe, reveal the extent of individual's LLA and reflect my definition of LLA in light of the modified view of assessment which I had after testing students' LLA levels and these are: motivational belief, attitude, confidence, language proficiency (external and internal assessment), critical reflection, metacognitive knowledge, metacognitive strategies, and perceived strategy use.

3.7.4.1 Meta-cognitive knowledge

Capacity can be enhanced, but it is also a prerequisite for the enhancement in LLA (Little, 1997a). Learners' conscious awareness of the learning process (Sinclair, 2009) or what is called metacognitive knowledge (Sinclair, 2000b) is one type of this capacity. The metacognitive knowledge represents one form of the hidden curriculum (Hedge, 2000) or 'the processes' by which learning happens (Little, 1997a: 94). In a teacher-centred classroom, where learners are being more recipients than proactive, two kinds of curriculum are interplaying (ibid). The overt curriculum implies the subject knowledge and the skills intended to be taught; whereas the

hidden curriculum refers to the unobservable learning that occurs alongside the intended teaching such as learners' awareness of their own learning, their roles, their teachers, and their attitudes towards these aspects of learning (ibid). This is similar to Trim (1997) and Little's (1999a; 1997a: 94) argument that for LLA, schools should prepare learners with both language proficiency (i.e. 'learning') and the necessary attitude and skills for autonomous learning (i.e. 'learning how to learn') (see section 2.7.1).

Metacognition is defined by Flavell (1985 cited in Lamb, 2010: 101) as "knowledge about the self as learner (person knowledge), the tasks involved in learning (task knowledge) and the strategies that can be called into play in order for learning to take place (strategy knowledge)". Another definition is established by Flavell *et al.* (2002: 164) and integrates the knowledge and the management perspectives of metacognition as "any knowledge or cognitive enterprise... Metacognitive territory includes both what you know about cognition and how you manage your own cognition". Black and Jones (2006: 8) add another dimension to this definition when they describe it as "the power to oversee and steer one's own learning so that one can become a more committed, responsible and affective learner" (Lamb, 2010: 99).

On the other hand, some scholars prefer to discriminate between those concepts of metacognition. According to Wenden (1999), the metacognitive knowledge (i.e. learners' acquired knowledge about their learning) is distinct from the metacognitive strategies which demonstrate how learners manage their learning. The latter concept is similar to Holec's (1979) view of the learning process as a management process where learners follow certain techniques such as setting learning objectives, determining learning content, choosing the method, monitoring and evaluating themselves (see section 3.7.4.15).

Within this discrepancy in how metacognitive knowledge and metacognitive strategies are viewed, the order of time in which they are taught is also discussed in the literature. Rubin (1987 cited in Lamb, 2010) asserts that metacognitive knowledge should come before any attempt to teach metacognitive strategies because the knowledge is the basis for the choice of metacognitive strategies. Wenden (1996), however, holds an opposing view which considers strategy training as the main focus of learner training (see section 2.73).

"[A]wareness of the learning process is a prerequisite for successful learning" (Lamb and Reinders (2005:28). Kelly (1955, repr. 1991) highlights the importance of learners' self-awareness and reflections in creating new constructs which are important in the integration with learners' existing constructs to have successful learning and control of the learning processes (Schwienhorst, 2008). Awareness (Schwienhorst, 2008; Dam, 1995) or metacognitive knowledge

(Lamb, 2010) is a crucial component for the development of LLA and it is important for both teachers and learners (Dam, 1995).

Learners' 'self-knowledge' (Ho and Crookall, 1995 cited in Chan, 2001: 506) and 'conscious awareness of the learning process' (i.e. metacognitive knowledge) as well as knowledge about 'learning strategies' are very important for learners to be able to use 'the acquired knowledge and skills' as part of the learner training (Chan, 2001: 507). Ho and Crookall (1995) in Chan (2001) observe that learners' knowledge about themselves forms the foundation for the development of the skills needed for LLA. Le (2013) demonstrates that Littlewood's (1996) framework holds knowledge as one of the requirements for learners to be ready to develop in LLA and that this knowledge allows them to act autonomously. On the other hand, it is not enough for learners to be ready metacognitively, but they need to be psychologically ready to develop in LLA (ibid) (see section 2.6).

Schwienhorst (2008) asserts that LLA is dependent on learners' reflections and linguistic and metalinguistic awareness. Wenden (1999) lists the capacity to reflect as one of the properties of metacognitive knowledge (Lamb, 2010). In other words, learners can reflect on their learning and construct meaning out of the existing knowledge only if their cognitive capacity has developed (ibid). Hence, this awareness is a crucial component for the development of LLA (Schwienhorst, 2008; Dam, 1995). It functions as one of the factors influencing learners' performance as autonomous learners (Chan, 2001) to the extent that LLA is said, by Schwienhorst (2008), to be dependent on learners' reflections and linguistic and metalinguistic awareness (see sections 7.5.1 and 7.11).

As learners' responsibility for their learning process is a consequence of reflections and awareness, the increase in any of mental activities such as reflections, linguistic, and metalinguistic awareness leads to an increase in learners' capacity to control their learning which makes them more autonomous learners (Schwienhorst, 2008). Hence, awareness and reflection form one of the important principles of the models for the development of LLA thought of previously by a number of scholars such as Eck *et al.* (1994), Little (1999a), Schwienhorst (2008).

Metacognitive knowledge is a variable that has been 'neglected' in second language acquisition research, as described by Wenden (2001), and more effort should be given to clearly define and specify the role of metacognitive knowledge and beliefs in language learning (Lamb, 2010). Lamb (2010) notes that many researchers talk about the importance of metacognitive knowledge in LLA (e.g. Jiménez Raya, 1998; Lamb, 2006a; Victori and Lockhart, 1995; Wenden, 2001). He illustrates that learners' metacognitive knowledge needs to be developed to gain control over their cognitive activities and this will enable them to manage their learning.

Getting access to learners' metacognition, as seen by Rudduck *et al.* (1997), is tricky because learners may not be able to discuss it (Lamb, 2010). When linguistic or metalinguistic awareness is sought, the focus is on learners' reflections on how languages are learned and which strategies are being utilized (Schwienhorst, 2008). Lamb (2010) has developed qualitative ways (i.e. focus group interviews) to access learners' metacognitive knowledge and beliefs about learning to exploit them as the basis for the formative assessment of LLA in an attempt to enhance learning. The assumption was to utilize learners' voices to realize their knowledge about themselves and their learning (ibid).

Lamb (2010) found focus groups a successful method for the assessment for autonomy. Learners can express their awareness of language, language learning, learning in general in two ways: their attitudes or beliefs (Schwienhorst, 2008) (see section 2.7.3). Properties of metacognitive knowledge are described by Wenden (1999: 435) and two of which are "with cognitive maturity comes the ability to reflect on the learning process and develop new assumptions" and "it can be brought to consciousness and talked about" (see sections 2.11.2 and 7.11).

3.7.4.2 Implications for metacognitive knowledge

There are implications for this component in the design of the experiment and the learner training in this study. First, it is worth mentioning that metacognitive knowledge and metacognitive strategies (i.e. management skills) are included in the assessment model as distinct concepts with different names, namely, metacognitive knowledge and metacognitive strategies.

I used especially tailored activities along with multiple reflection opportunities in the learner training to raise learners' awareness about: different types of learner strategies, tasks, and themselves. This was done by explicit discussions and practice. Contrary to Wenden's (1996) view in Lamb (2010) that strategy training should be the main focus of learner training and as opposed to Rubin's (1987: 19) assertion in Lamb (2010: 102) that the knowledge development should come before teaching strategies, I focus in the learner training given to students in this study on the development of both aspects of learning (i.e. development of metacognitive knowledge and metacognitive strategies) in an integrated way.

I tried to access learners' metacognitive knowledge by formatively assessing it through learners' voices to improve LLA using the weekly RWFs. I also summatively assessed it using SRS, a focus group, and interviews at the end of the course. Their awareness of language and language learning was elicited through their reported attitudes, beliefs, and perceived strategy use. Students' report on these three concepts was taken through their reflection using the SRS, weekly RWFs, focus group, and interviews (see sections 3.7.4.1 and 4.7).

The learning process as a management process, i.e. Holec's (1979) view of autonomy, forms only one aspects of the proposed assessment model in this thesis, namely, the learning process perspective. This assessment model looks also at the learning outcome perspective (i.e. language proficiency) besides the learning process perspectives such as awareness, motivational belief, attitude, confidence and engagement. Tassinari's (2015: 64) argument that "explicit reflection on competencies for LA can be undertaken separately from the assessment of language proficiency" is reflected in the inclusion of the measurement of students' language proficiency in the overall assessment of LLA besides the process management and the other components related to the process perspective (see figure 5).

3.7.4.3 Attitude- Willingness

Little (2003b) assumes a great importance of learners' willingness to their autonomous learning and Hsu (2005) sees it as one of the key components of LLA. In the same vein, Everhard (2015a) notes that willingness has been discussed by many researchers (e.g. Miller and Ng, 1996; Littlewood, 1997; Clifford, 1999; Kohonen, 1999; Black *et al.*, 2003; Sinclair, 2009; and Dixon, 2011) as one of the required elements for the achievement of LLA. Allwright (1990) emphasises the importance of action in the direction of responsibility for learning along with ability and willingness to LLA (Oxford, 1999).

Sinclair (2009: 185) explains that "[t]he willingness to take control varies ... depending on a range of variables, including psychological (e.g., depression, irritation), physiological (e.g., headache), contextual factors (e.g. too much noise, not enough resources) which can influence learners any time". Therefore, exploring learners' willingness to learn autonomously is a vital step prior to starting any initiative to foster learner autonomy (Le, 2013) (see section 2.6).

Chan (2001: 506) admits that "it is believed that the learner could be functioning at any point on this learning continuum when he/she chooses to take part in class or work alone on the path to learner autonomy". Littlewood (1996) puts it as "autonomy is not just ability but also willingness to take responsibility" (Oxford, 1999). The role of learners' willingness in the exercise of autonomy has been acknowledged by Sinclair (2000b, 2009) and she argues that "learner autonomy is a construct of capacity which is operationalised when willingness is present" (2009: 185). This argument entails that it is not necessary that LLA will be fostered only by the mere fact that learners acquired the capacity to control their learning or 'a good deal of metacognitive knowledge', because this improvement requires their willingness to perform as autonomous learners (p. 185).

Positive attitude is one form of learners' willingness besides their beliefs and intrinsic motivation, (Hsu, 2005). LLA is reciprocally related to attitude. LLA implies that learners possess a good attitude to take control of learning (Little, 1999a). "Certain kinds of knowledge, attitudes and skills are said to characterise and/or lead to autonomous learning" (Chan, 2001: 506). Attitude has been included in many definitions of LLA. Paiva (2006), in defining autonomy, includes "attitudes" and "willingness" as important constituents of the concept of autonomy (p. 88-89). Oxford's (1999) definition of LLA also includes willingness when she says:

learner autonomy is the (a) ability and willingness to perform a language task without assistance, with adaptability related to the situational demands, with transferability to other relevant contexts, and with reflection accompanied by (b) relevant action (the use, usually conscious and intentional, of appropriate learning strategies) reflecting both ability and willingness.

Everhard (2015a) observes that Kohonen (1999, 2012) treats feeling as a key factor influencing learners' receptiveness to learning (see section 7.5). Jones (2001) emphasises the importance of learners' participation in the choice of the course content in the promotion of their attitudes and commitment. Tassinari (2015: 64) recommends researchers "to integrate self-assessment of learners' attitudes and learning competencies into their language learning-teaching approach".

3.7.4.4 Implications for attitude

Students' attitudes towards different aspects of their language learning are one of the components of the proposed model for LLA assessment in this study which shows their willingness to learn autonomously (see section 2.2). Because technology was integrated into the learning environment of the ONTG group to enhance their LLA and because of the affordances of technology in an autonomy-oriented learning environment, the assessment also considers their attitudes towards technology use as well as towards the different aspects of their learning (see sections 5.2.1.8 and 5.2.1.5).

Attitude in this study denotes learners' attitudes towards aspects of autonomous learning (e.g. learning independently, planning, learning management, use of technology, collaborative learning, reflection, task types and organization, discussion tasks and interaction, medical English, information exploration, deadlines, group work, leading groups, different roles within groups, pair work, and teaching method). Assessment of students' attitudes (quantitatively and qualitatively) helps to illustrate their metacognitive knowledge (awareness) and so it helps with assessing it.

Willingness plays a role in the decision of the low autonomy case studies in the present thesis (i.e. Samia and Maha)- from both online and offline groups- to disengage with the provided training and to not use the given opportunities. Consequently, their low engagement negatively impacted the amount of change they made in LLA over the course, though this impact was slightly different as a result of the difference between the two in their willingness and engagement (see section 6.3.3).

3.7.4.5 Motivational Belief- Willingness

As mentioned in the definition of LLA in this study, willingness is one of the fundamental components of LLA. Learners' willingness can be seen in their beliefs, attitudes, and intrinsic motivation (Hsu, 2005).

Several researchers have discussed the significance of learner beliefs in language learning including (Benson and Lor, 1999; Cotterall, 1999; Mori, 1999; Hüttner, *et al.* 2013; Tanaka and Ellis, 2003; and Mercer and Ryan, 2010). The definition of beliefs in the field of second language acquisition (SLA) is not clear-cut, yet (Pajares, 1992). To some researchers, as Lamb (2010) explained, learner beliefs are often dealt with as synonymous with metacognitive knowledge (e.g. Victorie, 1999); whereas it is a broader concept which encompasses metacognitive knowledge and motivational beliefs to others (e.g. Yang, 1999). Motivational belief is defined by Gracia and Pintrich (1995) as "learners' beliefs about their ability to learn a language, their expectations regarding level of difficulty of the tasks, their goals and reasons for learning a language and their emotional reactions to second language learning" (Lamb, 2010: 102).

Metacognitive knowledge and beliefs are two components of learner autonomy (Lamb, 2010). "[I]t is important to explore learners' beliefs in the learning process, especially their perception of learner's and teacher's roles (i.e., responsibility)" before helping them to develop LLA (Le, 2013: 75-76) (see sections 2.6 and 7.11). "[T]he beliefs learners hold may either contribute to or impede the development of their potential for autonomy" Cotterall (1995a: 196). The challenge with the development of LLA is how to change learners' perceptions of learning from the traditional view of other-made task completion into knowledge self-construction (Benson, 2011). Lamb (2010) concludes that assessment for autonomy can be facilitated by assessing learners' metacognitive knowledge and beliefs about learning and by using the focus group method. Therefore, reflection on learners' beliefs and metacognitive knowledge serve as means to develop their LLA and as learning assessment method (p. 99).

3.7.4.6 Implications for motivational belief

Learners' belief shows their willingness to learn and it is one of the autonomy-related concepts (see section 2.2). Following Lamb's (2010) suggestion to assess students' beliefs about learning using focus groups for the assessment for autonomy, motivational belief is included as one of the components of the proposed assessment model.

Motivational belief in this study denotes to learners' beliefs about their ability to learn a language (e.g. language practice opportunities, learning independently, planning, learning management, use of technology, collaborative learning, and reflection), their expectations regarding level of difficulty of the tasks (e.g. task types and organization, discussion tasks and interaction, medical English, information exploration, deadlines, group work, leading groups, different roles within groups, and pair work), their goals and reasons for learning a language and their emotional reactions to second language learning (e.g. teaching method and how languages are learned). Similar to the attitude component, students' motivational belief about technology use and about different aspects of autonomy-oriented environment are explored and included in the proposed assessment model (see sections 5.2.1.6 and 5.2.1.9).

The assessment of students' motivational belief (quantitatively and qualitatively) illustrates their metacognitive knowledge and accordingly facilitates its assessment. Indeed, reflection on learners' beliefs and metacognitive knowledge is used to develop and to assess their LLA as noted by Lamb (2010).

3.7.4.7 Perceived strategy use

Research has repeatedly shown the relationship between strategy use, proficiency in the second language, and LLA (Oxford, 1999). She maintains that the most competent learner in the classroom would use a variety of learner strategies and would be the most autonomous learner in the classroom. Several research studies, as cited by Chamot and Rubin (1994), discuss the relationship between individuals' strategy use and improvement in their language learning performance. Research also shows that learners of second language exploit various and more learner strategies than those learning foreign language probably because second language environments require more language proficiency at the time they provide more support for such increase in language proficiency (Green and Oxford, 1995; Oxford 1999) (see section 2.11.3.3).

On the contrary, Benson (2011) takes a different position from this link and believes that researchers should be cautious from falling into the trap of claiming that the acquisition of a set of strategies which improves learning performance indicates greater autonomy. They may have developed skills for managing their learning but this does not mean that they have gained the

ability to control their learning content and process and to apply the learned skills flexibly and critically (ibid). According to Chamot and Rubin (1994), strategy use is not the same even among successful learners which illustrates that it is not valid enough to describe good learners based on their use of a set of strategies, and that what should be looked at is their understanding and use of a preferred effective collection of strategies.

3.7.4.8 Implications for perceived strategy use

Learner strategies form the pedagogical framework of the given learner training in this study. The content and the structure of the material in the learner training program were built around strategies (see section 2.7.4) because it was the focus of the training and because of what the literature say about its relationship with LLA (see section 2.11.3.3), learners' perception of their strategy use was included as a component in the proposed assessment model in this study. It is not the main indicative behaviour to individuals' LLA level, but it shows along with the other components that those high in LLA are more strategic than the low ones (see section 5.2.1.12). Assessment of this component (quantitatively and qualitatively) helps to illustrate students' metacognitive knowledge (awareness) about self and language learning.

3.7.4.9 Reflection

Researchers such as Holec (1981), Van Lier (1996) and Little (2003a) view critical reflection and decision making as two fundamental concepts for learners to take control of learning (Murphy, 2015). Dam and Legenhausen (2010) link the development of LLA to learners' capacity to do critical reflections. The ability to reflect on learning can only be achieved when learners become aware of themselves and of their learning (Wenden, 1999). Hence, autonomous learners are characterized by consciously reflecting on their learning processes (Little, 1997a) (see sections 7.5.1 and 7.5.4).

Reflection works as a contributing factor for both the development of autonomy and the assessment for autonomy. Learners' reflections could be used by teachers not only to assess the teaching they had, but also to help learners get an idea about their capacity to determine their weaknesses and strengths to accurately rate their proficiency with no under- or over estimation (Hedge, 2000) (see sections 2.11.2.2 and 7.5). Murase's theoretical work (2015) produces an instrument which can be used by teachers to enhance learners' reflection and raise awareness of self and of learning (Cotterall and Malcolm, 2015).

Learners' self-evaluation consists of reflection on their learning, comments on procedures of their learning, evaluation of their performance and their progress (Dam and Legenhausen, 2010). When learners evaluate their learning, they need to collect information to make decisions about the

learning processes and procedures (ibid). Self-evaluation, thus, requires learners to step back and keep a cognitive distance to critically reflect on their learning, comment on the processes and procedures, and evaluate their own performance (ibid).

3.7.4.10 Implications for reflection

In the present study, reflection forms one of the principles of the proposed model for the development of LLA. A lot of opportunities for reflection are embedded in the learner training program to help learners develop in self-assessment skills and control their learning (see section 2.11.2).

Reflection is in itself one of the fundamental and assessed components of the LLA assessment model (see section 4.11.6). It is also the tool by which the assessment of different self-reported components of LLA is done whether formatively or summatively (see section 3.7.4.1).

3.7.4.11 Confidence

Dam and Legenhausen (2010: 137) used the term 'self-esteem' to mean 'confidence' which is different from Littlewood's (1996: 429) use of 'self-esteem' to mean 'anxiety'. Confidence is one of the key components of LLA (Littlewood, 1996). Dam and Legenhausen (2010) look at confidence as a prerequisite for the development of autonomy as learners need to have an 'assertive attitude' to be able to do evaluative reflections among the group; and at the same time as a consequence for the autonomous learning. To them, it is a 'cyclical' relationship where self-esteem leads to autonomy and vice versa (p. 137). Based on Wenden's (1987) speculation in Le (2013: 35) that "autonomous learners are self-confident learners who are aware of their crucial role in their language learning", I conclude that learners' self-confidence can be used as an evidence for LLA level.

Providing learners with technology and the internet offers them access to an infinite number of opportunities for using authentic language material, communicating with native speakers or peers, and exploring as well as searching for information (Schwienhorst, 2008). Previous studies on successful language learners revealed that exploration opportunities were helpful to those learners to identify the best strategies they like to use in learning. Jones (2001) suggests exposing learners to authentic materials to build their self-confidence (see sections 2.12 and 6.3).

Some techniques could also be done by the teacher to build learners' confidence before developing their learner autonomy (e.g. collaboration, gradual movement in the level of the difficulty of the material, and having opportunities to learn from their performance after being self- or other-assessed) (Jones, 2001). Development of learners' ability to self-assess and their

awareness of their capabilities can help to boost their confidence (Blue, 1994) (see section 2.12). When the prerequisites abide, learners can proactively engage in autonomous learning and various skills and capacities may be developed as manifestations of learner autonomy.

3.7.4.12 Implications for confidence

Learners in the present study are offered plenty of opportunities for using authentic language material, communicating with peers, searching for and exploring information through the use of technology and the internet. Suggestions and techniques found in the literature (e.g. Jones, 2001 and Blue, 1994) to enhance LLA are also considered in the design of the training in this study (see sections 2.12 and 2.8.10).

The qualitative part of the assessment of LLA shows that confidence plays a role in the decision-making skills of the case studies in the present thesis (i.e. Lama and Maha) when they self-assess their learning. This effect can be related to the lack of technology use. Accordingly, their level of confidence had a negative impact on the amount of change they made in LLA over the course (see sections 7.5 and 7.8).

3.7.4.13 Language proficiency

The relationship between the development of LLA and the development of language proficiency is one of the big questions open for discussion in the debatable area of assessment of LLA (Tassinari, 2015). Little (1999a: 84) asserts that “proficiency in any language is a procedural skill ... it develops through use”. Learners’ mastery of complex procedural skills, which can be achieved through TL use, influences the effectiveness of their communication (Little, 2003a). Remarkably, this capacity to control a full range of discourse roles is a characteristic of socially autonomous learners (ibid). Peek (2015: 1) states that

[p]articipants with a higher repertoire size and overall language proficiency, who used their languages more frequently, had higher LLLOC scores (language learning locus of control) than those with less languages at lower levels of proficiency and frequency of use. These findings suggest that more experienced language learners might indeed be more autonomous learners, as they subscribe to language learning beliefs that are indicative of a more internal LLOC.

When LLA is sought to be measured, as Benson (2010) puts it, the aim is to foster autonomy, not for its sake, but to benefit learners in their language learning including proficiency in the foreign language. It is broadly recognised that an increased LLA fosters students’ independence as well as language proficiency (Sinclair, 1999a) and this link with language proficiency leads to an increasing need for language teachers to identify evidence for students’ enhanced LLA. Students’ language

proficiency test scores can be a form of evidence on the enhancement in LLA. Consequently, Benson (2010) believes that it is acceptable to test language proficiency but not to count only on that in the determination of how autonomous learners are in language learning. To aim for a broader accountability for autonomy-oriented programs, he suggests to make a balance between looking at the progress in language proficiency and the development in learner autonomy (*ibid*).

“In the literature on second language acquisition (SLA), self-assessment usually involves the self-assessment of language competences, of learning progress and, in some cases, of the overall language learning ...” (Tassinari, 2015: 64). Previous studies (e.g. Rowsell and Libben, 1994; Chamagne *et al.*, 2001) use self-rating instruments to measure learners’ language proficiency.

3.7.4.14 Implications for language proficiency

This component of the assessment model reflects the component of TL use in the proposed model for LLA enhancement. Students’ language proficiency is included in the assessment of LLA in this study to represent the measurement of the learning outcomes alongside the assessment of multiple learning process perspectives (see section 3.7.4). Language proficiency measurement is undertaken in the present study from both an external (i.e. language proficiency test) and an internal perspective (i.e. self-rating on the four language skills).

Given that the scores of a standardized language proficiency test are not affected by personal bias common in self-assessment, students’ language proficiency scores are used as the most reliable evidence for students’ level of LLA. The diagram created for each of the four case studies to show the comparison between their self-assessment of the LLA components with their language proficiency scores was used as the starting point for a testing process to find further evidence for students’ LLA level (see section 7.5).

Students’ self-assessment of their competences in the four language skills is meant to reflect the component of TL use in the model proposed for the enhancement of LLA subject to students’ accuracy in self-assessment. Self-assessment of language competences is carried out through the SPR form (quantitative measurement) and the focus group with the interviews (qualitative assessment) (see section 4.7). When the qualitative data of students’ self-rating of language competences was compared with the change in their overall LLA score, I had a conflicting picture. Then I decided to do the process of testing LLA scores of four case studies starting with their language proficiency test scores as the first step in the validation process (see section 7.5).

3.7.4.15 Metacognitive strategies

Capacity is one of the requirements for LLA development and this capacity involves learners' capacity to use the metacognitive learning strategies (Little, 1991; Nunan, 1997; Sinclair, 2009; Benson, 2011) which were called the 'higher order executive skills' by O'Malley and Chamot (1990: 44-5). Le (2013) observes that the capacities of reflection, planning, monitoring, and self-assessment are all skills that are believed by many researchers (i.e. Cohen, 1998; Little, 1991; Wenden, 1991) to be improving learners' LLA.

In their description of metacognitive strategies, Hurd and her colleagues (2001: 343) explain Bachman and Palmer's (1996) view of strategic competence that it is "a set of metacognitive components, or strategies, which can be thought of as higher-order executive processes that provide a cognitive management function in language use". "It could be that metacognitive knowledge and the development of metacognitive skills are not only an essential part of effective learning but also a pre-requisite to it" (Hurd, 2000a: 64 cited in Hurd, 2008a). Hurd (2008b) maintains that metacognitive strategies highlight learners' control of learning and Benson (2003) emphasises the importance of these skills to LLA (see section 7.5).

As part of the development of learners, O'Malley and Chamot (1990) argue that learners need to be trained on metacognitive strategies as one type of the strategies helping them to control learning besides the other two types of strategies (i.e. social and cognitive strategies) (see section 6.3). According to Le (2013), Nunan (1997) and Benson (2011) observe that learners' development of metacognitive strategies would help them to engage willingly in autonomous learning and to manage their own learning process and content. Learners' management of their learning requires them to be capable of self-regulation whereby their cognitive processes are controlled (Lamb, 2010); and this control will be facilitated by the development of learners' metacognitive knowledge (Wenden, 2001).

Learners' capacity to use metacognitive strategies varied across the four case studies in the present study. Lama was not as capable as Nora in such a use that Nora was high in this capacity. Yet, the low autonomy students (i.e. Samia and Maha) were not able to use these higher-order strategies to control their learning which led to the low amount of change they made in LLA as compared to what is expected from the provided opportunities and to the increased mean of change in LLA for the groups they belong to (see section 6.3).

Capacity to use metacognitive strategies is not enough to develop in LLA because learners accustomed to traditional teaching methods may not accept to develop these skills and resist taking the responsibility of managing their learning unless their belief in the value of using them is

enhanced and their willingness is increased (Hurd *et al*, 2001: 343) (see sections 2.6, 7.5.1, 7.5.3, and 7.5.4).

3.7.4.16 Implications for metacognitive strategies

There are many ways of embedding metacognitive strategies into the language learning process and I tried to include as many opportunities as possible in the provided training (see sections 2.7.4 and 2.12). Metacognitive strategies are also significantly important to the assessment of students' LLA. Its qualitative data is used for the triangulation with the quantitative measurement to test the proposed model (see section. 3.4.7).

3.8 Summary

This chapter starts with the complexity and the common problems associated with LLA assessment. It provides researchers' responses to these problems, highlights previous studies on assessment, and explores what is needed in this research area. It concludes with the presentation of the first version of the model proposed for the assessment of LLA which was drawn from the literature and the final (modified) version in light of the data with the components of the proposed scale for the measurement of LLA (both the applied components and the recommended ones).

Chapter 4: Research methodology

4.1 Introduction

Having talked about the two core areas of this research (i.e. the enhancement and the measurement of LLA), I am going to set the scene in Saudi Arabia (SA) by giving the context of this research in terms of the status of English language education, E-learning, and independent learning in SA and the location in which the research took place. I will present the research questions, design, methods, sample, data collection instruments, and main phases. Then, I will discuss the proposed model for the assessment of LLA in terms of its methodology, origin, included and excluded components, data collection, and statistical treatment besides the creation of the change and the establishment of the bands. I will also explain how the measurement scale was going to be tested after applying it and giving LLA scores to the students in the three groups. This is followed by a discussion of the process and method of data analysis, ethical and risk considerations, the validity and reliability of research instruments, and the role of the researcher. Then the decisions made on how to present the data are outlined.

4.2 The context of the study

The research was carried out in the context of English teaching and learning for specific purposes for Medical students in a university in SA where learners of different disciplines must study English language in the foundation year. It looks at the enhancement of autonomy through the implementation of a model developed to provide appropriate pedagogy to the learners in the 21st century and to produce a new model for the assessment of LLA in SALL. The following sections provide a description of the context of this study in terms of the status of English language education, independent learning, and E-learning.

4.2.1 Status of English language education at tertiary level in Saudi Arabia

In terms of the macro context, the site of the research is located in a country which emphasises the importance of the learning of English as a foreign language. Learners today easily have access to native speakers of English via the internet through the social networking sites or tandem learning websites (Al-Maini, 2011). My observations suggest that students can travel to English speaking countries to practise the language as a tourist or as a learner and that textbooks assigned to the learners by their institutions for learning English are easily made available for the learners through their institutions. I observed that every learner is given the same and equal

access to foreign language learning regardless of their social class or economic conditions. However, those with better economic conditions gain more access to practice the language they learned and that happens through either travel, access to the internet, or the financial capability to pay for private English-teaching institutes.

The official language of the country is Arabic and it is the language used for daily life matters. English is the medium of teaching in science and medicine disciplines in the Saudi universities (Alshahrani and Alshehri, 2012). It is used for communication in medicine, petroleum and aviation professions (ibid). Such academic and professional uses of English contributed to making it a fundamental subject in the Saudi educational system (Abalhassan, 2002; AlAbed AlHaq and Samadi, 1996; Alshahrani and Alshehri, 2012).

A few but vital problems with the EFL context in SA have been reported in the literature. English is taught and sometimes practised only in formal educational contexts. There are no opportunities to practice English face-to-face outside the classroom except when speaking to non-Arabs at restaurants or hospitals (Alshahrani and Alshehri, 2012). Learners have reported lack of university extracurricular activities in English, limited use of English as medium of communication in commercial activities, and the formal teacher-student relationship (ibid). If learners really intend to practise it outside the classroom, they need to take a private course, find a virtual partner on the internet, or organize a communication group. The lack of practice opportunities outside the classroom indicates the need for learner-centred teaching approaches to personalize learning (Alshahrani and Alshehri, 2012). Large classes form another problem in EFL as compared to ESL classrooms which minimizes interaction opportunities for learners (ibid). There are also problems related to teachers and these include teachers' low English proficiency level, ineffective teaching methodologies, and accented English (ibid). "Contemporary EFL textbooks embrace the communicative approach. However, a few teachers are able to cope with the 'challenging' directions given to them in the Teacher's Book" (AlMaini, 2011: 478).

However, the micro social and educational context displays a slightly different picture. The adopted textbooks for teaching English are the mainstream textbooks for general English and for ESP. The communicative language teaching approach is the focus of such textbooks. Nevertheless, not all teachers are qualified to teaching using this teaching approach (Al-Maini, 2011). Recently, the university in this study, in the researcher's experience, has made an investment to launch teacher training in corporation with Oxford University. Most of the learners in the research context have developed their own strategy to acquire English language because they have felt that the learning they have experienced at schools and in formal education is not enough.

Informal chats with learners in this context revealed that they have trained themselves to listen to authentic language in different ways and that a large percentage of them watch movies without subtitles when others watch the English speaking news channels and radios. Most of them reported being familiar with and looking forward to the new episodes of the English teaching series 'Falleemha'. In this series, a new general English expression is given to the audience with its proper use in each episode. After watching the episode, what is left for the learners to do is only to practise using the expression in their daily life. I assume that all the strategies they have followed to learn English have contributed to their increased awareness about the features of spoken discourse such as pronunciation variations and the expressions and vocabulary specific to the spoken language. To a large extent, they have reported that their oral skills are far better than their academic skills. These initiatives on the part of the learners can be linked to their learner-centered capacities and willingness to play an active role in learning.

4.2.2 Status of independent learning in Saudi Arabia

Teaching EFL in SA, as in any EFL context, is carried out in traditional settings where teachers dominate the learning process and transfer information (Alrabai, 2014; Al-Seghayer, 2015); and learners are left with nothing to decide about (AlHazmi, 2003; 2008). A cultural factor plays a role in the way autonomous learning is viewed and consequently practiced in SA (Alrabai, 2014).

Learners in contexts where testing is dominant are low in creativity and motivation and are unable to learn on their own (Broadfoot, 2005 cited in Everhard, 2015a). Enhancement of LLA needs a 'paradigmatic shift in pedagogical thinking' in which assessment has a vital role (Kohonen, 1992: 38 cited in Everhard, 2015a). Where assessment does not work in line with the shift in the teaching methodology, traditional models persist (Everhard, 2015a). Learners' participation in the assessment process contributes to their autonomous learning (Everhard, 2015a) as it gives us access to their mental processes and encourages them to work independently (Rubin *et al.*, 2007). Exams in SA focus on students' 'memorization of grammar rules and formulaic sentence structures' (AlMaini, 2011: 478).

Saudi teachers have to follow the prescribed curriculum and assessment system which mainly relies on learners' written performance to determine the progress in their learning (Alrabai, 2014). A considerable number of teachers are low in language proficiency and are unable to manage the class time to go beyond the textbooks and to give enough time for all the language skills (Al-Seghayer, 2015). Teachers are mostly not aware of the new trends in language teaching methodologies and if they are aware, they lack guidance and training on how to apply them (ibid).

Chapter 4

In most Saudi educational contexts, the textbook is the only source for both teachers and learners (AlMaini, 2011).

Students are passive and reactive with little opportunities to produce written or spoken language for learning or practice and limited kinds of activities which are examination-oriented (Alrabai, 2016). Students lack meaningful opportunities to learn and use English inside and outside classroom (Alshahrani and Alshehri, 2012). Their roles are just to receive and memorise information and there is no room for them to negotiate or think beyond the given information (ibid). Nevertheless, a change in the learning behaviours and roles of students and teachers has appeared recently (AlMaini, 2011). The shift from the traditional paradigm will contribute to the promotion of learners' analytical skills, problem-solving, and language competence (Alshahrani and Alshehri, 2012).

In the micro context, the university where the research was conducted, learners learn English language in teacher-centred classrooms. My observation during the field trip and the previous visits showed that teachers of English understand the importance of individual differences, learner's motivation, and learning strategies, although only few put them into practice. However, they still need to consider some helpful learning approaches such as learners' collaboration, learners' negotiation with the teacher, and learners' control over their learning with some guidance of the teacher whenever needed. I found a group of teachers who are willing to go beyond the textbook and to provide language practice opportunities outside the classroom to personalize students' learning, whereas others direct the classroom and stick to the physical textbook in a lecture type classroom.

Similarly, my visits to the research context revealed that learners are used to follow the teacher's instructions and to answer the teacher's questions if they have got the answer. They prefer to be told what to do and how to do it and find it more comfortable to just listen to what the teacher says and to participate only when a question is raised by the teacher in class. They learn vocabulary and grammatical rules; and they can speak, read, and write English to a good degree. However, the focus is not on collaborative work, and technology is only sometimes used to learn English in the classroom and perhaps with no underpinning pedagogy. They have a few opportunities where they are faced with challenges of problem solving and perhaps none to reflect on their own learning. However, when I dealt with learners, I found that they are now becoming good at expressing their needs, interests, and even difficulties. They are increasingly becoming able to make their voices heard in terms of their choices and decisions and to find ways for learning and practicing English.

4.2.3 Status of E-learning in Saudi Arabia

Given the use of technology in the study, it is important to describe the skills of E-learning in SA and in the research context. The appearance of educational technology highlighted the impact of technology (Reinders and White, 2016). The connection between CALL research and LLA has become more likely that the use of technology in learning assumes a certain level of autonomy and calls for a shift in the roles of teachers and learners (ibid). Alshehri (2010) asserts that SA “has witnessed unprecedented growth in higher education and E-learning in recent years”. Two decades ago, different technological tools have been exploited in teaching in different ways; however, it is only recently that the Saudi higher education has taken official steps (Alshahrani and Alshehri, 2012). It has put the regulations for E-learning implementation in higher education which represents the occurring educational reform in SA (ibid).

Since 2005, many steps have been taken in SA towards the integration of technology in Higher education, e.g. awareness-raising sessions, E-learning promotions, courses for interested individuals, establishment of E-learning on-campus departments in each university, establishment of the National Centre for E-learning (NeLC) in 2005, and launching local E-learning programs aiming at national certification for E-learning (Alshehri, 2010). Interestingly, a national plan was launched in SA which encourages the adoption of e-learning and distance learning in higher education (AlMegren and Yssin, 2013). Nine plans were launched and had a remarkable effect on the integration of eLearning in the educational sectors in SA (ibid). Two postgraduate-level and technology-oriented universities were also established lately: (1) King Abdullah University of Science and Technology (KAUST) in 2009 and (2) the first virtual Saudi e-University in 2011 (Alshahrani and Alshehri, 2012).

One of the reasons for the adoption of E-learning in Saudi universities is its advantage in increasing access to tertiary education for learners with special circumstances who missed learning opportunities due to health or distance difficulties and, thus, need different delivery modes to take education to where they are rather than being confined within the physical classroom boundaries (AlHarbi, 2011). Those people were offered opportunities in tertiary education by the approval of Distance Education Regulations by the Ministry of Higher Education in SA in 2010 (AlMaini, 2011). Another reason is the realisation that technology is evident and should not be ignored (ibid). A strong point about e-learning is that it provides in-class and out-of-class learning which makes it a proper environment for learning English in most EFL contexts including SA (Alshahrani and Alshehri, 2012).

Nevertheless, technology use in teaching is not a goal on its own. E-learning implementation should be accompanied by pedagogical knowledge and practice (Benson, 2011; Strake, 2007;

Alshahrani and Alshehri, 2012). The educational system in SA has spent a lot on the integration of technology in education, but it would be of no use unless relevant pedagogies are adopted such as student-centred and learning-driven approaches (Alshahrani and Alshehri, 2012). Teachers' conception of teaching EFL in e-learning environments may not be compatible with their practice that they may use technological tools but only for announcement and assessment purposes and they ignore opportunities for learner-centred learning (ibid).

Users' views of technology implementation in EFL teaching varies within the same cultural context. A group of teachers welcome the use of technology in EFL teaching if their funding problems are resolved at the time that others resist such implementation as it is perceived pointless (AlMaini, 2011). Some teachers have started their initiatives in creating their own space equipped with technology for their learners to use for learning EFL inside the educational institution (ibid). The majority of the participants in Alshehri's (2010) study, decision makers from various Saudi universities and the NeLC in SA, believe that their institutions were advanced in E-learning and that E-learning is an unavoidable option in the coming years. Students in SA are becoming more digital natives and more connected through social media applications. They are familiar with these applications and with various mobile phone and computer technologies (Alshahrani and Alshehri, 2012).

A considerable number of problems have been found to challenge the implementation of the technology potentials for subject teaching, especially EFL: 'a rigid overcrowded curriculum', 'lack of resources', 'inadequate teacher preparation' (AlMaini, 2011: 478), lack of flexibility of E-learning and EFL policies, and students' low proficiency and low technical expertise in e-learning (Alshahrani and Alshehri, 2012). Other challenges were concluded in Alshehri's (2010) study related to human and financial resources, infrastructure, and organization and management. AlMaini (2011) reported on the availability of computer laboratories for computer subject teaching, but the lack of 'classroom computers' or 'language laboratories' (p. 477). He related the problems of access and availability to funding problems and unawareness of who the responsible body for provision of equipment is.

Successful use of technology in education requires consideration for the influencing factors (AlHarbi, 2011). Any large-scale E-learning initiative at the national level should first consider the existing challenges (Alshehri, 2010). Organizations involved with E-learning in SA need to frame a common vision for E-learning at the level of the country to have a common purpose and a clear strategic plan for the future of E-learning in SA as stakeholders, researchers, or practitioners (ibid).

E-learning in SA is still at an infant stage and more information is needed to be gained on how technology is used for teaching/ learning purposes (AlHarbi, 2011). Most of the research carried out so far on E-learning in SA explore stakeholders' perceptions and attitudes, problems and challenges, or experience in technology use and practices (e.g. Alshehri, 2010; AlHarbi, 2011; Almaini, 2011; Alshahrani and Alshehri, 2012; Abu Hassana and Woodcock, 2006; Albalawi, 2007; Albalawi and Badawi, 2008; Al-Dakheel, 2008; Al-Fahad, 2009; and AlKahtani *et al.*, 2006). Very few studies have been involved in educational interventions using technology (e.g. al-Jarf, 2005; Al-Masaad, 2008).

On the micro context, informal chats with personnel in the Deanship of ELearning and Distance Education demonstrated that the financial support to update materials and equipment is quite good. The efforts in the recent years to provide updated material and good infrastructure are remarkable. The library services are increasingly improving. Yet, there is no students' resource centre for learning English. The learners were rarely given computer-assisted language activities or sent to the internet to find answers for the activities in learning English and very rare cases show that technology was used in the classroom to teach English, but that is increasingly changing in the recent years.

On a visit to update the information about the research site and to explore the available facilities, it was found that several computer labs were normally used by the teachers of Computer Science in their practical teaching. Teachers of English were also allowed to use these labs as a space for teaching. Each computer lab consists of twenty five computers, headphones, and desks. On another female students' campus, there is only one fully-equipped computer lab with a smart board which was established by the Deanship of E-Learning and Distance Education for any teacher aspiring to use technology in teaching. Informal chats with the academic staff at the English Language Centre revealed that E-learning was practiced by some teachers of English with few student groups as an optional practice in many different ways and using various kinds of tools, whereas the traditional teaching in face-to-face classrooms was dominant with other teachers.

For example, one of the teachers of English was holding an intervention in teaching English. She was teaching Headway textbooks for general English of which a digital copy was published by Oxford University Press on a set of CDs, called iTools. She bought the set and used it in classroom teaching via overhead projector instead of the physical textbook. Also, students were provided with online tasks to do on the Oxford University website. Students joined the online group which was created by their teacher for this course on the website and to do the uploaded tasks.

Students' online work could be tracked by the teacher. A report on every student work and logging in times can be generated from the website.

4.3 Research questions

This research aims to enhance students' LLA using technology and learner training and to examine the impact of each of these two variables on students' enhanced LLA over time. To achieve this, the change students may make in their LLA needs to be measured. Therefore, we need to measure students' LLA before we look at this impact. This study aims to answer the following set of research questions:

RQ1. How can we measure the development of LLA within a blended learning environment?

This question seeks to identify and measure changes in language learner autonomy over time. To answer the question, I ask a number of sub-questions which set out to measure the development of individual components of LLA over time. Each component has been identified in the literature as a manifestation of LLA and the measurement of each component will be combined to give the answer to the main question. The sub-questions are:

RQ1a. What are students' perceptions of their language competence? (Rowsell and Libben, 1994; Chamagne *et al.*, 2001; Tassinari, 2015)

RQ1b. How proficient are students in language learning? (Little, 1999a; Sinclair, 1999a; Peek, 2015)

RQ1c. What attitudes and motivational beliefs do students hold about LLA? (Little, 1999a; Oxford, 1999; Chan, 2001; Hsu, 2005; Paiva, 2006; Sinclair, 2009; and Dixon, 2011)

RQ1d. What attitudes and motivational beliefs do students hold about technology use? (Little, 1999a; Oxford, 1999; Chan, 2001; Hsu, 2005; Paiva, 2006; Sinclair, 2009; and Dixon, 2011)

RQ 1e. How reflective students are? (Little, 1997a; Dam and Legenhausen, 2010; Murphy, 2015)

RQ 1f. What is students' perceptions of their use of LLS? (Chamot and Rubin, 1994; Oxford, 1999)

Because of the difficulty and the problems of measurement of LLA which are observed in the literature of LLA assessment (see section 3.3) and because I needed to have tangible evidence for students' enhanced LLA, I ensured that I do all of the possible ways to facilitate its measurement

and to avoid the potential problems (see section 3.7.1). First, I reconceptualised the construct of LLA and defined it. Secondly, I reduced the concept into observable and non-observable concepts (see section 2.2).

Thirdly, I used the literature on assessment of LLA to identify implications for those concepts and I theoretically developed the model for the assessment of LLA with its components (see section 3.7.4). Fourthly, I carried out measurement of those components for the three groups of the experiment (ONTG, OFTG, and CG) using quantitative methods (i.e. SRS, SPR form, and LPT scores) to do descriptive and inferential statistics on the change they made in each component. This work was followed by assessment of qualitative data on each of these components from four case studies selected from both treatment groups (ONTG and OFTG) to validate their LLA scores and to explore how the different components work with different students across the groups (see section 4.6.2). One high autonomy and one low autonomy student were selected from each of the treatment groups (i.e. online and offline) to be able to examine how LLA is improved for those who are high versus those low in LLA in each group. Fifthly, I created the measuring scale out of the assessment model and established the bands (see sections 4.10.5 and 4.10.6). Sixthly, I applied the scale on students' data to give each student a score pre- and post- the experiment, calculated the change in LLA scores over the course, and expressed this change in terms of levels (tables 25, 26, and 27 in Appendix 3). Seventhly, using the change in their LLA scores, I examined the differences among the three groups in the enhancement they made in LLA. Eighthly, I validated the findings of the quantitative measurement of LLA (i.e. the change in LLA score) using different sources of qualitative data for four case studies. In this step, the LLA scores of the case studies have undergone a four-step process of testing in which evidence was collected from the qualitative data to examine the validity of the change in their LLA scores (see sections 7.4 and 7.5).

The quantitative findings provides the overall picture of LLA improvement and the qualitative findings work at the individuals' level to inform, explain, and illustrate the findings of the quantitative research methods. The comparison between the quantitative and qualitative data of the four case studies in the components of the model explains the quantitative differences among the groups in LLA components, demonstrates how these components work with individuals, illustrates how students were developing in each of the constructs and how important is each of the construct to the individual case studies.

The way all of these steps are organized in this thesis is as follows: The first and second steps are reported in chapter 2 (see section 2.2). Chapter 3 fully discusses step three by presenting the model and its components. Chapter 5 is concerned only with step four (i.e. quantitative followed

by qualitative findings of each LLA component). Thus, it presents the findings for each of the components of the proposed model to appropriately and reliably measure LLA. Step five (creation of the scale) is discussed in the current chapter as it is related to the methodological parts of the measurement and it covers the way the components of the scale were processed and the way the scale was set up (see section 4.10.6). Chapter 7 deals with step six (giving scores to individuals), seven (difference across groups), and eight (mapping work done in seven with qualitative assessment to validate the scores). Furthermore, the model proposed for the assessment of LLA is discussed and the weighting of the scale components is carried out in chapter 7. Research questions 2 and 3 seek to identify the causes of any enhancement of LLA that may occur in a formal setting in the 21st Century. They draw on the findings of RQ1.

RQ2. What is the impact of students' technology use in language learning on the enhancement of their LLA?

Based on the literature of CALL, technology use in the learning environment is said to be influential in the enhancement of students' autonomy-related capacities and the improvement of their learning management. Technology is used in this study as part of an experiment aiming to enhance students' LLA. Hence, it is of interest to identify the impact of this use of technology on the progress students may make in their LLA after being given technology in the treatment.

Students' technology use is measured using the SRS before and after the experiment. After calculating the change they may make in technology use, a regression can be run to predict the relationship between students' technology use and their LLA. In addition, students' responses about technology use and their autonomous capacities in the FG, interviews, and RWFs are analysed along with the data from the observation of students' online and offline performance. The analysis of the qualitative data and the integration of the findings from the quantitative measurement and the qualitative data can illustrate the impact of students' technology use on their LLA.

RQ3. What is the impact of learner training on the enhancement of their LLA?

It is well-known that learner training can help students enhance their LLA and acquire more skills related to LLA. Students need to be made aware of those skills and to be trained in an engaging way on how to improve those autonomy-related skills. Needless to say that the use of technology with no pedagogy underpinning its use may not give the expected results and may lead to disappointment. Therefore, learner training with tasks on language learning strategies and medical English was designed for medical students and was used in an experiment which aims to enhance their LLA.

Students are asked about their attitudes, capacities, and engagement with different features of the learner training they have received using individual interviews, FG, and RWFs. The enhancement they may have made in their LLA is discussed and answered in RQ1. These two concepts are examined in the qualitative data of four case studies to answer the question about the impact of learner training on students' LLA over time.

4.4 Research design

The current research adopts an experimental and case study approach with elements of action research. Action research is defined by (Elliott, 1991: 69) as “the study of a social situation with a view to improving the quality of the action within it”. The overall vision of the current research has a pedagogical point of view which is to create a change in the teaching/learning practice in the research context when LLA is enhanced under the influence of the proposed pedagogy and technology use in this study (see section 4.2). According to Feldman (2007), it is called action because actions are made by the researcher in the context that they intend to change, and the fact they are conducting an open investigation makes it a research. Action research does not specify which design frame to use and “it may take almost any form” (Thomas, 2013). Hence, I am using an experimental and case-study design frames as the appropriate ones to help me to obtain better and robust results on the impact of technology and learner training on students' LLA.

The change that is planned in this research is achieved in a controlled way and here comes the role of the experiment with three groups of different conditions (i.e. online, offline, control). The experimental research design frame aims to investigate the effect of learners' technology use on the enhancement of their autonomy-related capacities (see sections 2.2, 2.4, and 3.7.4) in order to be able to draw as robust and reliable conclusions as possible about the relationship between students' technology use and LLA. Hence, it looks at the differences among the three groups of the experiment in light of their measured LLA levels. The experiment sheds light on the change made by the three groups in the components of LLA. To be able to discuss as accurately as possible the difference among the three groups in the change they made in LLA, I needed to have a tangible measurement method which led to the thinking of how LLA can be measured and what constituents of LLA need to be assessed before LLA measurement is carried out.

In designing the measurement part of the research, I was looking for an appropriate methodology to investigate students' LLA from the product as well as the process perspectives. Hence, two issues needed to be considered, i.e. learners' subjective voices and perceptions about the process of learning they had and their objective learning outcomes. After reading the literature of LLA assessment, I made the decisions about the constituents I believe to be relevant to LLA and how

each one is best to be assessed. Therefore, an assessment model and a measurement scale were developed with measuring bands to illustrate students' LLA at a point of time. The model was set out quantitatively and was tested using students' qualitative data. The assessment model helped to shape the design of the whole research including the experiment and the following case study and to measure the change made by the three groups. The qualitative assessment followed the measurement of LLA helped to understand LLA using the performance and perceptions of the four examined individuals about the change they made in the different components of LLA.

A pragmatic paradigm informs the methods of research used in this study where it is believed that reality of the phenomenon under investigation (i.e. assessment of LLA) cannot be accurately reached with only one approach. Therefore, it is studied using a mixed method research (sequential Quant → qual as well as concurrent Quant + Qual processes) with a positivist's and interpretivist's stances (see section 4.14). The research questions dictate the use of both quantitative as well as qualitative research methods are going to be used. Mixed methods research is defined by Dörnyei (2007: 163) as "the collection or analysis of both quantitative and qualitative data in a single study with some attempts to integrate the two approaches at one or more stages of the research process". Researchers in the Social Sciences and particularly applied linguists (Dörnyei, 2007) are increasingly adopting mixed methods research (Creswell, 2014).

Triangulation is considered in this study by sampling individuals in different ways depending on the adopted research design frame (i.e. experiment vs. case study) and the research method (FG vs. interview), by employment of different types of research methods (quantitative vs. qualitative), and by using multiple research instruments within both the quantitative and the qualitative approaches to increase the validity of the findings of each research instrument which contributes to the validity of the assessment of LLA. Quantitative findings will draw the direction of the analysis and the qualitative findings will inform, explain, and illustrate the findings of the quantitative research methods.

4.5 Research methods

The current study uses both quantitative and qualitative research methods for data collection. The quantitative method is composed of a standard language proficiency test, a self-proficiency rating form, and a self-rating scale (for autonomy-related capacities). The qualitative method comprises one-to-one interviews, a focus group interview, students' weekly guided reflective writing forms, online and offline observations of students' learning performances and activities, and the research journal (see sections 4.7 and 4.9).

4.6 Research sampling procedure

This section introduces the population of the study and discusses the sampling techniques used in the different design frames of the study (i.e. the experiment vs. case study) and in the different research methods (i.e. the focus group interview and the one-to-one interviews) (see sections 4.7.4 and 4.7.5).

4.6.1 Population

The target population of this research consists of the Medical and Medical Sciences students studying in their preparatory year at a local university. The sample of the study is composed of three groups of the Medical and Medical Sciences learners, with similar total number of students (25). The participants' sampling in qualitative studies is done differently from the way it is approached in quantitative studies (Dörnyei, 2007).

4.6.2 Participants

In quantitative research, the aim is for a sizeable sample to be able to rule out any individual differences among the participants and to have the sample as much as possible representative of the population from which the sample is drawn (Dörnyei, 2007). He asserts that "... in most applied linguistic research it is unrealistic or simply not feasible to aim for perfect representativeness in the psychometric sense". Thus, the adopted sampling procedure in this study is non-probability which employs strategies aiming for reasonably representative sample using the resources that the research can approach as this is a classroom research with imposing limitations on the research.

Dörnyei (2007) maintains that research in applied linguistics mostly utilizes the non-probability sampling procedures of which Cluster sampling is one kind. This sampling method is purposive and is used when the research population is wide and the aim is to sample large groups of the population and to study all participants in those groups (ibid). I purposely selected three groups out of 28 groups in total of the Medical and Medical Sciences university students (foundation year) as the sample for the experiment to represent the population of the study. However, the selection of this purposive sample was random within the groups of students which were placed on the pre-intermediate level of language proficiency according to the placement test. Each group of the three encompasses 25 students. The reason for selecting three groups is to investigate the effect of learners' technology use on the enhancement of their autonomy-related capacities (see sections 2.2, 2.4, and 3.7.4) in order to be able to draw as robust and reliable conclusions as possible about the relationship between students' technology use and LLA enhancement.

Chapter 4

According to Dörnyei (2007), several scholars have agreed on rough estimates for the sample sizes for the quantitative methods of research, including the comparative and experimental data collection procedures which use at least 15 participants in each group. Hatch and Lazaraton (1991) emphasise that the sample should consist of at least 30 participants to achieve the normal distribution in the sample of quantitative research. If this could not be achieved, certain statistical processes such as non-parametric tests can be used as an alternative (ibid).

The reverse approach which is used to determine the sample size for the needed quantitative data, as Dörnyei (2007) notes, indicates that an expected correlation of .40 at a $p < .05$ significance level requires at least 25 participants. This calculation makes 25 students a good number to reveal sound statistical results and to have a representative sample. It was not possible to increase my sample size and to deliver the treatment of the experiment to a greater number of groups to enhance and eventually to measure their LLA because of the amount of work required to deal with the expanded sample size. This limitation made me choose the three groups I needed to show the difference in the change they may make in LLA based on the conditions they were exposed to.

Qualitative studies, conversely, are meant to describe and understand the dimensions of the phenomenon under investigation (Dörnyei, 2007). Thus, representativeness of the sample and the distribution of the experience in the population are not an issue (ibid). The aim of sampling in qualitative investigations is to find the participants who can contribute richly and variedly to the investigation and the best sampling approach to achieve this goal of qualitative enquiries is the purposive sampling (ibid). The purposive sampling, as Silverman (2005) indicates, is a synonymous term for the 'theoretical sampling'. In Glaser and Strauss' (1967 cited in Dörnyei, 2007) discussion about 'theoretical sampling', they state that:

Sampling should be a flexible, ongoing, evolving process of selecting successive respondents or sites, directed by our earlier discoveries so that the emerging idea and theoretical concepts can be tested and further refined (126).

For the focus group interview in this study (see section 4.7.4), a total of six participants were selected from the three groups, i.e. two participants from each group. The adopted sampling approach for the FG is purposive using the strategy of 'segmentation' which entails 'within-group homogeneity' and 'intergroup heterogeneity' (Dörnyei, 2007: 145). The perceived low autonomy and the perceived high autonomy students from each of the three groups were selected. This sampling approach helps to show the limits of the experience under investigation and hence the

common points among the participants form the core elements of the whole experience (i.e. consensus) and the different views represent the difference among the three groups.

The adopted sampling approach for the one-to-one interviews in the current study (see section 4.7.5) is the extreme or deviant sampling by which the most extreme case studies are selected by the researcher. This sampling method is one of the methods for the purposive approach. The participants who can serve the purpose of the study were selected. The presumably most autonomous and least autonomous participants- based on the researcher's initial impressions from the observation of students' performance in learning- were the target. Twelve participants were selected for one-to-one interviews, six from each of the treatment groups (i.e. ONTG and OFTG).

Not all of the twelve interviews (see section 4.7.5) were analysed and used to answer the research questions as this is a mixed method research with quite a big amount of quantitative data besides the rich qualitative data. Additionally, the depth required in the analysis of case studies in light of the quantitative findings cannot be achieved with all of the twelve case studies in a limited space. Therefore, only four students were selected for the case study- one high and one low autonomy students from each of the treatment groups (offline vs. online) - to validate the quantitative findings and to enhance our understanding of how LLA was practised and improved.

The choice of these four students in particular for the analysis of the case study was based on the change they made in their LLA score as compared to the researcher's observation for students' online and offline performance. These are interesting case studies as the change they made in LLA scores gives questionable conclusions about their LLA (see table 2 below). The decision was made to select two examples of students from both groups who were found high in autonomy and improved by the end of the course. These two examples are interesting because one of them, surprisingly, made a slight increase in LLA when the other made a great improvement. Two more examples used two students who were low in LLA from both groups and similarly improved across the spectrum in their LLA. The similar amount of improvement made by the low students (who experienced two delivery modes) and the different amounts of improvement made by the high autonomy students in both groups raised questions and made these students interesting case studies to study as individuals in order to explore what was happening in their learning and why. This exploration will provide insights into the change they made in their quantitative LLA levels by the time and will help to exemplify the claims I make from the quantitative side of analysis. Table 2 presents the LLA scores of the four case studies pre- and post the experiment along with the change they made in LLA over the course.

| Case studies | | LLA scores and levels for T1, T3, and change | | |
|--------------|---------------|----------------------------------------------|------------|---------------------|
| Names | Research code | T1 | T3 | Overall change |
| Nora | 21 | 72.19 (D2) | 73.57 (D2) | 1.38 (0 level up) |
| Samia | 12 | 52.59 (C2) | 77.44 (D2) | 24.86 (2 levels up) |
| Lama | 47 | 74.03 (D2) | 86.16 (E1) | 12.13 (1 level up) |
| Maha | 43 | 60.28 (C2) | 72.9 (D2) | 12.63 (2 levels up) |

Table 2: LLA scores, levels, and change made by the four examined case studies

The students in the groups were given numbers to use them as their research codes for anonymity purposes. However, it was not easy to manage the qualitative analysis of the four case studies using the research codes (i.e. numbers) given to them. Therefore, I gave them made-up names (e.g. Nora, Samia, Lama, and Maha) in order to facilitate the identification of the individual I am dealing with in the qualitative analysis at the time that their identities are kept confidential.

The division of the sample into three groups was meant to add to the validity of the study through the comparison of the results of the three groups who has been exposed to the same experience of learning except for the investigated variable, the supplementary learning material being delivered via the online or the offline mode. One group was intended to be exposed to a BL experience by adding an Online Strategy Course with Medical English content to the already existing Face-to-Face Medical English Course which is a pre-requisite course for the students to pass the foundation year; and it will be called ‘the online treatment group’ (ONTG) consisting of 24 students. The second group was planned to be taught using the same content of the Medical English Strategy Course but in an offline mode in addition to the existing Face-to-Face Medical English Course. This group consists of 26 students and it will be called ‘the offline treatment group’ (OFTG). The third group of participants was determined not to be exposed to any treatment besides the core Face-to-Face Medical English Course; and it will be called ‘the control group (CG)’ encompassing 25 students.

4.7 Data collection instruments and procedures

This section presents the instruments (eight in total) used and the procedures followed for the data collection carried out in this research.

4.7.1 Language proficiency standard test

This instrument is an online proficiency language test published by EF institute and developed by Cambridge English Language Assessment. The questions in this test measure students' proficiency in general English. The test has two versions: a full version with an audio section for listening testing (total of 25 questions) and a short version with no audio (total of 20 questions). It presents students with consecutive questions mostly about fluency in language use, vocabulary, and reading comprehension. Interestingly, it provides automatic feedback immediately after test completion on students' mastery level and the areas where improvement is needed. Further help with students' level and consultations on the needed improvement is also offered in the report of the test result (see figure 20, Appendix 4).

The test was used in this study to measure students' language proficiency level before and after the treatment to detect any potential improvement after the treatment. This pre-measurement of students' language proficiency is important for the measurement of their LLA as these two concepts are said to be improving in parallel (see section 3.7.4.13). This pre-measurement is needed for the comparison with the post-measurement of language proficiency to identify the change students may make which can help to identify the potential change in their LLA after the treatment. It was planned to exploit the full version of the test, but I used the short one because the headsets ordered for the students did not arrive at the day of the pre-test. Accordingly, the same version was used for the post-test. Students' email addresses were used to send the test link to each student and they completed the test in the computer laboratory.

Students' language proficiency levels in the ONTG were relatively similar (pre-intermediate level which is equivalent to B1 level at the Common European Framework). The same thing was done with the OFGT and the CG, each at a time. All the three groups have got roughly similar scores which indicates that they are at the same proficiency level, i.e. pre-intermediate level. After the experiment, the same test was used to measure their language proficiency after exposure to the treatment. The post-scores are compared with the pre-test scores in each of the three groups to examine any potential change in their language proficiency.

4.7.2 Self-proficiency rating form (SPR)

This form is a survey which uses can-do assessing statements and aims at finding out what language proficiency level the students perceive they have in the four language skills using their self-rating. It draws on a tool designed to measure participants' language proficiency level in Sunbul's (2012) research. This tool encompasses a list of six can-do statements representing six language proficiency levels in each of the four language skills (i.e. reading, listening, speaking, and

writing) with blanks on the opposite side for students to rate their proficiency level and to tick the level that applies to them in each skill (see Appendix 5).

This instrument was used for self-assessment which is important to the development of metacognitive knowledge about the learning process and to the enhancement of LLA. It helps with the research findings about students' self-perception and capacity to self-assess when the findings of this form are compared with the findings of the language proficiency test. This form was administered in this study in its Arabic-translated version to the three participating groups (ONTG, OFTG, and CG) pre- and post- the experiment to detect the change they might do in their self-rating of these language skills.

4.7.3 Self-rating Scale (SRS)

Questionnaires are the most common type of instruments for data collection in applied linguistics and it is only beaten by the use of language proficiency tests (Dörnyei, 2007). The results of the questionnaires are mainly quantitative despite the fact that some questionnaires may contain some open-ended questions which should be analysed qualitatively (ibid). Questionnaire administration by hand, as Dörnyei (2007) maintains, is the most common way in applied linguistics because the typical participants in a survey are students sitting together in the classroom.

In fact, questionnaires have their own strong points and limitations. They help to collect a huge amount of data in a short time. They can be administered to different people in different places dealing with different topics. People do not have any problem in filling questionnaires as they can be anonymized if needed (Dörnyei, 2007). On the contrary, qualitative researchers believe that questionnaires yield superficial information about the participants and that they involve no engagement because participants do not spend a long time on doing it (Dörnyei, 2007).

Questionnaires are not suitable for probing questions as the items included should be simple and short (Moser and Kalton, 1971). Questionnaires are not the proper method with people of low literacy or people with social desirability bias (Dörnyei, 2007).

This Likert scale questionnaire was designed in this study to collect information about the participants' experiences in LLA and in the use of technology in learning English pre- and post the planned treatment. Their attitudes towards and perceptions of LLA and technology use were also part of the questionnaire. Because the information needed here is not very detailed about these aspects of their learning, the questionnaire is suitable for this purpose. This questionnaire was decided to be closed-ended due to the fact that the components sought are known to the researcher from reading the literature. Likert scale was chosen to design the closed-ended

questionnaire as it would give the responses in a range of scores. Each score is given a statistical number which has a meaning (Dörnyei, 2007). The sum or the average of the scores for the items belonging to the same content area is dealt with statistically.

The SRS was designed and used to measure students' autonomy by assessing their attitudes towards and beliefs about aspects of LLA and by assessing their perceived autonomous-related behaviours. The items in the instruments reflect the theoretical components of LLA from the researchers' point of view about learner autonomy based on an extensive literature review. To develop the Likert Scale questionnaire a pool of items was first drawn from different validated and published relevant questionnaires: Alasmari's (2013), Alshumaimeri (2008), and Williamson (2007).

In the design of the Likert scale, it was ensured that the questionnaire form embraces all necessary information including: research title, general introduction, participants' research code for anonymity, specific instructions for each section, sections items, the researcher's email address, and a final thank-you statement. The questionnaire is 4-6 pages long which requires 30 minutes to be filled in. Loaded words and loaded items were avoided in writing the items in order not to influence the participants. Items in each section were mixed up to have a variety of statements and to help participants not to answer them repeatedly. Items with negative construction were also avoided as they make the answer difficult for the participant. Only one thought was embedded in each item to facilitate its measurement.

The questionnaire is composed of four main content areas (A, B, C, and D). The first two (A and B) are concerned with the participants' experiences in e-learning and in LLA; and the second two (C and D) are about the participants' attitudes towards and perceptions about LLA and e-learning. The questionnaire is a six-point scale with different meanings across the section. The students were asked to rate themselves in the four content areas using a 6-point Likert scale. For example, in sections A and B, the scores from 1-6 mean 'never, rarely, sometimes, often, always, don't know' respectively. On the other hand, the scores from 1-6 in the last two sections C and D mean 'strongly disagree, disagree, neutral, agree, strongly agree' respectively. Section A consists of 8 statements; B 53; C 10; and D 18 (see table 28, Appendix 6).

After collecting the items and arranging them in content areas, initial piloting of the item pool was done by asking three experts in applied linguistics to review it and to validate the results of the questionnaire. At this stage, this review revealed considerable number of modifications to be done in the questionnaire form, for example, most of the items need to be shortened, language used should be simple sounding like those used for interviews, and inclusion of some negatively worded items would increase the validity of the data.

A final-like copy of the questionnaire was piloted by administering it to a group of 100 participants from the population of the study. The responses coming from the pilot study were treated statistically. Internal consistency of the questionnaire was calculated by correlating items in each scale with each other and by correlating them with the total scale score. Missing responses were looked at to ensure the quality of the given instruction in the questionnaire. Also, the participants' responses were examined to exclude any response adhered to by almost everyone or by no one as this kind of data is difficult to be treated statistically. Additionally, reliability analysis was done to delete any heterogeneous item and to keep the most homogenous ones.

A separate session was arranged at the beginning of the semester to administer the SRS form with each of the ONTG, FTG, and CG. The SRS was also applied as a post-questionnaire towards the end of the semester when the treatment was completed to compare the pre- with the post-scores to examine any change students may make in their perceptions of their technology use, autonomy-related capacities, attitudes, and beliefs.

4.7.4 Semi-structured focus group interview (FG)

A focus group interview (FG) is a group form of an interview and an economical approach of gathering qualitative data which can be used for different purposes and in many situations (Dörnyei, 2007). In educational research, FG interviews are increasingly used to explore attitudes, values, and opinions (Cohen *et al.*, 2007), to investigate the effectiveness of a course, and to evaluate programs as they reveal what worked well, what did not, and why (Dörnyei, 2007).

Mixed methods research often uses FGs because of the richness of the data it can yield and they are commonly used in the field of Applied Linguistics to produce ideas and to help in the development of questionnaires or following interviews (Dörnyei, 2007). FGs are useful to explicitly display different opinions (Ritchie and Lewis, 2003) which can help me to explore the difference in the opinions of the different groups. FG data is needed to inform the interpretation of the quantitative numbers obtained from the LLA measurement scale. The semi-structured FG is the most popular type where a group of people (i.e. usually 6-12) think together, express their views, share experiences, and inspire each other (Dörnyei, 2007).

The English learning experience designed for the treatment in this study presents aspects shared by the three participating groups which makes the FG appropriate to get their voices. I use the FG in the current study to explore students' attitudes and beliefs after the treatment, to evaluate the provided training from students' point of view, to let them exercise their capacity for reflection and at the same time to have as a researcher data to assess their capacity of reflection (i.e. assessment for LA). It provided me with the points I needed to focus on for the discussion with

the students in the one-to-one interviews. The FG aims to add to the richness of the quantitative data, to help students share experiences and inspire each other, and to get more insightful details on participants' collective experiences.

In the FG conducted in the current study, six students were selected. In the formation of the participating group, the strategy of 'segmentation' was employed which entails 'within-group homogeneity' and 'intergroup heterogeneity' (Dörnyei, 2007: 145). In other words, the perceived low autonomy and the perceived high autonomy students from each of the three groups were selected. The FG aims to explore six themes: technology and internet use generally and in language learning; learning in a community; language proficiency; time management, planning, and self-assessment skills; course content (medical and strategies); and learner independence (see Appendix 7).

During the FG, ethical considerations were addressed. The participants were welcomed and seated in a convenient way to facilitate communication. The purpose of the interview was communicated and that there was no right or wrong answer. Students were assured that there is nothing they are not allowed to say. Great care was taken to encourage the expression of any idea or view with no hesitation no matter how undesirable it was. Students were told that the interview will be recorded and that the purpose is to ensure that all information is captured and to give the researcher sufficient time to interact with participants instead of spending the time taking notes. Few of the participants were good at managing the conversation and keeping it going on and one was answering questions and directing questions to the other participants. She was sometimes asking for reasons or examples of the points mentioned in their discussion.

One of the drawbacks of FGs is that its success is dependent on how skillful the researcher is to work as a moderator, to add to the meaning of the data by asking probes, and to do multiple functions. Hence, I played the role of the moderator, as Dörnyei and Murphey (2003) explain, giving probes and gestures to keep the participants focused on the discussion topic; trying to assist interaction among the heterogeneous groups involved; ensuring equal chances of participation; and encouraging individual critical thinking. I allowed for probing questions and other relevant information to appear to get as much information as possible and to increase students' sense of the talk openness.

Before concluding the interview, as a moderator, I asked the participants whether they have any further concern or comment. The interview was closed by thanking the participants and noting that they might be needed for further interviews. Because the transcription of focus group interviews from an audio recorder is not straightforward and transcribers need to recognize the different voices in the recording (Dörnyei, 2007), this was done immediately after conducting the

FG. The one-to-one interviews carried out with students only from the two treatment groups (i.e. ONTG and OFTG) after the focus group are described in the following section.

4.7.5 Semi-structured one-to-one interview

The FG in this study needed to be followed by one-to-one interviews with participants from the treatment groups in order to feed into the obtained overall information about their LLA and to dig deep into the individuals' profiles. They were also meant to provide students with an opportunity for reflection after the learning experience (i.e. assessment for LLA). A list of potential participants and their brief learning biographies were prepared to help in the selection of the actual participants of the interview. I used the extreme or deviant sampling by which the most extreme case studies are selected for the interview. A total of twelve participants (six from ONTG and six from OFTG) were selected based on their observed learning behaviours during the semester.

The interview transcripts of four participants, out of the twelve, were analysed as qualitative data for four case studies (see section 4.6.2). Different participants were asked the same interview questions, but not necessarily in the same order and phrasing (Dörnyei, 2007). Since successful interviews require a skilled and practiced interviewer, the FG conducted in the baseline study and in the main study gave me a practice in the role of the interviewer and helped me to be more relaxed and experienced.

Interviews demonstrate participants' interpretations of their world and how they look at situations (Cohen *et al.*, 2007). In Applied Linguistics, the 'semi-structured' type of interview is common which is neutral where the interviewer starts with a prepared list of questions or prompts and the interviewees are not controlled but are encouraged to elaborate on interesting issues arising during the interview. This type is appropriate when the dimensions of the research problem are well-known and the main questions covering the topic are prepared in an interview guide to work as a framework. Probing questions when needed can elicit exploratory unstructured responses.

This conversational aspect included in Cannell and Kahn's (1968) definition of interviews "a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information" was highlighted by Radnor (2002). However, an interview has its own drawbacks, for instance, participants may not share the expected amount of data or they may talk a lot but giving useless data. Some participants may appear differently from what they are in reality. These problems can be overcome when data can be validated by using more than one research method.

This instrument was designed initially with forty-six open questions and it lasted for thirty minutes after refining its questions. Ten themes, quite similar to the FG themes, were created with sets of questions when the instrument was refined. All questions were either answering or leading to the answer of a research question. The interview list of questions are rephrased differently in the two versions for the two treatment groups in order not to cause any psychological effect on the OFTG when a question about technology use is asked and they actually did not use it. Both versions encompass ten themes: technology and internet use generally and in language learning; learning in a community; interaction; language proficiency; LLS; reflective writing; time management, planning, and self-management skills; course design; course content (medical and strategy); and LLA (see Appendices 8 and 9 for the ONTG and OFTG's versions).

The OFTG's interview version is quite similar to its counterpart with slight differences in the use of the terms 'online', 'technology', 'internet', or any technology-related terms. Question 1 in the first theme was reworded into an imaginative conditional question: 'if we were using technology and internet in the Strategy Course, would there be any effect on....?' In the third theme, question 1 was restated as 'discussion tasks' meaning 'face-to-face discussion' to avoid the term 'discussion boards'. In question 2, everything related to online discussion was changed into 'discussion tasks' or 'ability to interact with others in English in the classroom'. In the fourth theme, the question was rephrased into an imaginative conditional question 'if we had used technology in learning English in the Strategy Course,...?'.

Ethical considerations were also addressed when students' consents were given to participate and to be audio-recorded only for research purposes. A copy of the interview questions was given to each participants so they can manage the discussion. The researcher demonstrated that their contribution is valuable and interesting and took a neutral position, avoiding any attempt to impose views on the interviewees. Participants were encouraged to share their experience in the discussion without any concern. They were assured that there is nothing right or wrong to say. Various types of probes were included to enrich the data. Gestures were also made to show sympathy and feedback. Leading questions, loaded words, and jargon were avoided in the design of the instrument and simple words were utilized. Before ending the interviews, closing questions were given to encourage further comments and gratefulness was expressed to the interviewees.

4.7.6 Learners' weekly guided reflective writing

'Introspective methods' aim to help participants to think about the experience and to be able to articulate their internal thoughts and feelings while performing a task (Dörnyei, 2007) and they can triangulate any other research method. This disclosure nature of the participants' cognitive

and psycholinguistic processes and reception of triangulation make introspective methods important in second language research (Kormos, 1998 cited in Dörnyei 2007) and strongly relevant to research in applied linguistics (Færch and Kasper, 1987).

One type of introspective methods is the self-reflections or diaries (Dörnyei, 2007). Since its appearance in Applied Linguistics, diaries were used to know more about learners' language learning experience by learners themselves (Zong, 2009) and by parents (McDonough and McDonough, 1997). Schmidt and Frota (1986) declare the importance of diary entries in their research in applied linguistics in proving an existing acquisition change. Diaries can get deeply into people's lives, record data about the fluctuations they may have during the term of the investigation, provide background information to interpret unexplained causal relationships between variables (Dörnyei, 2007).

This research method is exploited in this study because of its strength as a research method and because the assessment of students' critical reflectivity is sought as part of the autonomous capacity. It is needed to provide students with opportunities to reflect on their learning experience to enhance their LLA (i.e. assessment for LA) and to gain access to their internal thoughts for measurement purposes. Because it looks at the temporal change, it can trace the existing change in language acquisition with certainty which is vital to applied linguistic and to this research in particular. The type of diary employed in this study is called guided reflective writing.

Just as diary studies are advantageous, other problems may appear when they are used. Hence, some practical techniques were followed in the current study to encourage students to produce more reflective data. Producing diaries requires participants to be highly committed to do the job properly (Blogger *et al.*, 2003) and students need an incentive to complete them (Rossiter, 2001). For this reason, an event-contingent design, which entails that participants produce a self-report after the occurrence of a specific event, was used to encourage participants to do the reflective writing. I designed slightly two different versions for those forms used for the regular modules and those used for the optional modules during the break (see Appendices 10 and 11). An incentive was also created when I informed participants that regular reflection on learning would improve language learning experience, provided an easily-accessible electronic copy for the ONTG and a printed copy for the OFTG, made regular gentle check-up to get the missing ones.

Knowing that doing reflection is a very demanding task for participants and they need training on how to make it meaningful (Dörnyei, 2007), I tried to be in constant touch with the participants when they were doing their weekly reflective writing in class during the whole semester. The accuracy of the data taken from diaries may be influenced by the possibility that participants are too tired or are in a bad mood (Gibson, 1995). The number of diary entries declines when

students are stressed or have workloads (ibid). This led to the decision of making the template guided with a set of questions (N=6) to provide support for their reflection on the learning experience in that session.

4.7.7 Observation

Observation is important in gathering live data on aspects related to the provided training (Morrison, 1993 in Cohen *et al.*, 2007). It helps “to see things that might otherwise be unconsciously missed, [and] to discover things that participants might not freely talk about in interview situations” (Cohen *et al.*, 2007: 396). Lichtman (2010) views triangulation as one of the means that qualitative researchers employ to reduce bias. Thus, multiple qualitative instruments are used in this study to enrich participants’ short, unclear, or missing responses in the qualitative data.

Observation is conducted in the current study in online and face-to-face environments to collect information about the change students may make over time in their learning behaviours that may be missed in other research instruments. Participant observation, as explained by Cohen *et al.* (2007) and Wellington (2000), is adopted here. I exploit semi-structured observation because the focus of the observation in both environments is to explore students’ engagement with the learning material and peers and to monitor the impact of students’ attitude on their learning behaviour and on their use of the LMS. It was also used because the focus is on the whole group rather than on individuals. Observation is done in almost every face-to-face session and in selected times during the week at home for the online learning.

To do the online observation, I needed to have an account to access the VLE to be able to manage the work. A good feature of the adopted VLE, Desire2Learn, is that it provides two different ways of viewing the course content depending on the users’ role (i.e. student vs. instructor). Numerous benefits are felt from the observation including understanding the research context better, discovering further points for discussion in the analysis of the interviews and FG data, and cross-checking data. The observation enabled the collection of verbal, non-verbal, and written data from face-to-face and online environments.

4.7.8 Research journal

I kept record of the events, procedures, and reflections that were taking place during the preparation of the course and the process of data collection. This journal helped me to record the observed learning behaviours performed in the classroom of both groups the ONTG and the OFTG

while learning. The recorded details are helpful in the interpretation of the quantitative results and in the collection of information about prospective case studies for the FG and interview.

4.8 Main phases of the research

The current research was carried out in three phases: baseline study, pilot study, and the main study. Each of these three phases is described in the following sections.

4.8.1 Baseline study (Pre-piloting study)

The baseline study aims to collect background information about the research context including practices, problems, needs, and the population from which the participants of the main study will be drawn. A preparatory stage before the course design stage is deemed by Hedge (2000) to be significant to collect information that will inspire the course design. This preparatory stage can use classroom observation, reflections on resources and environment of the context, reviews of official documents, interviews, and maybe questionnaires among teachers and students (ibid).

In the current study, a questionnaire was designed for the baseline study and given to two groups of Medicine and Medical Sciences students (24 students each). The aim of the questionnaire was to collect information about the electronic devices that students use with the internet and the purposes for which they are used, about the applications they use in their daily life, about their confidence in that use, and about their attitudes towards the use of such devices in learning English (see Appendix 12). Only 20 students (out of 24) responded in one of the groups and 19 in the other group. Data was dealt with using SPSS software to do some descriptive statistics. Results about the reliability of the questionnaire showed that it is reliable (0.7).

Following the questionnaire, volunteering students were recruited to take part in a FG interview to triangulate the data taken from the questionnaire and to explore more about students' background (i.e. their experience in general technology use and for language learning, their position in the continuum of freedom in language learning, and their attitudes towards such experience of learning). Only four of them were able to make it to the FG. The interview was conducted in English with some few words and phrases in students' mother tongue (i.e. Arabic) when needed. Students were given a copy of the discussion points for the FG to manage the discussion (see Appendix 13). Students were engaged in the discussion and they went into the description of their personal experiences with learning English as individuals and as a group, being classmates.

Considerable helpful information were collected from the participants about resources available for learning English outside the classroom, their interests, their language needs, their efforts in learning English, the strategies they use in language learning, their critical point of view about the teaching methodology they experienced in the past two semesters with two different teachers, and their preferences about the use of physical or digital textbooks in traditional teaching/learning environment. Different kinds of tasks were suggested to be included in the design of the English syllabus. This data was taken into consideration during the design process of the material for the training to satisfy students' needs and preferences and to help to increase their engagement with the training.

4.8.2 Pilot study

Dörnyei (2007) views piloting as a crucial step of quantitative research and overlooking this stage will extremely threaten the psychometric quality of the study (P. 75). Sudman and Bradburn (1983: 283 cited in Dörnyei, 2007) state "if you do not have the resources to pilot-test your questionnaire, do not do the study". Dörnyei (2007) indicates that the purpose of the piloting is to achieve 'the high quality' of the research results in the research context by measuring research reliability and validity and by doing the necessary amendments based on the pilot study before the main data collection phase is started. The pilot study is a chance for the researcher to test the research idea, the role of a researcher, and the timing allocated for each instrument to be completed by the intended participants (ibid). Moreover, giving enough time to the piloting procedures helps to avoid any possible frustration in the future after using the research instruments and procedures in the main field work (ibid).

Because the reliability and validity of the questionnaires cannot be achieved easily in the field of Applied Linguistics (Dörnyei, 2007), it is necessary to pilot the final draft of the Self-Rating Scale form (SRS). Not only had the questionnaire gone through the piloting process, but also the data collection procedures. There was no need to pilot the language proficiency test and the Self-proficiency rating form. The test was published by EF institute and developed by Cambridge English Language Assessment; and the reliability of the Self-proficiency rating form was tested by the researcher who created it based on the CEFR (see sections 4.7.1 and 4.7.2).

The Self-Rating Scale Form is adapted from previously published instruments. Its design and use were piloted with four groups (25 per group) making the total of a hundred Medicine students in the foundation year (with Elementary level). Students selected for the pilot study are not those who were selected for the main study (i.e. pre-intermediate proficiency level) to avoid influencing them when they become familiar with the instruments and thus to ensure the validity of the

collected data. Students were willing to cooperate because they were assured that the task is fun and because the task is about their language learning which increased their motivation to fill them in. Overall, students liked it to rate themselves against the statements in the form as thinking about themselves and about English learning made them more excited to complete the form. Some typing mistakes in the questionnaire were identified. The form was believed to take not less than thirty minutes; yet, students spent only twenty minutes while filling it. Its validity and reliability were calculated (0.7). Accordingly, the SRS form was modified as needed to use it in its final draft.

Moreover, three students were selected to pilot the use of the learning material designed for the treatment on the VLE. I had email exchanges with the dean of E-learning and Distance Education, his deputy, and the IT people in the Deanship to arrange for the required access to the VLE as an instructor. This was achieved by creating a dummy account for me to be able to pilot the use of the VLE before its use in the main data collection. We faced some technical problems and had come up with enquiries about the use of some features of the VLE. These problems and enquiries were discussed with the IT people.

4.8.3 Main study

The main study comprises three phases to measure the change in students' LLA after the course and to triangulate these findings of this measurement with the qualitative data sources. These three phases are: the exploratory phase, treatment phase, and the follow-up phase.

4.8.3.1 Pre-treatment work

After designing the material to be used for the training, the course was uploaded to the VLE for the ONTG and was printed on paper for the OFTG when nothing was provided to the CG. The data collection of the main study starts with this first stage which commenced by the beginning of the second semester. Three groups of the Medicine students, at pre-intermediate proficiency level, were selected for the first phase of the main study. Each group has 25 students making the total of 75 in the three groups.

Before starting the research experiment and delivering the treatment, some procedures need to be considered to ensure the similarity in all variables across the participating groups. Any initial differences among the groups need to be considered in experimental studies, as Dörnyei (2007) suggests, to be able to make claims about the cause-effect relationships. For this reason, students in the three groups were given a pre-test before the experiment to ensure the equality of the groups in the language proficiency level. They were all given the Self-Rating Scale (SRS) Form and

the Self-Proficiency Rating (SPR) Form before the experiment to gain sufficient information about them and about their language learning experiences as a starting point for the main study (see sections 4.7.2 and 4.7.3).

The ONTG was met for a briefing on the importance of the training to their English learning experience and the importance of the technology through which the training will be delivered (i.e. VLE), namely Desire2Learn. Discussion of the nature of the training- which was called The Strategy Course- and encouragement to attend all the sessions needed for the experiment (13 sessions), took place in that meeting. The fact that the ONTG will take the lead at this university to be officially registered students in a blended Medical English course was highlighted to them. It was explained that the university is the first one in the Kingdom of SA to use this kind of VLE, in particular, as a medium to deliver language learning material. They were encouraged to use the VLE to have access to more language learning and language use opportunities. Brief explanation of the VLE and its tools took place and students were given time to practice the use of the VLE and tools.

On the other hand, the OFTG was also met in a different session to be given some information about nature of the training and the importance of attendance. A plan sheet with all the needed sessions was handed to both groups as part of the work planning. Further, several arrangements were made to manage the experiment. Students' contact information (e.g. full names, email addresses, and research codes) were added to a list for each group. An attendance sheet was created and kept for each of the three groups to facilitate the management of the work and help with the data analysis.

4.8.3.2 Treatment Phase

This stage marks the beginning of the training which was provided to the ONTG (on a VLE in face-to-face meetings) and the OFTG (on paper in face-to-face meetings) as the treatment of the experiment. It starts from week (4) in the semester until week (13). The treatment lasted for a total of 10 weeks- one meeting per week- broken by a gap of three weeks for schools half-term break in which no meetings were scheduled (but optional material was given on paper for the OFTG and uploaded to the VLE for the ONTG) in weeks 8, 9, and 10. Four modules were practised in four weeks before the break and then the training was resumed for three weeks in weeks 11, 12, and 13. The reason behind the three-week gap is to give students time to prepare for their Mid-term examinations during the half-term break as it well-known that they are overloaded with mid-term exams and assignment submission deadlines, but optional material (one task per week) was provided to identify students who would spend the break on optional self-study English material. This optional material serves as a challenge for students to identify whether they are

willing to use the optional tasks when the teacher is not present and when they have to do other graded jobs in a limited time.

To rule out any intervening variable between the treatment groups other than the variable under investigation which is the mode of learning (online vs. offline), the same content of the training (LLS tailored in a medical English framework) was prepared for both groups including the optional tasks during the gap (see section 2.12). The treatment was scheduled for both groups using the same timeline scheme. The two groups were exposed to the same experience of learning and learning material except the delivery mode.

It is worth mentioning that the CG was included in the research design to ensure that change the ONTG may make in learning or language proficiency is due to the delivery mode and not to other interfering variables such as the exposure of one group to better learning material than the other. As mentioned above, the CG will not be exposed to extra learning experience apart from their main face-to-face medical English course using the assigned textbooks.

4.8.3.3 Post-treatment work

After finishing the scheduled time for the training (i.e. 10 weeks), I needed to examine from a quantitative point of view the likely change in students' language proficiency level, attitudes, beliefs, use of learning strategies, and other capacities related to LLA (see section 3.7.4). To measure the prospective change, the same research instruments exploited in the pre-treatment work are administered again at this last stage, e.g. language proficiency test, Self-Proficiency Rating Form, and Self-Rating Scale Form (see sections 4.7.1, 4.7.2, and 4.7.3).

Furthermore, qualitative research methods were also exploited after the training to validate the quantitative data and to provide interpretations for probable inexplicable behaviour. A focus group and 12 one-to-one interviews were carried out with selected students from both treatment groups. The CG took part only in the FG to explore consensus and differences among heterogeneous participants about learning experiences (see section 4.7).

4.9 A quest for the appropriate methodology for the measurement

4.9.1 The need for scales

Many researchers in the field describe LLA as degrees or stages (see section 3.3.1.2). Everhard (2015a) observes that assessment is similar to autonomy that they are now thought of in terms of degrees. She reviews what the literature says about 'scales, continua, models and frameworks' for LLA assessment (Cotterall and Malcolm, 2015: 168). It is broadly recognised that an increased LLA

fosters students' independence as well as language proficiency (Sinclair, 1999a) and this shows that there is an increasing need for teachers to have evidence for students' improvement in LLA.

The opinions that autonomy is not a 'steady' state (Little, 1990, 1991: 3) and that it has stages and is not an 'all or nothing' concept (Nunan, 1997: 192) are extensively quoted in the literature. Nonetheless, 'our ability to measure degrees of autonomy is limited' because our understanding of the process of autonomy development in different contexts and the stages it goes through is not mature which engender the need for 'a measuring scale' (Murase, 2015).

Autonomy is often researched to investigate its nature and how it is practised using researchers' reflection or initiative planned and implemented by others to promote LLA (Benson, 2001). In many cases, researchers or teachers aim to exercise learners' autonomy and they find it difficult to 'justify its promotion through tangible scales of measurement' (Everhard, 2006: 11). The increasing interest in the assessment of LLA can be explained by teachers' wish to obtain empirical evidence for the improvement in their students' autonomy after providing an intervention to promote LLA (Murase, 2015). Therefore, Cooker (2012) recommends researchers to search for innovative methods to research autonomy if we intend to contribute to the field.

Expecting that language education will yield autonomous learners is not so clearly translated into 'accountability mechanisms' (Benson, 2011: 69). Ushioda (2008b; 2008a) calls for the use of a more systematic tool to investigate LLA like the well-known use of questionnaires and conversation analysis when researchers investigate motivation and classroom research, respectively (Cooke, 2012). "Some professionals in the field of LA did, it seem, feel the need for a quantitative, numbers-based way of thinking about the assessment of LA" (p.164) (see sections 3.6 and 3.7.2).

Murase (2015) attempted to quantitatively evaluate LLA but she shifted her focus to understand the construct of LLA with the assumption that it can be measured as levels. Though she was unable to create a scale with levels and descriptors, she developed a context-specific instrument for teachers and learners to promote reflection and awareness (Cotterall and Malcolm, 2015) (see section 3.5).

It is not uncommon to hear that learners have become more autonomous after taking part in a particular program oriented towards the development of autonomy, it is implied that researchers intuitively judge learners' autonomy to be either increasing or decreasing and we should communicate and explain it (Benson, 2010). In so doing, certain behaviours are traced and are linked to the construct of autonomy such as plans creation and plans evaluation (ibid). Benson (2011) observes that, in educational environments, the educational achievements are closely tied

to their measurement. Thus, “we will increasingly be encouraged to think of autonomy as being both measurable and testable” (ibid). When LLA is improved, it can be attributed to the provided learner training (Hsu, 2005) or self-access learning opportunity (Reinders and Lázaro, 2007).

Therefore, a scale for measurement of LLA is needed both when researching the effectiveness of a program on the enhancement of LLA and when exploring how LLA is related to other concepts (Benson, 2011). It is essential to use a systematic method to measure the extent to which students are autonomous in language learning which would help teachers to validate the assumed effectiveness of their practice to promote LLA and to prove that it is not just claimed as ‘an act of faith’ (Sinclair, 1999a: 96). All these reasons given by these scholars in the literature of assessment have significant implications for the model proposed for LLA assessment and for the establishment of the measuring scale in the present study (see sections 3.7.4 and 4.10.6).

4.9.2 The need for qualitative approach

A qualitative approach to researching LLA is needed due to its developmental nature (Tassinari, 2015). In her dynamic model to develop LLA, learners’ voice is taken into consideration when they are encouraged to reflect on their learning using a dialogic method (Cotterall and Malcolm, 2015). Reliable measurement of LLA is dependent on whether we ‘capture both the meaning of behaviours and their authenticity’ when we treat its associated concepts (Benson, 2001: 68). Likewise, Sinclair (1999b) believes that measuring LLA counting only on the observable behaviours can be problematic because a learner who is asking for help may sound as dependent on the teacher, but this can actually be a sign for their ingenuity.

Because testing autonomy can lead to Breen and Mann’s (1997) mask of autonomy and because autonomous behaviour is not usually observable, qualitative methods can be used to exploit students’ self-report (Murase, 2015) (see section 3.3.1.4). “Tassinari’s [(2015)] and Cooker’s [(2015)] models have qualitative focus and are intended to be used for formative, iterative and sustainable assessment” (Cotterall and Malcolm, 2015: 168).

However, it is important that the teacher carry out the qualitative assessment in a way which does not influence students’ performance (Murase, 2015). Cooker (2012) argues that the use of qualitative research methods such as interview and focus groups when investigating learner autonomy can cause problems because not all learners have developed metacognitive awareness that would enable them to understand the aim in such questions and to interact with them.

To avoid this danger in the present study, these qualitative methods were postponed and were only applied after the treatment though it would have been helpful to have it administered before

the treatment too to compare students' attitudes and beliefs along with reflection before and after the treatment. Taking part in the quantitative measurements preceding the treatment helped to provide those students with an input about autonomy-related outcomes and skills which raised their awareness and improved their understanding. Accordingly, it is more likely that they would be able to reflect on their learning while taking part in the interviews and the focus group (see sections 4.7.4 and 4.7.5).

4.9.3 The need for self-assessment

To be able to foster autonomy, learners should play their roles in this process and need to be receptive and open to change (Benson, 2011). Not only do we need to assess LLA, but it is also essential, as Murase (2015) suggests, to make the use of the LLA assessment methods help to enhance students' LLA which is called assessment for LLA. Murphy (2015) categorizes students' self-assessment in their reflection as a significant capacity for LLA development. The unsteady state of LLA under the influence of 'internal' and 'external' factors brings up the need for learners' periodic self-assessment when there is a 'pedagogical dialogue' with the 'language advisor' (Tassinari, 2015: 64). The formative assessment is essentially learners' contribution to the assessment of the learning process (Lamb, 2010). Ushioda (2008b) notes that 'first person reflection' when learners evaluate their learning goes in line with 'autonomy pedagogies' and she advocates 'I-statement analysis' (Cooker, 2012: 161).

In their reflection, students need the advisor's support to identify assessment criteria and any alternative ways for assessment because the interaction they will have will provide students with the critical aspect of dialogue. This dialogue is what makes Tassinari's (2015) model different from Murase's (2015) instrument (Cotterall and Malcolm, 2015: 168). Lamb (2010) advocates the maintenance of students' open interaction to support them when reflecting on their learning and he stresses the role of the interviewer as a 'facilitator' rather than an examiner (Lamb, 2010: 107). He proposes that this interaction takes place in a group interview, which was called focus group, as a tool to conduct assessment for autonomy (see section 4.9.2).

Learners are still dependent on their teachers in the assessment of their learning and this led to the lack of understanding of the assessment-autonomy relationship (Everhard, 2015a:8). Providing learners with resources and tools will not promote their autonomy if they are not trained on the capacities important to LLA (Hurd, 1998a cited in Hurd, 2008a). '[T]he pursuit of autonomy in formal learning environments must entail explicit conscious processes; otherwise we leave its development to chance' (Little, 2001: 34) (see sections 2.11.2.2 and 7.11).

In the present study, self-assessment was carried out using the qualitative research methods, e.g. focus group, one-to-one interviews, and reflective writing forms. Students had opportunities to reflect on the micro and the macro levels of their learning and they were continuously assessing themselves through a pedagogical dialogue either in the communication they were having offline in the face-to-face classroom or in the online learning environment (see section 4.9.2).

Additionally, self-assessment was undertaken using the self-rating scale pre- and post the intervention.

4.10 The LLA assessment model

4.10.1 The origin and rationale of the LLA assessment model

This study builds on previous studies on the assessment of LLA which looked at the assessment indirectly by inferencing its assessment from its components (see sections 3.5 and 3.6). They assess either one or more components relevant to LLA and the level of LLA is concluded from those relevant components (see section 3.7.2).

This research is proposing a mixed and comprehensive framework for the assessment of LLA drawing on a number of relevant concepts measured quantitatively and qualitatively. Because of the debate in the literature on the assessment of LLA about whether it is best to be measured quantitatively or assessed qualitatively (Lamb, 2010; Murase, 2015) and because some of autonomy-related capacities can best be measured quantitatively (i.e. language proficiency) at the time that others can only (or are best) be assessed qualitatively (i.e. students' reflective thinking), this study aims to use both approaches of assessment (see sections 4.9 and 3.5).

LLA was measured by creating the summative scale of all of the relevant components. It was not possible to generate LLA in a different way. I did not measure LLA directly because there was not any pre-existing way of directly doing it quantitatively as the literature of LLA did not talk about how to directly measure it quantitatively (Le, 2013; Murase, 2015).

4.10.2 Components ex/included in the LLA assessment model

Reviewing the literature of LLA and its constituents, many researchers recommend the inclusion of course grades, language proficiency scores, self-proficiency rating scores, attitudes, motivational beliefs, and perceived strategy use (see section 3.7.2). Consequently, I decided to look at all of the aspects I felt to be important for students' language learning and autonomy in a twenty-first century learning environment and also to reflect the concepts underpinning my definition for LLA. The elements included in the design of this autonomy-oriented environment

are implications for the components of the LLA assessment model, i.e. critical reflection, language course grades (LCG), language proficiency test scores (LPT), self-proficiency rating scores (SRP), perceived strategy use (PSU), attitude to learner autonomy (ALA), attitude to technology use in language learning (TULL), motivational belief about LLA (MBL), and motivational belief about technology use in language learning (MBT) (see sections 3.7.3 and 3.7.4).

However, I decided not to include LCG in the final LLA measurement scale of LLA in this study. It was excluded because the variable created for LLA is based on change between measurement of all concepts at T1 (i.e. prior the experiment) and at T3 (i.e. post the experiment) and the LCG scores are not good at that because the pre- (Mid-term out of 30) and post- test scores (Final exam out of 50) are different and are testing the content of two different textbooks. I could not interfere with the institution's policy to do something about the test for the LCG. Hence, the scores at T1 and T3 are not comparable and LCG was taken out from the LLA measurement scale. Further research may look at the inclusion of LCG in the LLA measurement after ensuring that it was systematically measured at T1 and T3.

Systematic and reliable ways in which to weigh the concepts in relation to each other were sought but the literature was not at a point in which to give that to me. There is not enough quantitative evidence in the literature to suggest that one of those components is more important than another component in relation to LLA or to weigh one component more than another (Benson, 2010). Therefore, I was unable to weigh the importance of one component over the other. It requires somebody to make a validation experiment where they may take two groups that are identical and in one group LLA is assumed to be made of equal parts and in the other group LLA is assumed to be made of one component more important than the others in an attempt to explore the relative importance of these components of LLA. Knowing that it is a complicated thing to do such relationship tests, it is understandable why no one has done that yet. This lack in the quantitative measurement of these components demonstrates the gap in the literature of LLA assessment.

Hence, it was decided to give each of these components equal value in the conceptualisation and quantitative measurement of LLA. Then those concepts- being measured on different scales- were all transformed to be on the same scale (a 0-100 scale). The easiest way to do the scale was the 0-100 points because it is a logical way of thinking. The assumption made when all of the components were added together and when the different scales were transformed into one scale (0-100) was to say that each of the concepts is equally as important as each other in the measurement of LLA. I reduced the importance of some scales and increased the importance of others to make them all equal in the importance. Thus, I basically equalized the importance of all

measured constructs. Then I added them together to create the scale based on the assumption that each of the components is as equally important.

4.10.3 How the data for LLA assessment was collected and refined

The component parts of LLA were created by presenting a self-rating scale (a six-point Likert scale) to all the students in the three participating groups which presents a large number of items about the LLA component parts considered in this study. These items have successfully gone through the steps of the internal reliability test. A decision was made about which item belongs to which concept using the knowledge about the literature and then the components of the LLA assessment model were created. After creating the concepts, a frequency test was run on the indicators (i.e. items) for each concept and the results of the frequencies were obtained. The indicators which were not working properly- in the sense that they were behaving differently from what was expected- were left out.

A variety of factors were considered when each item on the scale was examined and some items were not good enough on each or on some of these factors. The factors based on which these items were removed include: understanding of students' qualitative data, my longitudinal engagement with students' in-class and out-of-class performance, question order effect, and social desirability bias as illustrated by Krosnick (1999). This is just a short list of the reasons for the exclusion of some individual variables from the analysis. The rest of the items which have worked as expected were kept as indicators of the eventual components composing the LLA variable (i.e. score). All of the items that were presented in the self-rating scale are provided in appendices and the ones with an asterisk were removed from the assessment of the concepts (see Appendix 6). After that, the frequencies were run on the LLA scores of the students to identify the highest and the lowest in terms of change in LLA across the groups (see section 5.2).

4.10.4 Statistical testing of the LLA assessment model

One of the ways to test the proposed measurement scale is to run the Structural Equation Modelling (SEM). According to Cooker (2012), this data analysis method has been increasingly used to test causal relationships, to develop and to test theories in applied linguistics (e.g. Phakiti, 2008), and in learner autonomy (e.g. Murase, 2010) in the last 15 years. Dörnyei (2007: 238) compares this procedure with factor analysis in drawing the paths between variables but this one is more advantageous due to its 'directional paths' between the observed and unobserved variables. The SEM is appropriate for the present study because of its 'theoretical emphasis' and

'confirmatory nature' as the aim of this study is to develop and to test a theory (Cooker, 2012: 162).

Nonetheless, this statistical procedure was not done due to pragmatic and data-related reasons. It is pragmatic to avoid this method when it is time-wise not perfect. Moreover, SEM requires a large sample which is not the case in the present thesis, but further research can run it on this model with a higher sample size to test the causal relationship and to examine whether the components of the model fit together.

An alternative way to measure LLA was to run a regression test where the dependent variable (LLA) can be measured quantitatively independently of its component parts (i.e. the independent variables) to test whether technology use and learner training are related to LLA and then to triangulate the result with the qualitative data. However, this way of measurement was not possible as well for the lack of previous information in the literature on any direct quantitative measurement of LLA.

4.10.5 Creation of the change in the LLA variable

To achieve the aim of the current study regarding the measurement part, the LLA variable was created at T1 and T3 by taking the mean of all the concepts (composite variables) together. For every individual, the LLA variable (as a composite variable) creates a new value which is the average of all of these concepts. The LLA change variable can be created by either taking (T3 LLA variable - T1 LLA variable) or by adding the mean of the change in Variable 1 to that in variable 2 and that in variable 3 ...etc. The latter way applies to many of the composite variables (sum variables for the concepts). The way of adding the change variables (the composites) creates a change variable that is not grounded in the scale as it is not grounded in where someone originally started and where they ended up. Basically what it means is adding together incremental changes. Whilst if I do T3-T1 it is not incremental changes, it is a summary change.

I decided that the change variable in the final concept should be created this way (a summary change) rather than by adding the change of all of the composite parts. The reason for choosing to do this summary change and not the incremental one is because I would have had to go back and to retransform all of the component parts of the concept in order to turn it into this scale with the incremental way of creating the change variable. To transform composite change variables into another composite variable on the new scale (-100 to +100) is a complicated thing and would have been a messy business. That is why I decided that the change variable in the final concept should be created this way rather than by adding the change of all of the composite parts. It would be much easier if all of the components were measured on the same scale. This

way it will be on a standardized form which makes it comparable across the components and I would not have needed to transform the components measurement.

4.10.6 Establishment of the bands structure and its philosophy

The level of students' LLA was measured at T1 and T3 using the created LLA scale at T1 and T3. Having the scores for the created LLA variable measured on a 100-point scale allowed us to divide the scale into score groups with a threshold of 10 points to be able to establish measurement bands for the LLA scale.

The decision on having the threshold of the bands of 10 points was due to my interest in tracing the slightest change that the students may make in their LLA. The 100-point scale was divided into tens, each of which represents a band on the proposed measurement scale, as it was not expected that students would make a big progress on their LLA levels in a short period of learning which ranges from 7-10 weeks. Also the change expected to happen in LLA should happen naturally and gradually which makes the threshold of 10 for the bands reasonable. This decision was supported by the fact that the range of the change happening on the LLA scale in the data of this sample is not very wide from -24 to +30 (see section 7.3).

Each score group was given a name to represent one of the bands following the naming method of the six bands of the Common European Framework of Reference (CEFR) (e.g. A1, A2, B1, B2, C1, and C2) which measure language proficiency moving from the lowest to the highest levels. The bands on the LLA measurement scale produced 10 bands in total (see Table 3):

| LLA band name (at a point of time) | Range of scores | Band Descriptor |
|-----------------------------------------------|------------------------|-------------------------|
| E2 | 91-100 | Higher Most autonomous |
| E1 | 81-90 | Most autonomous |
| D2 | 71-80 | Lower Most autonomous |
| D1 | 61-70 | Higher Medium autonomy |
| C2 | 51-60 | Medium autonomy 2 |
| C1 | 41-50 | Medium autonomy 1 |
| B2 | 31-40 | Lower Medium autonomy |
| B1 | 21-30 | Higher Least autonomous |
| A2 | 11-20 | Least autonomous |
| A1 | 0-10 | Lower Least autonomous |

Table 3: The bands established for the LLA measurement scale

The above created scale was used to measure students' LLA at T1 and T3, but the change in LLA does not work on the basis of a 10-point difference amongst the bands as it does at T1 and T3 measurement because the scale of the change in LLA ranges from -100 to +100. We had the level of students' LLA measured at T1 and T3 and then we calculated the change they made in LLA. A score was given to the change they made and on this basis the distance travel from one band to another on the measurement scale between T1 and T3 was considered (see tables 25, 26, and 27 in Appendix 3)

The decision of whether to use the bands or the points of change in LLA to measure the change was a big question in terms of generally grading students, but it is the case of all scores in any assessment system that they have these arbitrary lines in the bands. I preferred to look at the movement from one band to another (i.e. where they were at the beginning of the course in relation to the levels versus where they ended up at the end of it) and not to look at the amount (points) of change in LLA variable. The change happening in levels of LLA up and down in each group is not the same as the amount of change in points because I am imposing these bands. By measuring the change in LLA based on levels, i.e. bands, and not based on points, I intend to give more importance to the levelling process proposed here than I would to the actual progress that the students have made. Though I am aiming to see how students develop in their LLA but I am also imposing this structure as a framework to understand LLA from a measurement perspective.

4.10.7 Setting out and testing the model

Because of the lack of information on any direct quantitative measurement for LLA in the literature (Le, 2013; Murase, 2015), my aim in this research was, rather than confirming the model of LLA assessment quantitatively by running the regression to test the relationships between its component parts (see section 4.10.4), adjusted to setting out the quantitative part of the assessment model and reflecting on it qualitatively.

The assumptions made on the measurement scale emphasise that these elements are all aspects of LLA and that they are of equal importance to LLA. This is the reality which I set out and the qualitative work will explore whether this assumption is true. I will test students' LLA levels by mapping their LLA scores with their self-assessment in the qualitative data. I will test the weighting of the components of the LLA measurement scale qualitatively by examining which of these components is more important than the others through the case studies which I will carry out from both treatment groups (see sections 7.5 and 7.8).

The mapping of the quantitative and qualitative self-assessment is believed to reveal something about the reliability of students' capacity to self-assess and the reliability of their LLA scores which

are based mostly on their self-assessment. Blue (1994) refers to Oscarson's [formerly spelt Oskarsson] (1978) self-assessment questionnaire which builds on Ward Goodbody's (1993) method of assessment where students are asked to provide, besides the quantitative data, a paragraph-long writing to answer some open-ended questions. The aim was to use these answers for informal assessment of students' language without making them feel that they are providing evidence for their actual level or that they are assessed.

In the present study, learners' self-assessment in relation to the components of LLA in the qualitative data used a different criteria from the one used for their quantitative self-assessment. In the quantitative assessment using the SRS, the students were quantitatively self-rating most of the component parts of the LLA measurement scale and they were aware that they were rating themselves against these concepts which can lead them to give themselves higher scores. In the quantitative assessment of LLA, it was clear to the students that there was some sort of rating, but in the qualitative data they were asked to talk about how they feel about and what they did in their language learning experience. In the latter case, they were not aware that they were declaring things about themselves which I will use to rate them.

4.11 Data analysis procedures

4.11.1 Data storing and preparing data for analysis

The quantitative data of the three participating groups taken from the pre- and post- self-rating scale form, self-proficiency rating, and proficiency test scores were entered in an SPSS file for processing to identify whether they made a change in their language proficiency level or their autonomy-related capacities after the treatment.

Likewise, I transcribed all of the audio-recorded interviews and the FG interview. I decided to use the QSR NVivo software to help me with the processes of the qualitative analysis including data coding, results, and interpretations after the themes are connected. This software is a tool of "data administration and archiving" (Kelle, 2007: 456) which entails that it "does not perform the analysis but only supports the researcher doing the analysis" (Cohen *et al.* 2011: 544).

I turned the hard copies of the reflective writing forms (written by the OFTG) into scanned copies in preparation for the import of the data. Reflective writing forms of each student in both groups whether they were scanned or already typed (by the ONTG) were combined into one PDF file as the database for students' critical reflectivity on their learning per sessions ordered in a chronological order which can illustrate the change students made by the time in their reflectivity.

Then all of the transcribed, scanned, and collated data were imported to Nvivo 10 for Windows as a pre-coding procedure.

I started the pre-coding process by setting up the QSR NVivo software and creating the folders that are needed for storing the data organised based on data sources. Codes were created for the respondents' names and a distinction was made between respondents' names across the different data sources, for instance each participant has three different codes depending on whether their data belongs to the FG, one-to-one interview, or reflective writing forms. These respondents' codes were then added to the classification sheet which connects all of the applied codes in the project. Each of the PDFs for the reflective writing forms and the interview and FG transcripts was linked with its relevant respondent code in order to have the codes applied to students' data appear when they are clicked on.

4.11.2 Abductive logic in the qualitative data analysis

One of the distinctive features of mixed methods research is that it exploits a deductive as well as inductive logic which makes the work on the research iterative (Tashakkori and Teddlie, 2010). The use of both deductive and inductive logics is called an abductive approach which considers the phenomenon first, then gives possible scenarios for what caused it before investigating whether these scenarios are what is actually happening in reality (Cooker, 2012).

In the present thesis, I started with a theory which reflects the relationships between the individual components in the scale I am proposing. I am using these relationships as a theory taken from the literature to quantitatively develop my own theory (i.e. the proposed scale). Then, I test the scale using the qualitative data to validate the relationship between its constituents and to produce the assessment model in its final form for other researchers to use when they aim to measure learners' LLA.

4.11.3 Descriptive statistics

Descriptive statistics was applied to all the quantitative measurements of the components of the LLA measurement scale (i.e. seven components excluding the qualitative critical reflectivity component) along with technology use and the quantitative LLA scores that the students gained in the three groups. In this part of statistical processes, I run frequencies on the change variable over the whole course asking for the mean of the change and standard deviation. Comparison across the three groups was made at the descriptive level using the means of the change each group had (see sections 5.2.1, 6.2.1, and 7.3).

4.11.4 Inferential statistics

Advanced inferential statistics was also applied to all the quantitative measurements of the components of the LLA measurement scale (i.e. seven components excluding the component of critical reflection which was assessed qualitatively) along with technology use and the quantitative LLA scores. In particular, a ONE WAY ANOVA test was run on the above mentioned concepts to identify the significance of the difference in the change made by the three groups. Both an Independent-sample T-test and a paired sample T-test were also run to find the significance of the change made by the two treatment groups and of the change made within each of the three groups over the course, respectively.

A linear regression test was run on the change in students' technology use and in their quantitative LLA scores to predict the quantitative relationship between these two variables (see section 6.2). Additionally, a linear regression was run to calculate the LLA variable at T1 and T3 by predicting the relationship between the seven components of the scale. This was done by adding the measurement of the components after transforming the smaller ones to be equal to the greater measurements based on the assumption that all the components have equal importance (see section 4.10.3).

4.11.5 Thematic qualitative analysis

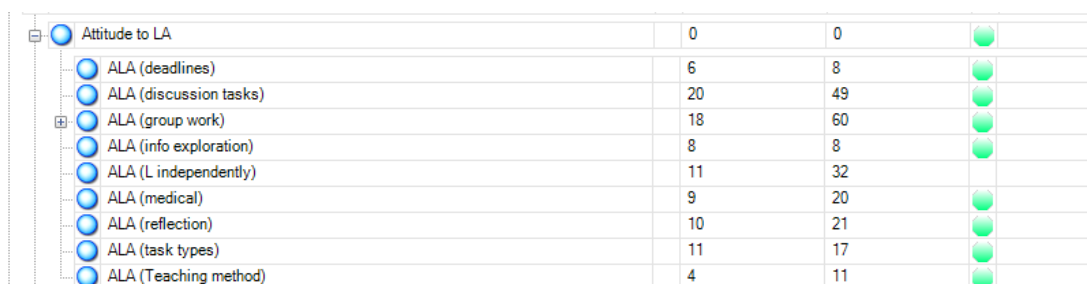
This section introduces my analytical framework for the qualitative data from the FG, one-to-one interviews, and reflective writing forms, namely, thematic analysis. It also explains what was done by applying this framework to the data and the findings will be provided in detail in sections 5.2.1; 7.3; and 7.4). Thematic analysis is one of the methods used for qualitative data analysis. Using this analysis method, the application of the codes was done on all of the qualitative data of the four case studies followed by the categorisation of the assigned codes and the interpretation of the relationships between the categories or the codes. This process is not as linear as it may sound.

This method of the analysis was used because I had my deductive codes on a structured template with all the predetermined codes. This template uses the concepts which were predetermined in the design of the proposed measurement scale to quantitatively measure the autonomy-related capacities, e.g. motivational belief about technology use (MBT), attitude to technology use (ATU), motivational belief about learning (MBL), attitude to learner autonomy (ALA), perceived strategy use (PSU), language proficiency (LPT), and self-proficiency rating (SPR). These components are implications for the elements in the theory unpinning this research (see section 2.2).

These predetermined codes were selected because they reflect the underpinning theory of this research and the adopted definition of LLA in this study (see section 2.2). I had also other codes for other concepts which are part of the theory in this research but are not measured quantitatively, e.g. critical reflection, metacognitive knowledge, and metacognitive strategies.

At the same time, data driven analysis (inductive) approach was also considered in the analysis of the interviews, FG, and reflective writing forms to recognise the themes coming up from the data while exploring it. Hence, I was open to identify any other codes emerging from the data and to accept adding these codes to the template of the codes, e.g. confidence.

The first step in the deductive coding was to pre-code the text of interviews, FG, and reflective writing forms. At the stage of pre-coding, work was done only at the data level to annotate all the data in terms autonomy-related concepts. The notes taken on the data helped to identify the codes- theme- to be created (e.g. attitude to LA). Then, the data was reduced by categorising the created codes into groups (e.g. 'attitude to LA' category includes 'attitude to independent learning', 'attitude to reflection', 'attitude to deadlines', etc.) (see figure 7). The hierarchy of codes with the groups they belong to were rechecked after about a month to ensure the reliability and the consistency of the application of the codes across all of the case studies.



| | | | |
|------------------------|----|----|--|
| Attitude to LA | 0 | 0 | |
| ALA (deadlines) | 6 | 8 | |
| ALA (discussion tasks) | 20 | 49 | |
| ALA (group work) | 18 | 60 | |
| ALA (info exploration) | 8 | 8 | |
| ALA (L independently) | 11 | 32 | |
| ALA (medical) | 9 | 20 | |
| ALA (reflection) | 10 | 21 | |
| ALA (task types) | 11 | 17 | |
| ALA (Teaching method) | 4 | 11 | |

Figure 7: A sample of the codes grouping in NVivo software

In an attempt to decide on the best presentation style for the data, a new data base was created in a separate word document for each of the four case studies to list all of the codes applied to their collective qualitative data from all of the three research methods. On the list, the actual responses (i.e. quotations) were added next to their relevant codes to facilitate the provision of evidence for the findings of each of the case studies at a later stage of the analysis (see Appendix 14). Many steps were taken to make a decision about the most manageable way to present the codes in the data of all of the four case studies in a way that facilitates comparison and identification of patterns (see section 4.18). This process is iterative and non-linear as it seems to be.

Interpretation of the data and preparation of its presentation started with connecting the themes. Each component of the assessment model (i.e. concept) was presented separately with consideration of five analytical themes (i.e. actions, capacity, and engagement, attitude, and belief). The high and low autonomy students from both treatment groups were used as the organization principle for the presentation of the interpretation of the LLA components.

Then quantitative and qualitative findings were triangulated to validate the findings of each type of the data. When integrated with the quantitative, the qualitative data can give different findings from those of the quantitative data. I would not consider this as a problem at all because this is the essence of mixed methods research (MMR). I decided on MMR approach to serve the completion of the picture of the assessment of students' LLA from both perspectives, qualitative and quantitative. For further information on the triangulation, see sections 4.19 and 7.5.

Thematic qualitative analysis was accompanied by my analytic memos which include my notes of emerging ideas while I was doing the analysis, as was pointed out by Dörnyei (2007) and Miles *et al.* (2014). Analytic memos can serve as theoretical notes when the research aims to develop a theory or hypothesis (Berg and Lune, 2012) and they can bring creative touches to the codes and categories (Punch, 2014). Because this research aims to develop a theory or hypothesis, these analytic memos worked as my theoretical notes and they were helpful to trigger analytical thinking, but they were not coded (see Appendix 15).

4.11.6 Summative qualitative content analysis

This section introduces my analytical framework for the data coming from students' reflective writing forms; namely, what is called summative qualitative content analysis. Explanation of what was done by applying this framework to the data is provided afterwards and the findings are presented in section 5.2.1.11. This particular method of qualitative analysis is used for the analysis of the reflective writing forms for the purpose of coming up with an assessment method for students' critical reflection capacity. Students' critical reflection is a very important aspect of the qualitative way of looking at LLA assessment. Examining students' reflectivity over time gives us an indication of how LLA is working qualitatively and it also shows the level of criticality of the students over the course.

For the purpose of analysing the written (by the OFTG), or rather, typed students' reflective data (by the ONTG), I employed qualitative content analysis. This term, according to Dörnyei (2007), is general and is used with varying specific meanings covering latent content analysis (Berg and Lune, 2012), sometimes thematic analysis (Bryman, 2012), thematic coding analysis (Robson, 2011). Therefore, I will be specific about what I mean by qualitative content analysis in the

present thesis. I use a summative approach to qualitative content analysis where I identify and quantify students' reflective responses in the RWFs. According to Holsti (1969) this approach to qualitative content analysis does not stop at counting the words but also involves the process of content interpretation which is called latent content analysis. The aim of this analysis is to get to the implicit meaning of the actual words used by students in the RWFs, as illustrated by Babbie (1992).

Three temporal codes for the three phases of the research were created as deductive codes to trace the improvement in students' reflective capacity across these phases. The PDF of each of the case studies which combines the whole reflective writing forms was coded in terms of phases (i.e. phase 1, 2, and 3). Then, three codes related to the level of mastery of reflective writing were created also as deductive codes to assess the quality of the reflection made in each question answered in the reflective writing forms (RWFs) (i.e. low or nothing, medium, and high). The rationale (i.e. criteria) for the application of the three rates used for the assessment of students' critical reflectivity to the data of the four case studies in the RWFs is justified and organised according to the questions answered in the RWFs designed for the regular (7) modules and those RWFs especially designed for the optional tasks during the 3-week break, respectively. (Appendices 16 and 17)

After establishing the method of assessment for students' reflectivity with the three levels, the three rating codes for the reflection mastery level were applied to each question in the RWFs which will result in a longitudinal assessment of students' capacity to reflect over the course building on the assessment of every phase. In order to ensure consistency in the assessment of critical reflectivity, the number of times reflection was made in the answers to the questions of the reflective writing forms was considered when the content analysis was applied. This was done by giving the unanswered questions the rate 'low or nothing' which is also used when the reflection is low in quality.

| | A : low or nothing | B : medium | C : High |
|---------|--------------------|------------|----------|
| Phase 1 | 9 | 13 | 2 |
| Phase 2 | 2 | 0 | 7 |
| Phase 3 | 7 | 5 | 6 |

Table 4: An example of query result for reflectivity assessment (Lama's findings)

After applying the created assessment rates for students' reflectivity, the first stage in doing the assessment over time is to do content analysis to treat the data coming from the RWFs. By this, I mean I will turn the qualitative data (i.e. actual responses in the RWFs) into numbers to get an

overall picture of this aspect of learning. To do this in NVivo, I designed a matrix query for the reflectivity of each of the case studies and this type of query gives the logical intersections of case nodes and thematic nodes to create a matrix. We are concerned here with nodes for the phases of the research and others for the reflectivity levels. After running the queries, I need to look at each one of the intersections in the result of the query (i.e. the coded references) and I looked at the actual coded chunk of data to check whether the number given in the query result (see table 4) is correct or different especially with PDFs as the parts selected from the responses for the rating of their reflectivity can overlap which makes the total number different from what the query results are saying. This checking process can be done by going over the whole document to identify any overlap and make sure that the rates given to them at the application stage were the right ones.

The assessment of reflectivity in each phase was done in two ways: first, by looking at the biggest number in each of the three rates to determine the overall level in that phase. Second, by looking at the actual data of reflection in each phase in detail to come up with an overall assessment of the whole phase. After making sure that the numbers in the query result are all correct and reflect the actual performance of reflection, the final step in the assessment of critical reflectivity is to pinpoint the kind of change happening in students' reflectivity by just looking at the Matrix Query table. All the ideas that came to my mind while assessing students' reflectivity were entered into a new table for each of the four case studies to facilitate the analytical thinking that happens during the writing up of the results for the critical reflectivity assessment (see tables 31, 32, 33, and 34 in Appendix 20).

At this point, the assessment of students' critical reflective ability can be compared to their LLA level on the quantitative scale. The logic is that if students are evaluative in the WRFs and have a high score in critical reflection after the course but not a very good score in the quantitative LLA measurement, then interestingly the quantitative measurement of LLA is not saying what the qualitative assessment is saying and then I can identify the reason for that. It could be that students' self-assessment capacity as evidenced by their quantitative LLA score is not accurate or that the task they were doing while reflecting in the RWFs, interviews, and FG not only assessed their LLA but also contributed to the development of their LLA.

4.11.7 Integrating quantitative and qualitative findings

Now, that the different approaches of data analysis were used and that we obtained the findings from both sides of LLA assessment, it is time to decide whether the high and low LLA students in the quantitative data are still high or low in the qualitative data. If they maintain the same level

measured by the quantitative scale in the qualitative data then the quantitative scale is right. However, there might be some concepts of the qualitative LLA assessment that are interfering with the quantitative measurement if the qualitative data showed something different from the quantitative measurement, but these aspects maybe less important for those high or low LLA students.

I also need to test whether the qualitative data shows that the components of the measurement scale are of equal importance to students. If it was found that all people in each group are working very similar to the mean of change made in each of these concepts by the group they belong to, then the components were all equally important. The qualitative findings will help with testing the proposed quantitative scale for the measurement of LLA and with learning more about LLA from the qualitative data in addition to the quantitative. It will enable me to identify the nature of the relationship between the training and technology use and the change students make in LLA.

The findings from all of the data sources are brought together in one table to facilitate accessibility of the information while writing up the change students made in LLA (see table 29 in Appendix 18). The testing process and its discussion are provided in the coming chapters (see sections 7.5 and 7.8).

4.12 Ethical and risk considerations

Ethical issues are of primary importance in social research generally and in educational research in particular. The importance of ethical issues is highlighted in qualitative studies more than it is in quantitative research due to the fact that qualitative research is by nature interested in aspects of people's life including sensitive issues (Punch, 2005). Ethical principles in educational research give the researcher more space than in other fields of research as research in educational contexts introduces minimal or no risk to the participants.

In this study, the researcher ensured to comply with the research ethics regulations. The research documents necessary for ERGO were filled in and submitted to obtain the approval to commence the work on the research data collection. At the beginning of the data collection period, a consent form was given to each participant and information about the study was explained. Dörnyie (2007) refers to the controversial issue of how much information to be shared with students. He indicates that it is pragmatic to not reveal information about the research which could impact participants' responses or lead to participants' withdrawal from the research. A balance in the amount of information to be shared with participants was attempted.

Chapter 4

In order not to influence participants to be biased in their responses, the proposed course in this study was called 'The Strategy Course' rather than what most of the students tend to call, i.e. the online course. The rationale for this name is the fact that the researcher intends to avoid any influence on participants' responses if it were called 'online course' or 'blended course'.

Additionally, the nature of The Strategy Course and the expected student work were explained to participants at the beginning of the semester.

It was communicated that the study aims to help students to learn English better and to improve their medical English. The question the research is trying to answer regarding the impact of students' technology use in a blended course to enhance learners' autonomous language learning was not revealed to the students. This was hidden in order not to bias the research results when students focus more on showing an improved LLA to satisfy the researcher's aim. The participants' right to withdraw from the study at any time and the confidentiality of the data were emphasised.

In the texts of research methodology, it is problematic to end a study leaving the participants with the sense that they were used only for the purpose of the research (Ryen, 2004). At the end of the experiment, the researcher thanked the participating students and the three instructors of the three groups taking part in the study. Little thank-you presents were given to the instructors as well as to the participating students in the last few days of the semester to make them feel that they were a valuable source of information and that their effort was appreciated.

Although the principle of anonymity is crucial in the research, participants' identities in educational research need to be known only by the researcher and that is to facilitate the match between participants' identities and their performances on the research instruments and on the tasks (Dörnyei, 2007). In an attempt to facilitate the researcher's identification of the participants while conforming to the anonymity principle, a research code was given for each participant in the three groups in consequence; starting with (1-25) for the ONTG, moving to (26-50) for the OFTG, and, finally, (51-75) for the control group. As expected in any longitudinal research, attrition occurred in the study sample when the participant number (15) moved from the ONTG to the OFTG and her assigned code was kept for her after she moved in order not have mixed-up data.

To better handle the collected data, I saved the recorded audio files and their backup copies with the participants' research codes in a password-locked computer to maintain its confidentiality. Their performance scores on different research instruments, on the learning tasks, on their reflective writing forms together with their allocated research codes were all saved safely in a password-locked computer.

4.13 Research validity and reliability

Reliability and validity (Silverman, 2001) are two fundamental concepts used to discuss scientific research credibility. Dörnyei (2007) notes that it can be said that the validity of the research has been achieved in a research when some research design strategies are taken into consideration as a good practice in conducting research: first, the triangulation of methods and data in order to provide strong validity evidence and to minimize any potential bias; second, constant observation and engagement with the target community; third, as Duff (2006) maintains, longitudinal research methodology which can reveal different perspectives of change over time. Qualitative researchers see that reliability and validity are more defined in quantitative research than they are in qualitative research (Golafshani, 2003). Triangulation contributes to the credibility of qualitative studies (Silverman, 2001; Cano, 2000).

Triangulation is used in the current study with the assumption that research findings are confirmed and clarified when different sources are used (Ritchie and Lewis, 2003). Moreover, a pilot study was carried out prior to the main study to increase the reliability and validity when the research design was tested and methods were modified as needed as was recommended by Cohen *et al.* (2007). Reliability of the quantitative data was considered by matching students in the three groups as much as possible using the pre-test to control any other variables that might influence the difference in the change made by the three groups apart from the effect of the investigated variable, i.e. technology use.

Reliability was also ensured in the design of the self-rating scale that was developed for the measurement of autonomy-related components and it was piloted to test its reliability measures. I did not use a previously designed questionnaire, but I designed my own self-rating scale form because I was unable at that time to find an instrument which can capture all of the aspects underpinning my view of LLA. Previous research in LLA tackled this phenomenon from different aspects which are not necessarily the ones I am focusing on. For instance, I focus on the measurement of learners' strategy use, technology use, attitude and belief about LLA and about technology use; while others may focus only on reflectivity, metacognitive knowledge, or confidence. Additionally, I work in three related areas (i.e. LLA, technology use, and learner strategies) and I was unable to find an instrument that can combine these three areas in one research instrument.

4.14 Researcher's role

In this research, I played the role of the researcher and the teacher of the proposed course for the enhancement of LLA. I wanted to give the teaching role to the teacher and I just do the researchers' job of collecting data for the research findings, but that would have brought the possibility of bringing in any faulty behaviour which might influence the results of the study. I was aware that if I took the role of the teacher besides the researcher's, I would be able to ensure giving more power to the learners' role in the process of learning than it is to the teacher's. I would also be able to extend the engagement and observation of the learners' behaviour which will add to the validity and reliability of the findings.

There was one disadvantage for making the decision to play the two roles which is the amount of work I have to do for the research inside and outside the classroom. Having the two roles to play by the same person can influence the outcome of the research, but I ensured to play the role of a facilitator for learning and to give the learners all the freedom to make decisions, take choices, and express their opinions. Because I was interested in their voices, I gave them great opportunities to give their voices and to reveal their internal thoughts.

In this research, I have the standpoint of both positivism and interpretivism. I played the role of an outsider when the quantitative data of the experiment is dealt with as it should be a scientific work not influenced by the researcher's values. The relationships between the variables (components) are drawn from the literature but are tested together in this experiment. Besides, I played an insider role at the stage of designing the research, implementing it with learners, and carrying out the follow-up work where a qualitative exploratory case study is conducted and analysed. During the analysis, I was open to accept and add any emerging theme from students' qualitative data (see section 4.4).

4.15 Decisions about the number of case studies

As I have conducted interviews with 12 participants from both treatment groups and I need only a small number of students for the case study to exemplify and to illustrate what was going on in the treatment in relation to the components of the measurement scale, I used the qualitative data of only four students selected for the case study. It was not possible to make this number bigger because the management of all of the qualitative data and its integration with the quantitative findings to come up with conclusions about LLA assessment would be messy and therefore unreliable. I did not select less than four because I needed to look at the high and low

autonomy students in both treatment groups at least which makes four a perfect number (see section 4.6).

4.16 Decisions about how to assess students' reflectivity

The decisions taken regarding how to assess students' critical reflectivity is a long process which is explained in detail above in this chapter (see section 4.11.6).

4.17 Decisions about how to present the quantitative data of each component

I decided to organize the data chapters based on research questions because each question treats a problem and many steps are taken to come to each of the quantitative and the qualitative findings to form the answer to each problem. The story of the research and its findings would be a disconnected if it were organized in a different way.

The first research question discusses LLA assessment in relation to the experiment to show the difference among the three groups in LLA improvement as a result of exposure to training only, technology use and training, and no training without technology use. This question was planned to be answered with the assumption that the model used in the quantitative side of the assessment is fixed and that each of the concepts is of equal importance to LLA.

It is also in this question that the qualitative side of the assessment can question this assumption and what students say about each of the key concepts to see whether some components are more important than others. This questioning can be done via coding the qualitative data of high and low LLA students selected from both treatment groups for comparison so as not to have to look at all students. Assessment of reflectivity should be added to the answer to this question (see section 7.5).

The process of quantitatively calculating and statistically treating the LLA variable to bring up the difference across the three groups is discussed first, followed by the statistical work run on the different components of the LLA measurement scale along with the qualitative findings in each concept. Then, overall look at how the quantitative and the qualitative parts of the assessment model are working were discussed.

Research question two is to be discussed in relation to the quantitative and qualitative analysis, but the third question is to be qualitatively answered only because the impact of the training was not measured quantitatively. This organization was changed by taking out the discussion of the

creation of the LLA variable, scale and bands from the first research question and including it in the methodology chapter. The rest of the decisions were maintained.

4.18 Decisions about how to present the qualitative data of each component

First I looked at the concepts separately in the qualitative data of the four selected case studies. Then I used the data of each case to write the findings of the relevant concepts. These two ways were found useless to bring the differences or to show patterns in the data and, thus, I decided to create a checklist for the main concepts and the sub-concepts (e.g. language proficiency, motivational belief about technology use, attitude to technology use, motivational belief about learning, attitude to learner autonomy, learning management, planning, technology use in language learning, critical reflection, and perceived strategy use) but I added three more analytic themes (i.e. engagement, capacity, and action) with the assumption that they might show a pattern and might lead to an amendment in the proposed assessment model. Students' actual qualitative responses were added to the concepts on this checklist to facilitate the process of connecting themes to identify findings.

Using this checklist, a profile for the learning process was started for each of the four case studies; but that was making me working in a vicious circle. I changed my mind and I started to write each case theme-by-theme (i.e. the main concepts) using the three analytical themes to organize the writing of the case studies. That way helped me a lot to have a focus but I was still unable to look at the difference between the case studies in these concepts. At that point, I had the idea of creating a grid for the comparison of the main concepts in the data of the four case studies (see Appendix 18) and the idea of using the three analytical themes to organize the writing of the case studies was abandoned, though was used when needed within the writing of some concepts.

This grid was very helpful as a tool to bring up the difference across the four case studies in all of the concepts, but the question that came to my mind was how I can present the findings using this detailed grid. Using this comparison grid, the qualitative findings in each of the main concepts (i.e. the components of the LLA assessment model) were entered by looking at the students who were high separately and then at the students who were low in the quantitative LLA measurement (see sections 5.2.1.2 and 5.2.17 for examples).

4.19 Decisions about how to integrate the quantitative and qualitative data of the components

Now, that I have a helpful organization style to use in the writing up of the concepts, I started to include the findings of my online and offline observation in the writing to triangulate the qualitative findings. Further improvement was made in the writing of the concepts by giving possible interpretations for these findings and relating them to the self-assessment students made in their quantitative LLA level. Actual responses were added and more evidence from the observation was exploited to support the findings and my interpretations of these findings. Further analytic thinking about the testing of and interpretation of students' quantitative LLA measurement was exercised and explained later in chapter 5, 6, and 7; but the style of presentation for the findings of the qualitative data was maintained.

4.20 Summary

In this chapter, the detail of the research methodology followed in this study is presented including the research questions, design, methods, sample, phases, and data collection instruments and procedures. It introduces the methodology exploited for the operationalisation of the components of the proposed model for LLA assessment and the measuring bands. It explains the data analysis methods and procedures, research ethics, validity and reliability, and decisions about data presentation.

Chapter 5: Measurement and assessment of students' LLA

5.1 Introduction

This research has three research questions. In chapter 5, the data relating to the components of the proposed measurement model are presented for the larger group of students (the three groups of the experiment) then for the individuals selected for the case studies (see sections 4.6.2 and 4.15). The presentation of the findings in this section uses the components of the model as the principle for the organization. Each component starts with giving the quantitative findings for the three groups and then it presents the qualitative findings for the four case studies (the two high autonomy students and the low autonomy students). This order was chosen for the presentation of the findings for the purpose of giving more insights on the findings for the larger group as well as validating the scores given for their LLA. The second and third research questions about the impact of the two ways used to enhance LLA (i.e. technology use and learner training) are discussed in chapter 6. In chapter 7, the quantitative findings from all the components are put together to create a score for students' LLA using the proposed scale before the qualitative findings are used to validate those scores. Chapter 7 answers the first research question about how autonomous the students are over time within a blended learning environment. It discusses the model proposed for the assessment of LLA and undertakes the weighting of the scale components.

5.2 Quantitative and qualitative findings

In this section, I present frequencies of students' scores in each of the components of LLA- eight components in total- followed by significance testing of the difference in LLA change across the three groups and between the two treatment groups along with the significance testing of the change happening within each of the participating groups over the whole semester. Then, I explore the qualitative codes of the component parts of LLA taken from students' focus group, one-to-one interviews, and RWFs along with my observation of students' online and offline activities. The aim of the data integration in this section is to give further insight into the processes that were captured in the quantitative data and to validate those findings.

5.2.1 Components of the assessment model

This section starts with presenting a summary of the findings from the qualitative data of the four case studies before listing the components with their quantitative and qualitative findings:

Chapter 5

High autonomy students (Nora and Lama) are more able to identify their weak and strong points and to address them more than the low autonomy students (Samia and Maha), though Maha is also capable to identify weaknesses to some extent. On the other hand, all the three groups improved their LPT scores. However, the four case studies differed in the amount of progress they made in some language competences and in the level of their confidence (findings based on their qualitative data) for different reasons (i.e. training or technology) which led to a difference in their capacity to report their progress in SPR.

Technology use affects students' ALA and MBL (see section 5.2.1.10). Nora, who was given technology and used it, reported needing the teacher for guidance and support only if technology is not used and only if she has to collect grades, but Lama and Maha (OFTG), who had no technology use, reported needing the teacher for teaching them the basics and for giving them support if technology was not used. Samia said the same as the OFTG, though she was given technology and support, but she did not use technology efficiently (see section 6.2.4.2).

The high autonomy students believe that technology use is not the main thing in learning languages. The low autonomy students believe that it is important to have the teacher teaching in front of the classroom even when technology is used (see section 5.2.1.7) and that the teacher is the one who makes the change in students' abilities to learn.

The two high autonomy students were similarly engaged in reflecting about their learning and they were doing actions about it, but Lama reported doing it less frequently now than she used to do in the past. They both can reflect, but the rating of their reflectivity in the RWFs showed that Nora started high and maintained the high reflectivity in phase 2 and 3 (i.e. until the end of the course), whereas Lama started lower in reflectivity (medium) and improved to a high level in phase 2, then came back to medium level by the end of the course. Samia was able to maintain the reflectivity level (medium) but Maha reduced it from medium to low and this may be due to the fluctuation in their engagement with reflection.

Nora reported increased awareness and use of strategies while Lama reported an increased use of strategies which may imply a greater awareness too. Samia and Maha became more aware of strategies but they had low engagement with the strategies in the training. Samia's PSU did not increase greatly.

The self-assessment competence of the four case studies was found inaccurate when they rated themselves in the different components making up the measurement scale which led to inaccurate LLA measurement scores. This was found when their LLA scores were validated using

their qualitative data. This inaccuracy in self-assessment implies that those students need training to improve their self-assessment capacity (see sections 7.4 and 7.11).

5.2.1.1 Self-Proficiency Rating (Quantitative)

Students rated their language proficiency on a special form designed for this purpose (see Appendix 5) before and after the experiment (i.e. at T1 and T3). The measurements at T1 and T3 was transformed to a 0-100 point scale and the change between T1 and T3 in this variable was calculated. Then frequencies were run for T1 and T3 measurements and for the change in self-proficiency rating (SPR).

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +3.60 | 19.50 | 25 |
| Online | +13.18 | 22.01 | 22 |
| Control | - 4.76 | 17.35 | 21 |

Table 5: Frequencies of students' change in self-proficiency rating

Table 5 shows that the mean for the offline group's (OFTG) SPR increases ($M=3.60$) over time but this increase is less than the increase made by the online group (ONTG) ($M=13.18$). The mean for the control group's (CG) SPR represents a decrease of ($M= - 4.76$) points on a -100 to +100 point scale. This change represents the story of change happening in this sample, i.e. only in these three groups, and cannot be generalized before running any of the significance tests.

The reduction made by the CG, who did not receive any training, can indicate that the training given to the two treatment groups is effective to create an increase in their language proficiency as measured by the SPR form. The fact that ONTG in my sample makes a much greater increase than the OFTG suggests that they both benefit from the given training in their language proficiency. Learner autonomy helps learners to achieve better learning and better language proficiency (Little, 1999a; Sinclair, 1999a; Benson, 2010; Oxford, 1999). However, technology helps the ONTG to increase more because they are provided with tools and opportunities of interaction (Morrison, 2005; Schwienhorst, 2008; Benson, 2011; Marsh, 2012). This may also show that the ONTG is more confident after the course than the OFTG as technology supports them with unlimited authentic material (Jones, 2001; Schwienhorst, 2008) and accordingly the ONTG progresses more in LLA because confidence is said to be important to the development of LLA (Littlewood, 1997; Cotterall, 1995a; Le, 2013).

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(24) = 0.923, p > 0.05$ | $F(2, 65) = 4.453, p < 0.05$ | $p > 0.05$ |
| Online | $t(21) = 2.809, p < 0.05$ | | |
| Control | $t(20) = -1.257, p > 0.05$ | | |

Table 6: Significance of students' change in self-proficiency rating

To examine whether the results of the frequencies stated above can be generalized to the whole population of medical students at this university, the significance of the change happening in students' SPR within each group from the start of the course to the end of it was tested and the result shows that the OFTG makes an insignificant increase, while the increase made by the ONTG is significant. Interestingly, the reduction in the CG's SPR is found insignificant.

Only the increase made by the ONTG was found significant which leaves us with the question whether technology or training is the one that led to this significant increase in SPR. The insignificant reduction made by the CG suggests that students would make no change in their language proficiency when there is no training given to them. Similarly, the insignificant increase made by the OFTG suggests that training only can but not necessarily lead to an increase in language proficiency.

Testing the significance of the differences in the changes happening across the OFTG, ONTG, and CG, it was found that there are significant differences in students' SPR. This significant difference can illustrate the logic that the effect of the training and the technology given to the treatment groups helps them to make a different change from the CG.

There was no significant difference between the change in the OFTG's and the ONTG's SPR scores which may mean that the difference in the increase made by both groups as a result of technology use versus no use cannot be generalized and that it is only the training that can make the increase in SPR because they both were exposed to the same training and they both increased in SPR after the training, though differently. This assumes that when students are given a learner training no matter what the delivery mode is (online vs. offline) they can both increase in their language proficiency and in their capacity to assess their learning. However, a significant increase in SPR was found amongst the ONTG who made the greatest improvement in LLA. Thus, I can say that technology proved its effectiveness in the enhancement of language proficiency, confidence,

and the capacity to assess learning. This conclusion can be tested by the findings of the LPT scores in the following component.

5.2.1.2 Self-Proficiency Rating (integrated qualitative)

This component tests students' capacity to self-assess and it can illustrate the change in their language proficiency. As explained in the methodology chapter, the four case studies were given pseudonyms to maintain their anonymity in the qualitative analysis, i.e. Nora and Samia (high and low autonomy in ONTG) and Lama and Maha (high and low autonomy in OFTG). The principle for the selection of these case studies is explained in section 4.6.2. The presentation of the findings from all of the qualitative sources starts with the two high autonomy students from both treatment groups (i.e. ONTG and OFTG) followed by the two low autonomy students.

5.2.1.2.1 The two high autonomy case studies

In spite of the weaknesses that Nora admitted to have in language competence (grammar and writing) in [FG], she confidently asserted that she has no problem in speaking and communicating either in face-to-face or online contexts: *"For me, I know my weak points. They are writing, not writing, like basics of writing and grammar. I don't really find it a big problem. I mean I can speak properly. I don't feel frustrated while explaining something to foreign people. I think that is ok for me"*. She was confident even though she was talking about her weaknesses and this can be due to the many opportunities of language use and unlimited authentic material she was given inside and outside the classroom as a result of technology use (Jones, 2001; Schwienhorst, 2008). It maybe the effect of technology which facilitates a reassuring support for her speaking competence as it is said that the functionalities of VLEs support students' TL use (Schwienhorst, 2008) (see sections 5.2.1.7 and 5.2.1.10).

On the other hand, Lama reported [interview] having a low writing competence and that technology might be helpful to improve it: *"It will help in writing because you will be able to see the words in front of you then you will write it because I am very bad at writing"*. She admitted [interview] having a good speaking competence but it was limited to familiar topics. This low confidence in her competence can be linked to the limited access that she had for authentic learning materials and the lack of the support she could have got if technology were used in the training. Exposing students to authentic texts can boost their confidence (Jones, 2001) and technology supports students in different aspects of learning (Little and Ushioda, 1998; Schwienhorst, 2008). This conclusion about her low confidence can be supported by evidence from her qualitative data (see section 5.2.1.7).

Nora gave more varied responses [FG and interview] touching different perspectives within the same theme than Lama. For instance, when Nora was talking [FG] about the improvement happening in her writing and grammar after the course and when she was talking about the remarkable point to which her speaking has improved, she was elaborating and giving details about what she can do in relation to these competences: *“When I talk to myself in the past, I used to get frustrated because when I want to say something to myself, I don’t find the specific word for saying it ... And in the end, I end up saying it in Arabic. So I get really frustrated. But now, I can find the all the words I want to talk about. I can find the specific grammar”*. Nonetheless, Lama’s responses [interview] were limited to the language skills and whether or not they have changed with no further details or deep reflections: *“Like if, the subject, like this, if I do not know what we are talking about, I would need some time to think. But if I know the subject it will be easy”*. This difference in the level of their reflectivity can also be seen when their RWFs were assessed (see section 5.2.1.11).

The self-assessment capacity of Nora to clearly identify the weaknesses and the strengths is noticeable, e.g. writing and grammar as weak points and speaking as a strong point [FG]: *“my weak points. They are writing, not writing, like basics of writing and grammar. I don’t really find it a big problem. I mean I can speak properly”*. Lama is also capable of identifying her weaknesses when she talks about it in the interview: *“I am very bad at writing”*, but the accuracy of this assessment can be demonstrated when her data is triangulated in the following paragraph.

Nora and Lama reported experiencing benefits of the training related to their language competences. Nora believed that her communication skills have improved because of the training though she viewed her speaking to be unchanged and this can be verified by her engagement with training including pair and group work, discussions, medical English content, and variety of task types and organizations. She believed that her language proficiency improved because of technology use, in particular the discussion forums [interview]: *“Yes, increased. Like, in the discussion and the online we had to go for full sentences”* (see section 5.2.1.4). Lama did not state anything related to the impact of task types and organization on her speaking but she linked the increase happening in her language proficiency in general to the impact of task types and organizations [interview]. This can be explained by her engagement with group and pair work, discussion tasks, tasks variety, and role-play tasks.

Mapping quantitative and qualitative data, a conflict was found in the qualitative and quantitative rating of language competencies of both Nora and Lama. Lama’s quantitative rating of speaking and writing was higher than her qualitative rating and was steady since the start of the course (6=the highest score) and there was no evidence in her qualitative data to explain this conflict.

Her quantitative self-assessment of reading increased with two points (5 to 6) but there was no any indication to a positive impact of the training on this skill. Moreover, she reported liking general topics for discussions more than medical topics and that she was not able to spend more time on learning medical English because she did not have enough time.

Nora's quantitative rating of her speaking increased by two points (4 to 6), but her first response [interview] reported no noticeable progress in speaking or communication after the course *"it's increased. Um, well, no. It's the same"* and her opinion was changed later [interview] when she reported an improvement in her communication skills because of the learned strategies: *"in the past I didn't, I was just, if I forget her name or forget something, 'okay what's your name', but now I say 'okay, uh, was your name like this', and that way I can ask it in polite way"* and *"Yes, the role play. And sometimes I don't really have to role play, but I just the...the content of it, I can ask for information I want from you and how I want it and in polite way, in not rude way"*.

The conflict found in Nora's rating of her speaking skills, can be explained when she [FG] reported that she has improved in speaking in English only from how she was in the past *"But now, I can find the all the words I want to talk about. I can find the specific grammar"* but it has not changed since the start of the course. The increase made in the quantitative rating of her speaking competence may show her confidence about speaking after the training she received and it may mean that mistakenly she was referring her communication skills when she rated her speaking which means a slight increase occurred in her communication skills only but not in English speaking generally. Further evidence is needed for this possible explanation.

Also the one-point reduction Nora made in the quantitative rating of her writing was different from the qualitative rating of her writing and grammar when she indicated that she has improved after the training. Though weaknesses in writing and speaking were reported *"my weak points ... writing and grammar"*, she qualitatively [reflective writing] reported that she can now produce better quality writing and more correct grammatical structures, she can identify mistakes in others' writing, and she can use the appropriate grammar after the course: *"it helped me improve my writing and find the mistakes in others writing. Basically it helped a lot in grammar"*. This difference suggests that she slightly under-rated her writing competence quantitatively when she was aware that she was assessing herself as it was observed by Brantmeier and Vanderplank (2008) and Hung *et al.* (2016) that high achievers tend to under-mark their performance.

The mismatch found in the quantitative and qualitative rating of the competences made by Lama could not be explained by her qualitative responses unlike Nora's conflicting data. Lama's qualitative data shows that she was capable of identifying weaknesses in writing and speaking, but the accuracy of her self-assessment tends to vanish when Lama was aware that she was rating

her competences and she would over-rate herself. For example, she over-rated her writing competence in the SPR form by giving it the highest score (6) before and after the course. This may indicate that students with high LLA are more capable to accurately determine their weak and strong points in language learning than students low in LLA in both groups as it is well-known that low performers tend to overestimate themselves and vice versa (Holec, 1981; Oscarson, 1989; Brantmeier and Vanderplank, 2008; Murphy, 2015).

5.2.1.2.2 The two low autonomy case studies

Looking at language competences, Samia reported having medium level in speaking as compared to other students who can speak fluently and elaborate when speaking but use short sentences when texting; and she also reported having a good competence to use medical English in her communication. She reported an improvement in her speaking and writing in English. However, she hated dealing with medical English as it requires time and she reported no engagement with it *"I like the reading for this semester. Yes, the vocabulary is new, but there is something new for me. So I cannot get really involved in it"* along with difficulty in understanding it. *"It was interesting. Even though it was long and difficult sometimes"*. Being unable to elaborate when speaking like the other fluent students goes in line with the medium reflectivity she has got (see section 5.2.1.11) and with her low language proficiency.

Maha qualitatively reported a low writing competence and believed that technology might help with that. This perception can be linked to her voluntary use of technology for learning purposes (see section 6.2.4) and to the positive attitude she reported towards technology use (see section 5.2.1.10). She perceived her speaking in English as not that good and that she was trying to improve this skill because she does not speak a lot in English, but she said that she can easily discuss with other students [interview] *"it was easy to discuss with other students"*. This may indicate that her competence to discuss was better when she was speaking with peers because she reported that discussion tasks are easy to do with other students in the classroom and because she said that discussions are [interview] *"nice, great"*.

A lack of variety can be found in the qualitative responses of both Samia and Maha. Both students were talking about their competences only by expressing what weak points they have got with no more elaboration and Maha's responses were even shorter than Samia's [all qualitative sources]. This can be linked to her medium and decreasing reflectivity level found in her RWFs assessment (see section 5.2.1.11).

Samia and Maha's capacity to clearly assess weaknesses and strengths may not be as good as that of Nora. They over-rated their competences in the SPR form and this is illustrated when data is

mapped in the following paragraph. Samia did not mention any weakness or strength but only talked about medium level of speaking in English [FG]. Similarly, Maha reported two weaknesses in writing and speaking and that she was trying to improve them [interview], but her quantitative data showed over-rated writing.

Low autonomy students reported no impact for the training on their learning. Maha reported no impact for the task types and organization on her speaking skill [interview] which can be linked to the low competences she was reporting in her language skills [interview] and the disengagement she reported with the material [interview]: *"It's the same"*. Samia did not mention any positive impact of the training on her speaking [all qualitative sources]. This can be supported by the observation of her learning performance and by other qualitative responses that she rarely participates to online discussions [interview] and was disengaged with task types [FG], discussion tasks [interview], medical English content [interview], and group work [interview] which is necessary for the in-class and many of the out-of-class discussion tasks.

When mapping quantitative and qualitative rating, a conflict was found in Samia and Maha's self-rating of language competences. Samia's quantitative rating in all of the four language skills increased by the end of the course (i.e. a two-point increase in speaking, listening, and reading but a three-point increase in writing) and better writing and speaking competences were reported in her qualitative data [interview]. An improvement in her use of medical English in communication was indicated in her qualitative data [interview]. The change reported in Samia's qualitative data goes in line with the increase happening in her quantitative rating of the four language skills, but this does not mean that her self-assessment was right. On the contrary, her quantitative and qualitative self-rating are different from the results of my observation. She does not speak frequently in the classroom and hardly writes on the discussion forum.

A conflicting result was found in Maha's self-rating of the writing competence when she increased it quantitatively by one point (from 3- to 4) while a low writing competence was reported in her qualitative data [interview] *"... in speaking and writing"*. Writing opportunities were minimally given in the training provided to the offline group which makes it unexpected to see a change in this skill as she reported qualitatively, but she over-rated her quantitative writing competence on the SPR form.

However, no conflict was found in Maha's speaking competence as she decreased the quantitative rating of speaking with one point (from 4- to 3) at the time a low speaking skill was reported in her qualitative data [interview]. She viewed her competence of using English as being unchanged and uninfluenced by the task types or organization [interview]: *"I think the same"*. She reported low engagement with the task types and organization given in the training when she was

asked about the change in the time she spends on learning English [interview]: *"It's the same"*. She also reported a medium negative effect for having module 1 of the treatment all focused on grammar [interview]: *"Not boring. Like medium"*. This reduction in quantitative rating for speaking skill reflects the low competence she reported in speaking [interview] and may mean that she was unsatisfied with her level of speaking and that she still needs to be given more practice opportunities to use the language.

Overall, Maha made a slight decrease in speaking (i.e. only one-point decrease) and a slight increase (in writing, listening, and reading) in her quantitative rating of the four skills over the course when her qualitative data revealed that she had a low writing and speaking competences. The low levels of change made in the quantitative rating could mean that none of the four language skills has changed after the course which can be supported by the low engagement with training she indicated qualitatively. Hence, I can say that there was no conflict in her self-assessment of the language skills.

5.2.1.2.3 Overview of self-proficiency rating across groups

The following points are findings related to SPR in both treatment groups (ONTG and OFTG):

- Both OFTG students, i.e. high (Lama) and low (Maha) agreed about the potential benefit of technology in improving their writing. This can be linked to their positive attitude towards technology use.
- High autonomy students from both groups (Nora and Lama) were found weak in writing and grammar but strong in speaking. Conversely, the low OFTG (Maha) was found weak in speaking and writing, but no weak points were mentioned by the low ONTG (Samia) with a report on an improved speaking and writing competences.
- High autonomy students (Nora and Lama) were more able to identify their weak and strong points and to address them more than the low autonomy students (Samia and Maha), though the discrepancy in Maha's two data types was marginal which means that she was also capable to identify weaknesses to some extent. Samia was capable to identify weaknesses not because her self-assessment capacity shows completely opposing results to my observation.
- Greater enhancement was found in language competences of the ONTG (except for Samia) than of the OFTG which can support the argument that the change in language competences can be achieved faster when technology is used as compared to no use (Little and Ushioda, 1998; Jones, 2001; Schwienhorst, 2008), but this could also be related

to the level of confidence to report progress. This can be tested in the following component (Language Proficiency Test).

- High autonomy students from both groups (Nora and Lama) were engaged with training and reported experiencing benefits of the training, whereas the low students were disengaged and reported no impact of the training.

The following section presents the findings about the second component of LLA measurement scale (see scale in figure 6), language proficiency test scores, taken from the quantitative and qualitative data of the four case studies from the treatment groups (ONTG and OFTG).

5.2.1.3 Language proficiency (Quantitative)

Students took an online language proficiency test (LPT) out of 18 questions at T1 and T3 (see Appendix 4). After transforming students' test scores to a 0-100 point scale to be as equal as the other components of the LLA scale, the change was calculated. Frequencies were run on students' LPT at T1 and T3 and on the change over time.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +6.88 | 7.87 | 26 |
| Online | +6.87 | 6.72 | 24 |
| Control | +4.60 | 5.94 | 25 |

Table 7: Frequencies of students' change in language proficiency test

The frequency of LPT scores showed that the OFTG has increased with a similar mean (M=6.88) to the increased mean of the ONTG (M=6.87). The mean for the CG's LPT scores showed a slightly lower increase of (M=4.60) points on a -100 to +100 point scale over the course. The similar increase in the LPT scores of the two treatment groups can show that the effect of the training was similar on both groups. The less increase made by the CG suggests that they developed in their language proficiency because they were learning English in their own classes, but they made a less progress than the two treatment groups because they lacked the positive effect of the training.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = 4.46, p < 0.05$ | $F(2, 72) = .908, p > 0.05$ | $p > 0.05$ |
| Online | $t(23) = 5.01, p < 0.05$ | | |
| Control | $t(24) = 3.87, p < 0.05$ | | |

Table 8: Significance of students' change in language proficiency test

The significance of the change happening within each group from the start of the course to the end of it was tested and it was found that the OFTG and the ONTG made a significant increase in their LPT scores. Interestingly, the CG has also made a significant positive change. The similar significant amounts of increase made by both treatment groups in LPT scores by the end of the term indicates that they equally benefited from the given training and that there is no difference in this aspect of their learning as a result of the difference in the delivery mode.

The significantly lower amount of increase happening in the CG's language proficiency suggests that it was due to the fact that they were not given the training. The SPR of the CG (see section 5.2.1.1) shows that the reduction they made at the end of the course was insignificant but the increase happening in their LPT scores was found significant. This gives an indication that students were not confident about the progress they made in language proficiency when they rated themselves but the LPT scores revealed the real progress. This is connected with the impact of low confidence on LLA (see sections 3.7.4.11, 3.7.4.12, and 5.2.1.1). Low confidence is one of the reasons for the CG's lack of or low development in LLA, though they developed in LPT.

The insignificant difference found between the two treatment groups both in SPR and in LPT shows that their improved language proficiency was due to the training rather than to technology and it can show improvement in their SPR if they accurately self-assess. Training also made the improvement of the two treatment groups greater than the CG's improvement in LPT.

However, the significant increase of the ONTG and the insignificant increase of the OFTG in the SPR indicate to the OFTG's low confidence about their progress in language proficiency and suggest that this low confidence is related to the lack of technology use as was reported by Lama and Maha in the SPR component above (see section 5.2.1.2). Thus, technology helped the ONTG to show a significant increase in their SPR which can be linked to their high confidence level (see Nora in section 5.2.1.2.1). The ONTG's high confidence helped them to show a great average of improvement in LLA as compared to the OFTG (see section 7.3).

When the significance of the differences in the change in students' LPT scores across the three participating groups was tested, it was found that there was no significant difference amongst the offline group, the online group, and the control group. Testing the significance of the difference between the two treatment groups in their LPT scores, it was found that there was no significant difference between the offline and the online groups. These two tests can mean that the three groups were developing in their language proficiency no matter whether they were exposed to the treatment or not. The amount of progress and the confidence in reporting this progress is what makes the difference among the three groups.

5.2.1.4 Language proficiency (integrated qualitative)

The qualitative data in this component will help to reveal students' perceptions about the change they made in their overall language proficiency.

5.2.1.4.1 The two high autonomy case studies

Nora perceived her language proficiency level to have increased and that this increase was due to the effect of the online discussions [interview]: *"Yes, increased. Like, in the discussion and the online we had to go for full sentences and use the whole information and sometimes look for information to response"*. The progress perceived in language proficiency agrees with the positive actions she reported about interaction inside and outside the classroom [interview] and to the reported positive effect of technology [interview] which shows the difference between ONTG and OFTG in the change in language proficiency. Observations revealed that she efficiently used the offered opportunities for language use and frequently participated to the online discussions. Hence, her language proficiency may have been influenced by both the given training and technology. She also linked the improvement in her communication skills, but not speaking, to the impact of training and my observation showed that she was engaged with the training features (see section 5.2.1.2).

A slight increase in language proficiency was reported in Lama's qualitative data and this increase was attributed to the impact of task types and organization in the provided training [interview]: *"Yes it improved"*. This positive impact can be explained by evidence [interview] for her engagement with the training including task variety, role-play tasks, discussion tasks, and group and pair work. This engagement with the training can lead to greater increase in language proficiency but that is not the case here. Opportunities to use language are important for language proficiency (Little, 1999a, 2003a) especially if technology is used to offer these opportunities (Schwienhorst, 2008; Marsh, 2012). Unlike the ONTG, Lama did not have opportunities to extend the interaction in English outside the classroom because she received the

training on paper in face-to-face meetings. She made positive actions about language proficiency [interview] which may have led to the slight increase she perceived in her language proficiency.

Mapping quantitative and qualitative data, a five-point rise (from 65 - to 70) was found in Nora's LPT score after the treatment and her qualitative data agreed with the change in LPT score. Contrariwise, Lama started higher (70) and made no change in her LPT score. The change reported in Lama's qualitative data [interview]: *"Yes it improved, but not so much"*, even if it was perceived to be slight, was not reflected in her LPT score. It can be because it is just a slight progress and it is normal that the LPT score does not show it or it can be related to her tendency to self-overrate but this time she did it in her qualitative subjective perception about the change.

Lama started with a five-point greater language proficiency score (70) than Nora (65) but they had the same starting points in LLA. That can be related to other factors which influenced Nora while taking the pre-test because qualitative data sources showed that she started high in LLA and improved it.

Both Nora and Lama made different changes in LPT. Language proficiency progress, even if it was only perceived in the case of Lama, can be supported by the positive actions they had about language use outside the classroom. However, the different progress suggests that positive actions are not sufficient to make a big change in language proficiency if they were not accompanied with opportunities for language practice and interaction set by the teacher for students' outside technology use and here comes the role of technology use (see section 5.2.1.2).

Nora was making a good progress in language proficiency and a similar but less progress in LLA score, while Lama was making no change in LPT with a remarkable progress in LLA score. The increase in Nora's LPT score (five points) and the no increase in Lama's works in a different way from the amount of increase they made in LLA score (see table 30, Appendix 19). Lama considerably improved LLA (12 points) and Nora slightly improved (2 points) it within the same measuring band. Development in LPT should go in line with development in LLA (Oxford, 1999; Sinclair, 1999a; Little, 2003a; Peek, 2015). This mismatch between LPT and LLA was left for further questioning to explain this relationship, but it indicated their inaccuracy in self-assessment when the analysis progressed (see section 7.5). This mismatch made me decide to examine the mapping in the individual components of their obtained LLA score and to look for evidence other than their LPT for the actual change in their LLA as was suggested by Benson (2010) (see section 7.5).

5.2.1.4.2 The two low autonomy case studies

An increased language proficiency level was qualitatively reported by Samia when the relationship with technology use was questioned [interview] *"Of course ... it is important to use technology"*.

Though she was not using technology efficiently and had a negative attitude towards using it [FG]: *"I don't feel comfortable when I use it"*, she reported an increase in her language proficiency [interview]: *"It's increased"*. Maha did not mention anything about her language proficiency level in the qualitative data.

Mapping the quantitative and qualitative data, Samia made a 5-point change in LPT score (from 70- to 75) similar to the increase made by Nora, but Maha made a 10-point increase. However, Samia made a greater change in LLA (25 points) than Maha's (13 points) (see table 30 in Appendix 19). Observation and all qualitative data sources show that Samia was less engaged with both pedagogy and technology (see sections 6.2.4, 6.2.5, and 6.3) but she was making a greater increase in LLA. This mismatch indicates to Samia's tendency to over-rate her learning as the literature referred to the tendency of low performers to over-rate their performance (Holec, 1981; Oscarson, 1989; Brantmeier and Vanderplank, 2008; Murphy, 2015).

Both Samia and Maha showed different amounts of progress in LPT scores but Maha did not report it. There was no conflict between Samia's LPT and her qualitative responses about progress in this respect because they both indicated an increase. Similarly, Maha did not show any conflicting results because she did not talk about language proficiency in her qualitative data which can be linked to her low reflectivity (see section. 5.2.1.11).

5.2.1.4.3 Overview of language proficiency across groups

The following points are findings related LPT in both treatment groups (ONTG and OFTG):

- The three groups improved their LPT and they differed only in their amount of LPT progress and level of confidence for different reasons (i.e. training or technology) which led to difference in their capacity to report their progress in SPR.
- The increase in LPT scores of low autonomy students (Samia and Maha) was quite big (5 and 10-point change respectively) which is similar to or even double the improvement made by Nora (5-point change). This suggests that the impact of the given pedagogy may be greater on the language learning of low autonomy students if their self-assessment was accurate.

5.2.1.5 Attitude to learner autonomy (Quantitative)

Students' attitude to learner autonomy (ALA) was measured before and after the experiment using a set of statements, in a questionnaire (see Appendix 6), against which students rated themselves. The variables measuring this construct at T1 and T3 were transformed to a 0-100 point scale in order to make this construct as important as the other constructs included in the

measurement of LLA. The change happening over the course in students' rating in this construct was also calculated and the frequency of these three variables were run.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +18.27 | 26.98 | 26 |
| Online | +21.59 | 29.17 | 22 |
| Control | -11.46 | 41.03 | 24 |

Table 9: Frequencies of students' change in attitudes to LLA

The frequency of the OFTG's ALA indicated an increase of ($M = 18.27$) from the start of the course and the online group showed a greater increase ($M = 21.59$) than the offline group. On the contrary, the control group showed a decline of ($M = -11.46$) in their rating of their ALA. The increase in the mean of change in ALA by the two treatment groups can demonstrate the positive effect of the training on their ALA. The ONTG's use of technology may have led to the more increase in ALA as compared to the less improvement in the OFTG's. The CG's reduction can mean that students are more on the side of being dependent on the teacher now rather than being open to try new learning situations independently from the teacher.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = 3.45, p < 0.05$ | $F(2, 69) = 7.27, p < 0.05$ | $p < 0.05$ |
| Online | $t(21) = 3.47, p < 0.05$ | | |
| Control | $t(23) = -1.37, p > 0.05$ | | |

Table 10: Significance of students' change in attitudes to LLA

The significance of the change in students' ALA within each group over the course was tested and it was found that the OFTG and the ONTG's ALA have significantly increased. However, the reduction in the CG's ALA was found insignificant. This may mean that the increased ALA made by the treatment groups, though different in the amount in this sample, was both significant because of the effect of the training they received. The ONTG made a greater improvement in LLA than the OFTG (see section 7.3), but there was no difference in the significance of the change they both made in their ALA which may mean that technology impact on ALA cannot be generalized. The CG's reduced ALA cannot be generalized to the whole population as there is no reason to reduce their ALA since they did not take part in the training.

The significance of the differences across the groups was tested and the result suggests that there were significant differences in the amounts of change in students' ALA amongst the OFTG, ONTG, and CG, as indicated in table 10. The post hoc test (S-N-K) revealed that the difference lies between the CG and the treatment groups. The CG showed significantly less ALA after the course than the treatment groups, whereas the latter two groups did not differ significantly from each other. The significant differences found among the three groups in the change they made in ALA support the assumption that the CG's change should be different from the change expected from the two treatment groups as a result of the training they received.

Similarly, testing how significant the differences in ALA between the treatment groups using an Independent Sample T-test showed that the OFTG were insignificantly different from the ONTG in the improvement in their ALA from the start of the course. The treatment groups are expected to make a positive change, but the CG was expected to make either a negative or no change in ALA. The reduction that the CG made in this sample was happening only in this sample and should not be generalized because they were not expected to change when they did not take part in the intervention. The treatment groups made no significant differences in the change they made in ALA after the training which means that technology made no difference in this respect.

5.2.1.6 Motivational belief about learning (Quantitative)

Students' motivational belief about learning (MBL) was measured using a set of self-rating statements in a questionnaire (see Appendix 6) before and after the experiment and they were transformed to a 0-100 point scale. The amount of change over the whole course was calculated before undertaking the frequency tests for the three groups at T1 and T3 with the amount of change.

a. Descriptive statistics:

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +1.73 | 9.05 | 26 |
| Online | +2.81 | 15.17 | 24 |
| Control | - 5.40 | 15.81 | 25 |

Table 11: Frequencies of students' change in motivational belief about LLA

The frequency tests showed that the OFTG's self-rating in their MBL slightly improved with (M=1.73) which was slightly less than the ONTG's improvement (M=2.81). On the other hand, the CG's frequency of MBL showed a decline of (M= 5.40). The improvement in MBL made by the two treatment groups was less than the improvement they made in their ALA which was expected to

happen at the level of belief because changing a belief is not as easy as changing an attitude as stated by Richardson (1996). The ONTG made a greater improvement than the OFTG's and this can be due to the ONTG's technology use in the training which helped them to work independently. Accordingly, their MBL improved slightly more than the OFTG. The CG's reduced MBL can be a result of their being not exposed to the treatment and therefore they were not expected to report an improvement in their MBL.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = 0.975, p > 0.05$ | $F(2, 72) = 2.67, p > 0.05$ | $p > 0.05$ |
| Online | $t(23) = 0.908, p > 0.05$ | | |
| Control | $t(24) = -1.708, p > 0.05$ | | |

Table 12: Significance of students' change in motivational belief about LLA

The significance of the change in MBL within each group was tested and it was found that the OFTG and the ONTG made an insignificant increase over the course. The decrease in the CG's MBL was also insignificant. The insignificant changes made by the three groups indicate that the improvement made by the treatment groups and the reduction of the CG cannot be generalized to the whole population and are only happening in this sample. They also indicate that beliefs are not easy to change over the course of one term as was observed by Oxford (1999) and Benson (2011).

The significance of the differences in the change made in MBL across the three groups was tested and an insignificant difference was found amongst the OFTG, ONTG, and CG. This insignificant difference may indicate that students in the three groups do not necessarily change their beliefs differently when they are exposed to learner training.

Testing the significance of the difference in students' MBL between the treatment groups, the result revealed that the difference between the OFTG and the ONTG's improved MBL was insignificant. This insignificant difference suggests that technology is not presumed to make a difference in MBL when given to students. This assumption supports Oxford's (1999) and Benson's (2011) opinion that it is not easy to change someone's belief. Though MBL did not significantly increase in OFTG and ONTG after the training, they both increased in their LLA with the ONTG showing greater enhancement in LLA. This can mean that LLA can change even if students' MBL is unchanged, but perhaps LLA improvement would be greater if MBL enhanced.

5.2.1.7 Attitude and motivational belief about learner autonomy (integrated qualitative)

The discussion in this section integrates the qualitative findings of two themes relevant to the two components of the measurement model proposed in this study and these themes are students' attitude towards and motivational belief about LLA. This is done for the two high autonomy students first then for the two low autonomy students.

5.2.1.7.1 The two high autonomy case studies

Attitude to learner autonomy

Both Nora and Lama liked independent learning if they were given the appropriate learning environment and both gave technology as an example for such environments. Nora had a positive attitude to independent learning, only when the appropriate environment is given [interview] *"in online English teaching, it was helpful because I can take the work at home, I can enter it every, any time I want ... it makes a lot of difference in learning English"*. However, she is against learning independently if she were to be given a textbook and would be tested on that because learning independently and making grades is impossible to combine [FG] *"learning English in general without grades will be possible without a teacher"*. Similarly, Lama felt learning independently a good idea, but she reported the need for the teacher just to get the basics especially if there is no technology [interview] *"it may be a good idea. But always we need instructions. Even if it was only the basics, but we need it"*. To her, the need for the teacher becomes less if technology was used in learning [interview] *"Small need"*.

Motivational belief about learner autonomy

Nora believes that the need for teachers depends on the subject and that teachers are important if students have to be assessed on a textbook and to make grades to pass a course [FG] *"if there was a book given to us; they will test us on this book and the grades I will make will be more important than the information itself, then I will need a teacher"*. In this case, grades become the priority rather than the information they seeking to learn. However, she believed [interview] that students can learn on their own and the importance of teachers becomes less if students used websites on the internet to make language progress from one level to another. In online learning environments, she viewed [interview] that teacher's importance increases only to tell students what they have to do and what they are going to learn and only if students have to pass a course.

Given a textbook and being required to make grades, she believed that she was unable to learn on her own. However, she was able to do this when she was given the online material as she was offered access to the material anytime and anywhere. Recently, she spends more time on

learning and can review what was produced by her and by others [interview]. She believed that students need teachers because they are used to being told what to do and where to go to find what they want and this made them more dependent on teachers and unable to learn without teachers [FG] *“when we were young we got used to have someone tell us what to do, read this, and read that... We become so dependent ... We feel we need a teacher”*.

Lama's belief about independent learning revealed that teachers are important for students if no technology is used in learning as technology helps students to learn without the need for the teacher, but they still need the guidance and instructions of their own teacher [interview] *“Yes, but always we need someone to instruct us. Give us instructions”*. Teacher is needed for teaching the basics to students and grammar is not one of those basics as students can learn grammar when they watch movies [FG]. The need for teachers is only to reassure students about their understanding of the grammatical rules whether they got them right or they need to correct their understanding so teachers can support students and guide them [interview] *“for example, if there is a grammar...you have to know if what I understand ... is it right or wrong? So the teacher have to tell you”*. This reveals a low confidence level which appeared previously in her qualitative self-assessment of speaking skill (see section 5.2.1.2).

From the above findings, both Nora and Lama had positive beliefs about independent learning and about the benefits of technology use and online resources on students' capacity to learn independently from the teacher. Both believed that teachers are needed for support and guidance, but Lama needed the teacher for reassurance about understanding grammatical rules and for teaching the basics of the language if the support of technology were not available. Confidence seems to be the difference between both high students as a result of the lack of technology on the part of Lama. Moreover, Nora was more able to explain why students are dependent on their teachers and was more able to describe the relationship between capacity to learn independently and learning with technology versus textbooks use with obligation to pass a course.

Mapping qualitative and quantitative ALA and MBL, Nora had an unchanged quantitative rating of attitude (100) but reduced her belief about LLA (85 to 65). Her qualitative perception showed a highly positive attitude, belief, and metacognitive knowledge about independent learning and learning process (see section 6.2.5). In the qualitative data, she was unaware that her qualitative responses can indicate things which will be used to assess her performance. Therefore, the mismatch supports the assumption that she quantitatively under-rated her belief and accordingly her LLA score (see section 7.5).

Lama increased her quantitative self-rating in the attitude (75 to 100) and belief about LLA (85 to 95), but her qualitative responses in these two themes from all sources were not completely positive. She asserted the need for the teacher to teach the basics and to provide support and guidance. This conflict clearly indicates that she over-rated the quantitative measurement of her attitude and belief about LLA which led to an over-rated LLA score (see section 7.5.3).

5.2.1.7.2 The two low autonomy case studies

Attitude to learner autonomy

Samia had a very negative attitude towards independent learning. She liked the old way of teaching with the teacher present in the classroom even if there were no need for her [FG] *"I go with the old way. The teacher can add different ways in her teaching that makes the students enjoy the class"*; and she disliked being taught online by a teacher showing only the face or hand while teaching. On the other hand, Maha had a positive attitude towards learning independently and taking the responsibility of her learning, but only if the teacher is available in the classroom for any emerging need [interview] *"I can't. If I learn English, I want someone to correct me"*.

Motivational belief about learner autonomy

Samia's belief about independent learning was negative in that she believed it is hard to learn independently [FG] *"Should be available even if there is no need for her"*. The reason was that she does not trust her judgment about the progress she may make in learning and that learning the basics of a foreign language without the teacher is not easy [FG]. Therefore, the teacher is very important for teaching the basics, guidance, and help with any difficulty students might face while doing the tasks whether in dealing with language or with technology [interview] *"If the person have difficulties with dealing with, let's say this task, she or he must ask the teacher"*.

Despite Maha's positive attitude towards independent learning, she reported the need for the teacher. She attributed this to the belief that teachers make the change in students' ability to learn and technology only helps in making this change [interview] *"The teacher, she's make my ability more... Technology is help beside the teacher"*. She reported the need for watching her behaviour when learning English and for observing her talk to help confirm or correct her understanding of words or grammatical rules [interview] *"sometimes I don't understand some words. Don't understand some grammar, some thing, I go to her"*. Hence, she needed the teacher as a guide and a supporter to help with any potential difficulty. When I drew her attention to whether the teacher is needed all the time while learning, she said that she has to learn on her own and the teacher is needed only when something should be corrected but not all the time [interview].

Mapping qualitative and quantitative ALA and MBL, Samia increased her self-rating in attitude (50-100) and belief about LLA (50 to 80) by the end of the course, but her qualitative data [interview] showed a very negative attitude and belief about independent learning which suggests that she over-rated her quantitative responses about attitude and belief about LLA and accordingly her LLA score (see section 7.5.1).

Maha increased her quantitative attitude (50- 100) but decreased her motivational belief (100-85). Interestingly, her qualitative attitude to LLA was found to be positive, but her belief was found negative that she believed the teacher is the creator of the change in her learning and technology is only to help in that [interview]. There was no conflict in her self-rating in these two themes and the two types of data confirmed each other. She over-rated herself in other themes but not in this one (see section 7.5.4).

5.2.1.7.3 Overview of attitude and belief about learner autonomy across groups

The following points are findings related ALA and MBL in both treatment groups (ONTG and OFTG):

- Both OFTG students high (Lama) and low (Maha) reported the need for teaching and reassurance about their understanding and they believed that technology use would help students to learn independently which shows that they regretted not being given opportunities for technology use in the course and that they lacked the support they can get from technology use. Their confidence to learn autonomously was low (see sections 7.5.3 and 7.5.4).
- Technology use affects students' ALA and MBL (see section 5.2.1.10). Nora, who was given technology, reported needing the teacher only for guidance and support if technology were not used and only if she had to collect grades. However, Lama and Maha (OFTG), had no technology use, reported needing the teacher for teaching the basics and for support if technology was not used. Samia said the same as the OFTG though she was given technology. She had the support when she was given technology but she did not use technology efficiently (see section 6.2.4.2).

5.2.1.8 Attitude to technology use in language learning (Quantitative)

Using a set of self-rating statements in the questionnaire (see Appendix 6), students' attitude towards technology use in language learning (ATU) was measured - like the rest of the constructs looked at in this study - prior and after the intervention. It was then transformed to a 0-100 point

scale and the amount of change over the whole course was calculated before running the frequencies for the three groups.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | - 1.83 | 11.47 | 26 |
| Online | +11.15 | 13.98 | 24 |
| Control | - 7.79 | 13.71 | 25 |

Table 13: Frequencies of students' change in attitudes towards technology use

The results of the frequency of the OFTG's ATU revealed that they made a slight reduction of ($M = 1.83$) from the start of the course. Nonetheless, the ONTG made a positive change of ($M = 11.15$) in their rating of ATU. Similar to the OFTG, the CG demonstrated a fall in their rating of ATU, but the reduction in the CG was much bigger than that in the OFTG ($M = 7.79$).

The enhancement in the ONTG's ATU shows that they liked technology after using it, whereas the reduction made by the OFTG and the CG indicates that they did not use technology in their learning which led to this negative change. What is more interesting is that the great reduction made by the CG may suggest no use of technology and no taking part in the training. Hence, the less reduction of the OFTG suggests either that this reduction was marginal and cannot be counted or that the training encouraged them to search for information and to use technology when they were not given technology in the training which led to their negative change in ATU. In short, technology use helped to positively change students' ATU but the training helped to lessen the amount of negative change they may make in ATU as a result of their technology use when the training sends them to search for something.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = -0.814, p > 0.05$ | $F(2, 72) = 13.41, p < 0.05$ | $p < 0.05$ |
| Online | $t(23) = 3.908, p < 0.05$ | | |
| Control | $t(24) = -2.842, p < 0.05$ | | |

Table 14: Significance of students' change in attitudes towards technology use

Looking at the significance of the amount of change in students' ATU, it was found that the OFTG made an insignificant change. Nevertheless, the ONTG made a significant improvement in their ATU from the start of the course. Unexpectedly, the reduction in the CG's ATU was significant. The ONTG's significantly improved ATU can indicate that giving technology to students to use in language learning would lead to an improvement in their attitudes after experiencing the benefits

of its use. However, the CG's significant reduction in ATU can mean that the lack of training and lack of technology would keep students' traditional perception of learning and leave them unaware of its ease of use. They would normally express negative ATU as they feel comfortable with the way they are learning and the change would make them insecure since individuals' perception affects awareness about and attitude towards technology use (Davis *et al.*, 1989; Murphy and Southgate, 2011). The insignificant decrease in the offline group's ATU was not surprising because no change in their ATU was expected. This finding showed that giving training only to students with no technology use may not necessary reduce their ATU.

When testing the significance of the differences across the three groups, a significant difference was found in ATU amongst the OFTG, ONTG, and CG, as illustrated in table 14. The post hoc test (S-N-K) suggested that the difference was found between the ONTG and the other two groups (OFTG and CG). The ONTG reported a significantly greater ATU after the course, while the OFTG and the CG were making negative amounts of change. The significant difference across the three groups suggests that students would reduce their ATU if they were given neither technology nor training.

The significance of the difference between the treatment groups' ATU was tested and it was found that the OFTG was significantly different in the change they were making in their ATU from that of the ONTG. The significant difference between the two treatment groups showed that students would improve their ATU when they are given technology to use. In other words, they would not improve their ATU if they were not given technology with the training. This is because the learner training may trigger their technology use, but they are not trained on technology use which keeps their use at minimum and their ATU unchanged. The ONTG made the biggest improvement in LLA score and the greatest improvement in ATU.

5.2.1.9 Motivational belief about technology use (Quantitative)

A set of statements in the questionnaire (see Appendix 6) were used to measure students' motivational belief about technology use in language learning (MBT) before and after the study. These variables have undergone transformation to a 0-100 point scale before the amount of change in this construct was calculated. Frequencies for the three groups were run.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | - 0.45 | 14.16 | 26 |
| Online | +11.55 | 18.27 | 24 |
| Control | - 4.90 | 13.62 | 25 |

Table 15: Frequencies of students' change in motivational belief about technology use

The frequency of the students' MBT in the OFTG showed a slight reduction in their self-rating of this construct ($M = 0.45$). However, the ONTG was found to be making an increase of ($M = 11.55$). The CG showed a reduction of ($M = 4.90$) in their MBT. The decrease in the OFTG's MBT was very small and was much less than that made by the CG. Both of the OFTG and the CG reduced their MBT perhaps as a result of not using technology in their learning, but the reduction made by the OFTG was tiny and was less than the CG. This difference in their reductions could be interpreted as the OFTG took part in the training which may kept their minds thinking about their learning but did not help them to improve their MBT. On the other hand, the CG was not given training nor technology and this made them more used to the traditional learning style and thus more negative about technology use and innovations. The ONTG remarkably improved their MBT as a result of experiencing technology when given the training.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = -0.161, p > 0.05$ | $F(2, 72) = 7.43, p < 0.05$ | $p < 0.05$ |
| Online | $t(23) = 3.098, p < 0.05$ | | |
| Control | $t(24) = -1.799, p > 0.05$ | | |

Table 16: Significance of students' change in motivational belief about technology use

The significance of the change amounts made in students' MBT within each group from the start of the course to its end was tested. It was found that the OFTG made an insignificant reduction. In contrast, the ONTG made a significant improvement in MBT. The decline in the CG's MBT was insignificant. The insignificant reduction made by the OFTG shows again that they did not improve their MBT probably because they did not use technology. They did not reduce it perhaps because their thinking was triggered with the stimulating training which led to less resistance of technology use to search for information. The insignificant reduction of the CG's MBT suggests that when students are used to traditional learning style and they had no training nor technology, they can reduce attitudes but not beliefs about technology use as beliefs are not easy to change (Richardson, 1996).

The significance of the difference in the change made across the groups in MBT was tested and the differences were significant amongst the OFTG, ONTG, and CG. The post hoc test (S-N-K) showed that the difference was found between the ONTG and the other two groups (i.e. OFTG and CG). The ONTG reported a remarkably greater MBT after the course, while the OFTG and the CG were making negative amounts of change in this variable. The result of the test carried out to test the significance of the difference in the amount of change made by the two treatment groups

showed that the ONTG made a significantly greater change in MBT than the OFTG over the whole course.

The significant differences found in the changes made across the three groups and between the two treatment groups may suggest that giving technology to students to use in learning would help to improve their beliefs about its use. It can also show that when technology is not given to students whether they had training or not as in the case of the OFTG and the CG, they would make no change in their MBT. The significant improvement in MBT was made only by the ONTG who made the greatest enhancement in LLA.

5.2.1.10 Attitude and motivational belief about technology use (integrated qualitative)

The discussion in this section integrates the qualitative findings of two themes relevant to two components of the assessment model proposed in this study and these themes are students' attitude towards and motivational belief about technology use in language learning. This was done for the two high autonomy students first then for the two low autonomy students.

5.2.1.10.1 The two high autonomy case studies

Attitude towards technology use

Nora used very positive words to express her attitude towards technology use in language learning, e.g. *"helpful", "good", "interesting", "comfortable", "saves time", "important", and "like"*. She liked technology use in learning, taking electronic notes, the quality of typing on iPads, learning in a course completely online unlike others who find it problematic, blending online with face-to-face teaching as both are important, outside classroom technology use in learning [FG].

Lama had also a positive attitude towards technology use and about the balance between online and offline modes [FG] *"Balance is good. Sometimes do this and sometimes do this"* or to have a mixture to get the benefit of both [FG] *"we can mix them together to make it online and we can see the person"*. She preferred to have had technology when she took the strategy course [interview] *"it could make it better"*. She described technology use as being helpful for learning [interview]. She liked to use the tablet to take notes and to have a balance or a mixture of both online and offline modes [FG].

Motivational belief about technology use

Nora talked about her belief about technology impact on learning with a variety of positive responses. She believed that technology use helps to make learning quicker and easier [FG]; to avoid procrastinating the search for information unlike learning contexts with textbooks as the

main source of information [interview]; to retrieve information with one click though difficult sometimes as compared to handwriting [FG]; to download lectures [FG]; to save students' time; to avoid carrying heavy weights of books and papers [FG]; to give students access to resources anywhere and anytime they wish [FG]; to find the needed information (e.g. vocabulary) outside the classroom [interview]; to support students to overcome their shyness that the discussion forums give them time to think, to collect ideas, and to organize their answers properly [interview]; and to learn independently but her ability to learn on her own was the same [interview].

While Nora was expressing her beliefs about technology use in learning, she talked about the positive effects of technology use on her learning including provision of more opportunities for learning such as dictionary link [interview] *"it opened my mind more and my eyes, actually... that with blue color that I can click on it and it transfer me to another sites and that's give me more information"*, enhancing reflection on what was learned and what part was liked or disliked, improving her writing competence and spelling with the frequent use of keyboard [interview], improving her ability to make decisions about the tasks and strategies to pick [interview], helping to review her work and to read her group members' work [interview], gathering students to practice using language [interview], and making a big difference in her learning experience because she could take her work home and continue working anywhere and anytime [interview] *"it makes a lot of difference in learning English"* and [interview] *"I can take the work at home, I can enter it every, any time I want"*.

Nora also revealed beliefs about teaching with technology and showed high reflectivity when she gave equal importance to both technology and pedagogy [FG] and equal need for both online and face-to-face teaching [FG]. Technology use in the classroom can be interesting at the beginning as it is a new thing to students; [FG] *"but in the end of the semester, they will feel bored. It will become routine just like books"*. Therefore, students will need teachers to consider pedagogy to ensure understanding rather than to focus on the delivery mode which will be normal after a while [FG] *"Of course it is technology better. You can find everything quickly, but I mean how the students will get this information, it will be more important"*. She preferred blending two modes of teaching because face-to-face is important for discipline and the online mode for finding a variety of resources [FG]. She believed that technology use is just like no use of technology in the amount of work students have to do for their learning [interview]. She believed that technology use could be difficult in some courses (e.g. maths), but her past experience showed that online teaching is not always a bad idea [FG]. Creative teachers in face-to-face teaching may go to the routine and teach reading and listening [FG], teaching online enables even busy teachers to find creative and engaging resources for their students [FG]. All these details in her belief about the impact of

technology use on learning in general and on her learning in particular shows her high reflectivity level (see section 5.2.1.11).

Nora expressed positive beliefs about the effect of students' technology use on their language proficiency. She believed that practising the use of English in an online learning environment helps beginners to overcome shyness and speak more because people would not notice their fear or hesitation when they produce language and they would have enough time to think and to organise their answers before posting them [interview]: *"this is good for non-advanced group. Because they feel shy about their speaking"*. Technology gives students the time and freedom to say what they want, but this can be unhelpful because students will get startled and will find it difficult to have face-to-face communication when they are asked to talk in front of people [interview]: *"the technology has this negative because they make it habit for them to speak whatever they want without facing the person. And when they facing it ... they just freeze. In one way or another, they have to gain this courage slowly"*. She believed that online discussion forums helped to improve the structure of the sentence she can produce [interview].

Overall, these attitudes and beliefs show that Nora was influenced by both technology use and pedagogy. She emphasised balancing the focus on both the teaching mode and the pedagogy in order to maintain students' interest and to benefit them. She was positive about most of the features of the course, which may indicate that her learning was positively affected by the pedagogy of this course.

Lama's belief about technology impact on language learning in general is similarly positive, though technology was not provided to her in the training. She believed that technology has an impact on the time students spend on learning English because technology is used in everything in students' life [interview]. This shows that she used technology voluntarily and that it may positively affected her LLA though it was not provided in the training. It would help to find information on the topics of the tasks, make students' ability to reflect on learning better [interview], make decisions about learning since everything would be in front of students and they cannot be put in a box or restricted as is the case when technology is not used [interview], help to learn independently from teachers though teachers are still needed for support and guidance [interview] *"Yes, but always we need someone to instruct us"* but this need would be less if technology is used [interview] *"small need"*.

There is evidence for the effects of technology use that Lama believed to have had on her language learning in spite of the fact that her group was not given the use of technology. She believed that if technology were used, the learning experience she had in the strategy course would have been better than the one they had without technology [interview]. She was able to

choose even when technology was not used [interview] *"We can choose"*. Also she had a general belief that the subject and time in which technology is used for learning make a difference in students' knowledge about and acceptance of the use of technology even if it were in distance learning context with only the face or hands to see [FG].

Talking about the effect of technology on students' language proficiency, Lama believed that technology makes no difference in the level of language proficiency [interview] though it would give students more information and opportunities to write a lot and to see how the words are written [interview] *"if we use it and if we didn't, it's still the same. Of course we would have more information, but it's still in the same level"*.

From the above details, Lama was influenced by both technology use and pedagogy though she was not given technology as the delivery mode and only used it voluntarily. Hence, the benefits she gained from technology use were less than Nora's who used technology. Lama was positive about both technology use and the features of the training. Knowing that technology use offers choices to students, she reported that she could choose even without using technology which illustrates the importance of the choice opportunities built into the design of the learner training itself regardless of the delivery mode.

Mapping qualitative and quantitative ATU and MBT, an increased self-rating was made by Nora in her ATU (68 to 75) and MBT (63 to 75). This increase goes in line with the positive ATU and MBT she reported in the interview and focus group. Most of the positive technology effects she reported were proved by other data, for instance, the slight improvement in her reflectivity and decision making.

A few of Nora's responses in the interview and focus group showed that her capacity to learn on her own and the amount of work she had to do were not changed in effect of technology use [interview]: *"Ability [i.e. independent learning] is the same"* and [interview] *"No. I think it's the same [ability to work in group]"*. She was expected to report the link between technology use and a greater capacity to learn independently because she used technology and reported a positive impact on her learning. Nora's LLA score (72- 74) increased slightly and this increase was expected to be greater. This unexpected result was interpreted that she under-rated her LLA score because her qualitative data showed that she was a high achiever in many aspects of her learning but the quantitative measurement of the LLA components in SRS mostly showed a reduction. Researchers proved that high achievers tend to under-rate themselves (Brantmeier and Vanderplank, 2008; Hung *et al.*, 2016).

When the quantitative self-rating is untrusted, I can use the respondents' qualitative responses to reveal the truth as the respondents do not feel that they are rating themselves. However, her qualitative responses on the capacity to learn independently showed something different from what the other qualitative responses revealed about the other aspects of her learning. She believed that a great positive impact of technology use has happened in her learning [FG]: *"helpful because anytime I want to retrieve the information"* and [FG] *"I can download lectures and write my own notes"*. Other data helped to prove that she improved in many aspects of learning because of technology use, e.g. information search skills [interview] *"I can go to YouTube and search for some pronunciation clips or grammar and the people explain it very easily"*, reflectivity [interview] *"Yes [was encouraged to reflect when technology was used]"*, decision making [interview] *"I pick the exercise I want, the strategy I use"*, language proficiency [interview] *"Yes, increased"*, well-structured sentences [interview] *"in the discussion and the online we had to go for full sentences"*, and spelling [interview] *"I had to write more. I had to use the keyboard and figure out the spellings"*. This is linked to the weaknesses she reported in grammar and spelling in the SPR forms (see section 5.2.1.2).

Mapping Lama's qualitative and quantitative ATU and MBT, a similar increase was found in Lama's quantitative self-rating of ATU (61-75) and MBT (63- 78). Her qualitative data said a similar thing as she reported a positive ATU and MBT. However, she believed that technology use would not affect language proficiency and her language proficiency did not increase. A possible interpretation for this is that she used technology voluntarily which improved many aspects of her learning, but she missed the affordances of the VLE given to the ONTG and therefore her language proficiency did not improve.

5.2.1.10.2 The two low autonomy case studies

Attitude towards technology use

Samia had two different levels of attitude to technology use in language learning in that she had a positive affective attitude [interview] *"it is important to use technology"* and [interview] *"Useful"*, but a negative behavioural attitude [FG] *"it is not good as when the teacher in front of you"* and [FG] *"I go with the old way"*. She liked the traditional teaching method as compared to the online teaching and disliked learning in a distance learning course where the teacher would not be seen [FG] or studying using computers or iPads as she would be uncomfortable [FG].

Maha had a positive affective attitude to technology use, e.g. *"important"*, *"easy"*, and *"useful"*, but no examples were given about such use. This can be linked to her low reflectivity level. No

mention of her behavioural attitude was made which also indicates a low capacity to reflect (see section 5.2.1.11).

Motivational belief about technology use

Samia expressed some positive but more negative beliefs about technology use in language learning. She admitted that technology use helped to increase her ability to reflect on learning [interview] *"The ability [to reflect] increased"*, the offered choices of tasks in that course [interview] *"there was a lot of tasks. You can choose whatever you like"*, and the amount of information she would get [interview] *"The person can get whatever he wants with the information and the internet"*. She reported that technology helped to push her to learn without the teacher. This does not mean that she does not need the teacher; it means only that she was encouraged to work without the teacher which may happen and may not because assertions of the need for the teacher are made somewhere else in her data [FG] *"Teacher of course"*. Her belief about the relationship between technology use and language proficiency reveals that technology helped to increase her language proficiency [interview]: *"It's increased, especially in writing"* and that it is important to increase students' language skills and ability to use English or learn anything else [interview]. The increase reported in her language skills due to technology use reflects the increase in her rating of the four skills in the SPR form.

However, Samia believed that her engagement would increase when working with real people in physical classrooms in face-to-face meetings and would be less when learning through technology [interview]. She believed that teachers' role is reduced in online teaching and the teacher will give the information to students and sit to relax [FG]. Even when she used technology in learning, she still believed that it is important to have the teacher teaching in front of the classroom [interview]. Technology use in the strategy course made her know more about how to use strategies [interview], however, the way she was speaking was showing that she was not so confident about what she was saying and she was using the phrase *"in general"* in her response to this question. She believed that the use of technology in learning depends on the person who is using it whether they like to use technology or not [FG] and students will spend more time on learning English if they like technology and if it was used in the teaching in an enjoyable way [interview]. This can be used as evidence on the impact of her negative ATU and on her low engagement with technology use in learning (see section 7.5.1). Other data showed that she did not use technology enough in the strategy course (see section 6.2.4.2). This low use may be a result of not liking to use it as several scholars assert the effect of students' attitude on their actual use (Kohonen, 1999, 2012 cited in Everhard, 2015a; Sinclair 2000b; Sinclair 2009). Disliking technology use can be attributed to her low capacity to use technology as was believed by Thang

and Alias (2007) and Le (2013) and this was seen in two instances of failure to upload documents in the right place on the VLE and uploading the document twice in the same place [observation] (see section 7.11).

Maha believed that the use of technology helps with learning as students can use the internet to check the meaning of the new words in the classroom and they can find someone to communicate with to improve their language [interview]. It would help students to work more on learning English [interview]. The use of technology and internet was believed to improve students' ability to reflect on their learning [interview], to make decisions about learning in terms of the topic to deal with or the strategy to use [interview], to learn English when there is no teacher as the teacher is the one who makes the change in students' abilities to learn and technology only helps the teacher in this job [interview] "Technology is help beside the teacher", to search for information about topics in English as one of the important skills for now and for the future [interview].

Talking about the effect of technology on language proficiency, Maha believed that it would help to improve her ability to speak and to write as she does not write too much [interview]: "*Yes, in speaking. Writing*". She believed that technology use would generally affect students' language level as they would use dictionaries to learn the pronunciation of the words and say them themselves [interview].

Mapping qualitative and quantitative ATU and MBT, an increased self-rating was made by Samia in her ATU (50 to 57) and MBT (53 to 75). This increase conflicts with the negative behavioural ATU and negative MBT she reported qualitatively in the interview. However, Maha kept her ATU unchanged (61) by the end of the course, but increased her MBT (56 to 66). Similarly, her qualitative data showed only a positive affective ATU with no mention of her behavioural ATU and a positive MBT which indicates no contrast between the two types of data.

5.2.1.10.3 Overview of attitude and belief about technology use across groups

The following points are findings related ATU and MBT in both treatment groups (ONTG and OFTG):

- Having a good capacity to use technology improves the ATU and MBT about its impact on LLA. Nora and Lama used it voluntarily outside the classroom and were good at that and this may have led to their positive attitude and belief about it (see section 6.2.4.1) as compared to the low capacity and negative attitude and belief of the low autonomy students.

- The variety of Samia's responses about MBT was more than the variety of Maha's responses about MBT which reflects the difference in their reflectivity and technology use. Samia had more variety and greater amount of responses than Maha, whereas Maha was giving short and unvaried responses. This difference in the variety and number of responses may indicate the difference in the reflectivity of the two low students (see section 5.2.1.11).
- ALA and MBL are subject to students' experience in technology use. Nora and Lama's qualitative responses showed that technology use helps to reduce the need for the teacher and to increase students' capacity for independent learning. Hence, Lama's positive ALA versus negative MBL when she reported the need for the teacher can be explained that the lack of technology use as a delivery mode for the training resulted in the negative MBL whereas Nora's positive ALA and MBL are due to her experience with technology use.
- High autonomy students from both groups were influenced by both technology use and pedagogy and they differ only in technology use. The benefits Lama gained from technology use were less than Nora's because Lama was not given technology as the delivery mode and only used it voluntarily not as a fundamental part of the pedagogy.
- Technology use does not help to improve language proficiency if it were not integrated into the design of the training. Maha said that technology use would give more information but would make no difference in language proficiency. Lama denied any potential effect of technology on students' language proficiency but may be an increase in writing skill and this is different from the positive effect reported by Nora on language proficiency and the progress she actually made in language proficiency. This illustrates that Lama's steady level of language proficiency at the end of the course may be linked to her being in the OFTG with no technology. Her voluntary technology use did not make a big difference in her proficiency. Nora used technology inside and outside the classroom and her language proficiency improved.
- Maha believed that technology is just to help and the teacher is the one who makes the change in students' abilities to learn which is similar to what Samia said that it is still important to have the teacher teaching in front of the classroom even when technology is used (see section 5.2.1.7). This negative ALA and MBL suggest that they had a great level of dependence on the teacher in language learning and that they need teachers' support besides technology to be confident in language learning (see sections 3.7.4.3 and 3.7.4.11). It might indicate that online teaching was distracting at least to Samia and that made her need the teacher. This negative ALA and MBL will affect their engagement with the training and technology.

- The high students believe that technology use is not the main thing in learning languages. Lama reported that technology use would make the need for the teacher less. Nora believed that technology should not be given the priority, though it is important, because pedagogy is more important. Evidence was found that the high students (ONTG and OFTG) were engaged with the pedagogy (see section 6.3) and that they benefited from it, but technology was the variable that caused the difference between their LLA improvements.

5.2.1.11 Critical reflection

Critical reflection (CR) is one of the components of the model proposed for the measurement in this study and it is studied using a qualitative research method to explore students' LLA. Students' reflective data is analyzed using a content analysis method where the qualitative data is turned into numbers to get an overall picture of students' level of reflectivity with consideration of the quality in reflection (see section 4.11.6). The final assessment levels for students' reflectivity in each of the phases of the research are summarized on a table (see tables 31, 32, 33, and 34 in Appendix 20). In the following section, the findings and discussions of the change happening in students' reflectivity over the course and its relationship with the change they are making in LLA is presented.

5.2.1.11.1 The two high autonomy case studies

Nora made positive actions about reflection but without allocating a specific time for this job, however, Lama's actions about reflection became less frequent. Both Nora and Lama showed positive attitudes towards and engagement with reflection but their engagement did not reveal anything about the difference in their LLA. Nora reported reflecting on her learning style, problems, and strength [reflective writing] *"because I'm a visual person"*, but this was done on the spot with no allocated time. Lama reported reflecting on her learning progress without being asked or taught how to do it [FG] *"I also take a video recording for every presentation I do. It is really helpful"*. She used to do that every month, but she is doing it now less frequently than she used to, i.e. once a year [FG].

Nora reported a good capacity to think about progress in learning and to monitor learning in general but without specifying a specific time for that [FG]. She can determine her language level and can decide on her weak points, in particular the level of seriousness of her weak points. For instance, she said [reflective writing]: *"Learning new words by making a mental picture of the situation in which the word might be used to help in remembering them. Because I'm a visual person"*. Lama confirmed having a good capacity to reflect on learning as a way to monitor her progress when she is asked about it [FG] *"Of course"*.

Nora believed that students can identify their weaknesses when they reflect on their learning using any tool [FG] and that it was helpful for her learning to do the reflective writing forms [interview]. She also believed that she could reflect on learning any time in her learning journey and that this reflection should be continuous without allocating a specific time for that [FG]: *“I don’t have a specific period of time checking my progress weekly or monthly. It is like every day”*. She also viewed reflection as helpful to remember what they have learned in the classroom which is normally forgotten [interview]. Similarly, Lama believed that reflections help them to know what they are good at and what they do not like which would enable them to improve their weaknesses [interview] *“if I know what I’m not good at, what I don’t like, I have to improve it”*.

These qualitative responses can be confirmed using evidence for their reflective capacity from their RWFs where the quality of reflectivity is rated using three rating categories, i.e. high, medium, and low. Content analysis is carried out on the RWFs to turn the qualitative data into numbers. The frequency of each rating category was counted by Nvivo for each student in each phase of the study to examine the change in their reflectivity (see section 4.11.6). The majority of Nora’s responses in the RWFs in phase 1 were rated as ‘high’ with greater number of responses as ‘low or nothing’ than those as ‘medium’. Her reflectivity was obviously high in phase 2 because the majority of the responses were ‘high’. She ended the course with the majority of responses rated as ‘high’ and a greater number of responses in ‘medium’ than those in ‘low or nothing’. The increase in her reflectivity started from phase 2 (see table 31 in Appendix 20). She reported in her qualitative data that she did not like reflective writing at the beginning of the course but then changed her attitude and liked it. The great number of her positive and lengthy responses suggests her high level of reflectivity. The systematic opportunities for reflection that were given to her in the training may helped her with the improvement she made in this capacity. She was doing all of the weekly RWFs. Her responses in the qualitative data were all lengthy, varied, deliberate, and many in number within each of the themes sought.

However, Lama started the course with mostly medium level but ended with similar numbers of responses in each rating category which made it difficult to determine her level at that point. The average reflectivity level in phase 3 came out to be medium. However, in phase 2, the level was generally high which may indicate that she had more time to reflect well during the break than in phase 1 or in phase 3. This can be interpreted that her engagement with reflection was less because her capacity to manage learning became worse in phase 3, as she reported when she talked about the increasing work load during exams [interview] *“I can do it, but not very much”* and [interview] *“I know what I want to do. But I have to study and study and study, so that’s...doesn’t make it easy”*. This caused her reflectivity level to decrease at the end of the semester, but her capacity to reflect did not necessarily decrease in phase 3. It may suggest that

her engagement with the training (pedagogy) decreased as opposed to Nora's engagement which brings in technology impact on enhanced engagement and reflection.

The two high autonomy students were similarly engaged in reflecting about their learning and they were doing actions about it, but Lama was doing it less frequently lately than she used to do. Their responses about this capacity in all of the qualitative data sources showed that they both can reflect, but the rating of their reflectivity in the RWFS showed a difference. Nora's responses in the RWFs started high and maintained the high reflectivity in phase 2 and 3 (i.e. until the end of the course), whereas Lama started lower in reflectivity and improved to a high level in phase 2, then came back to medium level by the end of the course.

Mapping qualitative and quantitative reflectivity, Nora's quantitative data (i.e. result of the content analysis of the RWFs) revealed slightly increased reflectivity within the same high rating level by the end of the course; and her qualitative responses [all sources] show positive actions and engagement with reflection. She made a slight improvement in her LLA within the same measuring band. The slight improvement both in reflectivity and LLA goes in line with the argument in the literature about the fundamentality of reflection to determine learners' capacity to control their learning (Little, 1997a; Holec, 1981; Little, 2003a; Schwienhorst, 2008; Murphy, 2015). This illustrates that the quantitative measurement of her LLA worked well to some extent.

Lama's quantitative data revealed a start with a lower reflectivity level (i.e. medium) and she made a considerable increase in reflectivity in phase 2 from medium to high, but she went back to medium in phase 3. This decrease was reported in her qualitative data [all sources] when she reported less engagement with reflection. She started with a similar LLA level (D2) as Nora and remarkably improved in her LLA by the end of the course. Despite her less actions about reflection and her medium reflectivity, Lama made a greater increase than Nora in LLA. This can suggest that her LLA score was over-rated than it should have been (see section 7.5).

5.2.1.11.2 The two low autonomy case studies

Samia reported thinking about learning but inability to decide on her progress, while Maha did not have any qualitative response on her actions about reflection. Maha missed doing the RWF for Module 5 and Gap 3. Samia sounded as being disengaged from the negative attitudes she reported towards reflection [interview] *"I hate it actually"* and [FG] *"How can someone know if he/her has improved or not?"*, whereas Maha liked doing reflective writing which engaged her in thinking about the strategies and about the tasks she liked and those she did not like [interview] *"It's good because when you write the reflective writing, we can assess our self what strategy we like, what task we like"*. Talking about her capacity to reflect, Samia qualitatively reported thinking

about her English and watching her progress in learning but inability to determine how good the progress was [FG] *"Sometimes, I think it is good, and sometimes I think it is bad"* and inability to answer the why question due to inability to think of the reason behind her decisions when learning [interview] *"when someone ask me why I like something...there is no reason why I like it, I just liked it"*. Maha reported in her qualitative data [interview] that she can sit and reflect on her learning *"sometimes, yes"*.

Samia believed that when students reflect on their learning, they may not be able to identify the improvement in their learning [FG]. She believed that she hates doing the weekly RWFs because she cannot answer the why question as she cannot give a reason for her decisions [interview]. On the other hand, Maha viewed reflection as good and helpful to assess oneself when students identify the strategies and tasks they like [interview].

These qualitative responses can be triangulated with evidence for reflective capacity from the students' RWFs where the quality of their reflectivity is assessed using three rating categories and the qualitative data is turned into quantitative by presenting the number of times each rating category occurred in qualitative data in each phase of the study. Using the three rating categories, Samia's level of reflectivity after the course was found the same as it was at the beginning of the course, i.e. medium. She had average medium level in phase 2 as well. This medium capacity can be supported by her report on her ability to reflect with inability to answer the why questions in the reflective writing. Also observation showed that she was frequently complaining in the face-to-face meetings about the logic of doing reflective writing. The level of her reflectivity when she talks was not as accurate as it should be because she was not able to make a decision when she was giving responses to many of the qualitative themes [interview] *"yeah very important and useful for student"* versus saying [FG] *"when I study, I don't feel comfortable in something like computer or iPad"* and she was negative about many of the good things offered in the classroom [FG] *"I like the reading for this semester... but there is some thing new for me. So I cannot get really involved in it"* and [FG] *"For me, I go with the old way of teaching"*.

Similarly, Maha had a similar number of responses in all of the three rating categories in phase 1 and because of this undetermined level, it was concluded that she started the course with a medium average reflectivity. However, the majority of the responses were 'low or nothing' starting from phase 2 and all the way to the end of the course. Her reflectivity in phase 2 was working differently from the individuals with high autonomy who were able to focus more on the material during the break; and differently from Samia who maintained her medium reflectivity. This low level of reflection goes in line with the short responses she was giving in her interview and reflective writing.

Mapping qualitative and quantitative reflectivity, Samia's quantitative reflective data revealed a steady medium reflectivity by the end of the course and her qualitative data [all sources] showed a negative attitude and an inability to answer the why question with complaints about having to do it.

Similarly, Maha's quantitative data showed a medium start of the course but this immediately decreased to low from phase 2 to phase 3. Her qualitative responses in the interview were short and unreflective. She reported positive attitude, engagement and good capacity to reflect, but the rest of her data (i.e. the quality of reflection in her interview responses and the quantitative results of the rating categories applied to the RWFs) showed that she did not improve a lot in engagement. Perhaps she was able to reflect and her ability to reflect was increasing but this increase stopped to happen from phase 2 perhaps under the pressure of her study and low willingness to engage with paper-based training as compared to those receiving it via the engaging online environment. This result is similar to the case of Lama discussed above when her reflectivity increased in phase 2 but then fell to the medium in phase 3 at the time that a considerable increase in her LLA score was made.

Samia and Maha's LLA level increased by the end of the course with two levels (C2 to D2) in spite of their steady medium and decreasing reflectivity levels, respectively. This makes us think that it is possible that they over-rated their LLA to some extent (see section 7.5.1).

5.2.1.11.3 Overview of critical reflection across groups

The following points are findings related to CR in both treatment groups (ONTG and OFTG):

- The improvement in LLA implies an improvement in reflective capacity. The two high autonomy students were similarly engaged in reflecting about their learning and they were doing actions about it, but Lama reported less reflection lately than she used to do. Their responses in all the qualitative data about this capacity showed that they both can reflect, but the rating of their reflectivity in the RWFS showed a difference. Nora's responses in the RWFs started high and maintained the high reflectivity in phase 2 and 3 (i.e. until the end of the course), whereas Lama started lower in reflectivity and improved to a high level in phase 2, then came back to medium level by the end of the course.
- The difference in the improvement made by the four students in their LLA suggests that the improvement in reflectivity is not something that can be achieved in a short time and that it needs training and practice for a long time especially for students with low autonomy. The two high autonomy students were able to make a slight change in their reflectivity within the same period of time in which the low autonomy students were not able to improve.

- Asking students to concentrate and reflect at the end of the class is a job that needs to be made interesting and attractive to students. Handing in paper forms to students and asking them to do that is not something engaging even if students wanted to do it and if they were able to do it.
- Samia was able to maintain the reflectivity level (medium) but Maha reduced it to low. This may help us to infer that technology might helped to make the difference in this respect which is similar to the case of the two high students discussed above.

5.2.1.12 Perceived strategy use (Quantitative)

Students' perception of their own strategy use (PSU) was measured before and after the study (i.e. at T1 and T3) using a set of statements in a questionnaire (see Appendix 6). The pre- and post-measurements of their PSU were transformed to a 0-100 point scale to ensure equality with the other components before being included in the measurement of LLA. The change in this construct was also calculated and then frequencies were run on students' PSU at T1 and T3 and on the change over time.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +5.58 | 15.06 | 26 |
| Online | +6.56 | 11.42 | 24 |
| Control | +1.00 | 15.88 | 25 |

Table 17: Frequencies of students' change in perceived strategy use

The frequency of students' PSU was run for the three groups at T1 and T3 along with the change over the course and it was found that the OFTG increased their self-rating in this construct with (M=5.58). In the same way, the ONTG's PSU increased with (M=6.56) but this was slightly greater than the OFTG. A slight increase of (M= 1.00) was found in the CG's PSU. A similar increase was made in PSU by the two treatment groups which was expected to happen after receiving the training. A slight increase was made by the CG who were only using their own textbooks in their normal classes. The slight difference between the treatment groups can reflect the difference in the delivery mode used for each group. Thus, the impact of technology use is slightly greater than the no use on PSU.

b. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = 1.889, p > 0.05$ | $F(2, 72) = 1.07, p > 0.05$ | $p > 0.05$ |
| Online | $t(23) = 2.816, p < 0.05$ | | |
| Control | $t(24) = 0.315, p > 0.05$ | | |

Table 18: Significance of students' change in perceived strategy use

When the significance of the amounts of change made within each group in PSU was tested, table 18 shows that the OFTG made an insignificant increase over the course and the ONTG, on the other hand, made a significant increase. The increase made by the CG was insignificant. The insignificant increase of the CG may mean that students would make no change in their PSU if they were given no training and no technology. The insignificant increase of the OFTG can mean that giving only training to students with no technology may not lead to the expected increase in students' strategy use. The significant increase of the ONTG suggests that giving learner training and technology to students would lead to an increase in their PSU.

The significance of the differences in the amount of changes in PSU made by students across the three groups was tested and the differences were found insignificant amongst the OFTG, ONTG, and CG. This can indicate that students will not necessarily use more strategies if they were given learner training and that the CG could make a similar strategy use as the OFTG and ONTG. Hence, when giving learner training to students, they may not use strategies.

When the significance of the difference in the amount of change in PSU between the treatment groups was tested, the test revealed that the increase made by the OFTG was insignificantly different from the increase of the ONTG. Technology may not make a difference in students' PSU. However, a significant increase in PSU was found amongst the ONTG who scored the highest average in LLA (see section 7.3) which suggests that technology is important for the improvement in PSU and accordingly in LLA.

5.2.1.13 Perceived strategy use (integrated qualitative)

This section presents the qualitative results about the perceived strategy use of the four case studies (high and low autonomy) from each of the treatment groups. Not only students' PSU can be found in the qualitative data, but also other aspects about learner strategies such as attitude to and awareness about strategies. These three aspects of inquiry about learner strategies are

investigated in Alzahrani and Watson (2016) using students' qualitative data from both treatment groups including eight interviews, reflective writing forms, and a focus group interview with six students selected from the three groups of the experiment. Data was triangulated to show the difference across the three groups in relation to exposure to strategy training (via online and offline modes) versus no exposure.

5.2.1.13.1 The two high autonomy case studies

Both Nora and Lama indicated that they use strategies frequently but Lama reported a very great increase. Nora reported using a lot of the learning strategies every day whenever she uses English whether in writing or in speaking [interview] *"I use them whenever I have the chance to speak or write in English"*. The frequency of Lama's strategy use after the course was reported to be 70% of her learning time and that she was using about 80% or 90% of what she learned in the classroom in her life outside the classroom [interview].

Actions about strategy use were reported by both Nora (positive) and Lama (mixed) before the course and after the course. Nora reported enjoying strategy use in her learning, though unaware that they are strategies, and she gave three examples for strategies mainly about vocabulary and grammar such as [interview] *"I used this, the small note for words, for new vocabularies and it saved my time"*, [interview] *"connecting old information with new"*, and [FG] *"my strategy for learning vocabulary, I should have a picture, a word, and I have to write it"* which she just realized that it is a strategy.

Yet, the types of strategies used by Lama keep changing. She reported starting to use one strategy [interview] (e.g. connects listening to and writing the words), being used to use another strategy before starting to use this new one [interview] (e.g. keep notes of the new words), and being used to use a third one and is still using it [interview] (e.g. putting the new words into sentences).

Mapping qualitative and quantitative PSU, Nora reported [all qualitative sources] an unconscious use of lots of strategies before the course and the use of other new strategies after the course, but her quantitative rating of PSU was reduced after the training (65-60). The conflict in Nora's qualitative and quantitative data led me to look at her attitude. In her attitude, she did not only talk about liking strategies [interview], but also about their importance, easiness [interview], fun [FG], and benefits in learning [interview]. Additionally, she was observed while learning and during the interview and the focus group and she was using strategies of speaking and listening besides those reported about vocabulary and grammar, e.g. asking questions for clarification [FG] *"when do you prefer to use paper and when do you prefer to use the electronic things?"* and for more engagement with the interactors [FG] *"So what was his reaction when he knew that you*

understand him?" This evidence suggest that Nora under-rated her PSU and LLA (see section 7.5.2).

Lama only reported greater use after the course and hugely increased the quantitative rating (70-85). Though Lama's qualitative and the quantitative rating agreed about the increased use of strategies, her qualitative data [interview] showed that she started using some more strategies but quitted using others. She kept changing strategies perhaps to decide on what is appropriate for her or perhaps strategy use is a burden which made her stop using some strategies along with the work for her study. This can be linked to her inability to manage her learning at the end of the course. Observation of her performance in the interview and the focus group showed that she was not following as many strategies for listening and speaking as Nora. Her positive attitude towards strategies revealed their importance to her and whether she liked them [all qualitative sources]. This can be due to her over-rating tendency which led to over-rated PSU and LLA (see section 7.5.3).

5.2.1.13.2 The two low autonomy case studies

Samia reported using strategies more frequently than Maha who was using it only when she does not know how to speak or how to understand something. Positive actions about strategy use were reported by Samia and Maha.

Samia reported using strategies in all her studies and in English learning, but she gave an example for only one strategy of hers. Samia used strategies such as grouping similar words to make its learning easy [interview] *"to put some things and their resembling words ... with one group"* and connecting the sound and the shape of the words when learning them [interview] *"to associate it, the word with their sounds"*.

Maha reported starting to use one strategy when she speaks English. She started to use the strategy of asking someone to repeat what they said or to slow down if she was not able to understand them and she used this strategy in the classroom with her colleagues when they communicate in English [interview] *"when I talk with someone who I don't understand what he is saying, I tell him to repeat it again"*. She reported using some of the general strategies when she does not know how to speak or how to understand something [interview].

Mapping qualitative and quantitative PSU, the change in Samia's strategy use was on the level of awareness as she reported using strategies before the course. Samia increased her PSU's quantitative rating (50-75) by the end of the course. Samia was using strategies frequently before the course and she reported making no change in her actions about strategies during the course or after it except the change in her awareness about strategies [interview]. Her positive attitude

[FG] *"It will make it easier"* but negative belief about the impact of strategies on learning revealed her low engagement with strategies [interview] *"I do it with the less time. Not because I don't like it... because other things"*. The conflict in Samia's qualitative and quantitative data, the fact that she gave only one example for PSU, and the lack of engagement with strategies which was suggested by my observation of her learning and by her performance in the interview and the focus group all together can indicate that her PSU did not increase greatly as she reported and that she over-rated her PSU and accordingly her LLA (see section 7.5.1).

The change in Maha's strategy use is on the level of use as opposed to no use. Maha increased her PSU's quantitative rating (50-75) by the end of the course. The conflict between Maha's qualitative and quantitative rating of PSU led me to look for further qualitative evidence. She reported starting to use one LLS after the course and did not mention awareness [interview] *"when I talk with someone who I don't understand..., I tell him to repeat it again"*. She reported a positive impact of strategies on the way she was thinking (i.e. awareness) [interview] *"It's make our ability to think, not just in one direction, we can change our thinking"* but not at all on her engagement with the training or with strategy use [interview] *"Not really"*. Observing her whilst learning in the class and whilst taking in part in the interview, she was found not using strategies. This further evidence indicates that she might have been increasing in PSU.

In short, though Samia and Maha became more aware of strategies, they had low engagement with the strategies in the training which means that they may not have reached Nunan's (1997) level of 'involvement'. This low engagement is not reflected in the quantitative rating of their PSU. They both increased their quantitative PSU which can indicate that their over-rated PSU led to their over-rated LLA. If they were more engaged with the training and with strategies, they could have made a greater actual change in their LLA and its associated competences. Learner strategies are said to be essential for LLA development (Wenden, 1991; Cotteral, 1995a, 1995b; Littlewood, 1996; Oxford, 1999; Little, 2001; Little, 2003a) (see sections 7.5.1 and 7.5.4).

5.2.1.13.3 Overview of perceived strategy use across groups

The following points are findings related to PSU in both treatment groups (ONTG and OFTG):

- Both high students started with a similar level of LLA (72) and (74) within the D2 level which makes us assume that they had equal use of strategies before the course. After the course, Nora reported increased awareness and use of strategies while Lama reported an increased use which may imply a greater awareness, too. Nora scored (74) in LLA and Lama scored higher (86) after the course which can suggest that Lama was more strategic during

the course than Nora, but that was disproved which indicates a potential self-over-rating by Lama (see section 7.5.3).

- Students' engagement with strategy use is an important factor for the enhancement of LLA, but students' enhanced LLA is not solely based on their engagement with strategies but other factors can contribute.

In this section, we have looked at the frequencies of each of the components included in the measurement of students' LLA in order to explore the scores they gained. Further quantitative work follows this step to create a variable for LLA as a score for students' LLA and to establish measuring bands. These bands can help to determine where each of the students sit on the scale. This scale works as an analogy for the continuum of LLA suggested by researchers (e.g. Benson, 2001; Holec, 1981; Kohonen, 1992; Kumaravadivelu, 2003; Nunan, 1997) as cited in Everhard (2015a) (see section 4.9.1).

5.3 Summary

This chapter presents the quantitative and qualitative results of the work on the concepts relevant to LLA to introduce the answer to the first research question about the measurement of students' LLA. The results of the frequencies and statistical significance tests for the concepts relevant to LLA showed that the ONTG outperformed the OFTG. The components of LLA were also examined in the triangulated qualitative data of four case studies from the treatment groups.

Chapter 6: Technology and training impact on LLA

6.1 Introduction

Chapter 5 presents the findings from the quantitative and the qualitative measurement methods for the components of the proposed measurement model for LLA. This chapter tries to answer the second research question by presenting the quantitative and qualitative findings of the relationship between the change in students' technology use and their LLA over the course. Further, the third research question about the relationship between learner training and the change in their LLA is discussed in this chapter using students' integrated qualitative data. Chapter 7 discusses students' quantitative LLA levels and whether they are similar or different from their actual levels when compared with evidence from their qualitative data.

6.2 Impact of technology use on LLA enhancement

This research sets out to investigate whether or not there is any causal relationship between the change in students' technology use in language learning and in their LLA. Each of these two variables was measured at T1 and T3 and then the change was calculated, but I use only the change in these two variables. One of the aims of this research is to examine the causal relationship and this can confidently be claimed when structural equation modelling (SEM) is conducted to test the effectiveness of the proposed model. It is not worth it to do this advanced statistical test with a small sample size as it would need a higher sample size and I recommend other researchers to look at the causal relationship using SEM with a bigger sample. Therefore, this aim has been changed into doing a statistical exploration of whether the change in technology use over time is related to the change in LLA level, but not to say that the relationship is causal. The causality can be investigated using evidence from students' qualitative data.

Before I look at the relationship between students' use of technology and their LLA to answer this research question, I would like to explore the measurement of their technology use at T1 and T3 and will calculate the change in their technology use. Technology use was measured using two methods in this study: by the treatment and by students' self-rating of their technology use in the self-rating scale (SRS). Measuring technology use by the treatment shows that the three groups were meant to be exposed to different conditions, i.e. the ONTG used technology in learning whereas the OFTG and the CG did not. Technology use was also measured through students' self-assessment using the SRS. In the following section, I provide the findings for the frequencies of students' technology use for T1, T3, and the change.

6.2.1 Descriptive statistics for technology use

The OFTG's frequency of technology use slightly increased with ($M=2.44$), but the ONTG's was greater ($M=11.19$). Surprisingly, there is an odd situation with the CG's technology use as it increased with ($M=7.06$) which is greater than the OFTG's use.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +2.44 | 14.39 | 26 |
| Online | +11.19 | 14.54 | 24 |
| Control | +7.06 | 14.62 | 25 |

Table 19: Frequencies of students' change in technology use

The greater improvement made by the ONTG than the OFTG's reveals greater use of technology among the ONTG by the end of the course. This was expected because they were given technology to use in language learning as opposed to the no use among the OFTG. The CG were not given technology nor training and it is perhaps the teaching method of their own teacher in the core learning hours which led to this unexpected improvement.

6.2.2 Inferential statistics for technology use

After running the frequencies on students' technology use, it is time to look at the potentiality of generalising these findings to the whole population. A Paired Sample T-test was run to explore the difference in the amount of change in students' technology use within each group. The OFTG insignificantly increased their technology use when the ONTG significantly increased it. Surprisingly, the use of technology was found significantly increasing amongst the CG. An insignificant increase was expected in the OFTG and the CG as they were not taught using technology. The significant increase in the ONTG's and the insignificant increase in the OFTG's technology use can show that students will use technology more when it is given to them.

a. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | $t(25) = 0.87, p > 0.05$ | $F(2, 72) = 2.27, p > 0.05$ | $p < 0.05$ |
| Online | $t(23) = 3.77, p < 0.05$ | | |
| Control | $t(24) = 2.42, p < 0.05$ | | |

Table 20: Significance of students' change in technology use

ONE WAY ANOVA test was run on the change variable to examine the difference in students' technology use across the three groups and there were no significant differences in the change made by the three groups in their technology use. This insignificant difference minimises the confidence to extrapolate the difference in their technology use from this sample to the whole population. This insignificance might be related to the unexpected improvement made by the CG.

An independent Sample T-test was run to examine the difference in technology use between the two treatment groups and a significant difference was found between the improvement made among the ONTG and the OFTG. This significant difference supports the result of the significance of the change happening within both groups over the course that technology will be used more when it is given to students in their learning environment. The following section will quantitatively explore the relationship between the change in students' technology use and LLA.

6.2.3 Relationship between technology use and learner autonomy (Quantitative)

As mentioned at the beginning of section 6.2, SEM would have been helpful to investigate the effect of students' technology use on the enhancement of their LLA if I could do it. However, due to the limitation of the sample size, I looked at this relationship using a linear regression test run between the change variables in students' technology use and LLA. The regression would help to explore whether the change happening in their technology use is related to the change in their LLA over time. It was just to predict the relationship and not to claim that it is a causal relationship.

| Model Summary | | | | |
|---------------|-------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .158a | .025 | .012 | 10.29313 |

Table 21: Regression of technology use and LLA change

Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------------------------------------------------------------------------------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 2.872 | 1.310 | | 2.193 | .031 |
| PreLLA.Sum.TULL.m f.change Final change in Tech Use on -100 to +00 scale | .111 | .081 | .158 | 1.367 | .176 |

Table 22: Significance and effect size of technology use and LLA regression

Therefore, it was decided to run a linear regression because the (y) variable (i.e. dependent variable in this case LLA) is an interval/ratio variable measured on a -100 to +100 scale. The regression result was insignificant, $p = (0.18) > 0.05$. The output of the regression in table 21 indicates that technology use represents only 3% of the effect on the change in students' LLA level, $R^2 = (0.03)$. This R^2 just says that 3% of the variability in students' LLA can be explained by technology use but it does not yet say that technology use significantly affects LLA. The next table for the regression (Table 22 as a general test for the model) shows that there is no significant relationship between the change in LLA and the change in technology use. The effect size is positive but it is very small which is why the p value is not significant.

In the following section, I will look at this relationship in the qualitative data of the four case studies to identify any evidence for the causality between the LLA and technology use. This part of this research question illustrates the nature of the relationship between LLA and technology use whether it is cyclical or technology use causes a change in LLA or the other way around. I will focus on high and low LLA students in each of the treatment groups and will run a query in NVivo with students' technology use codes by LLA attribute.

6.2.4 Technology use

This section presents the findings from all of the qualitative data in relation to students' technology use starting with the two high in LLA and then the two low autonomy case studies.

6.2.4.1 The two high autonomy case studies

Nora's capacity reveals that she can use technology in learning and can search for how to do it if something was difficult for her [interview]. This capacity has improved. She uses her laptop which has a pen and can be folded like a notebook for learning purposes such as downloading lectures and taking notes [FG]. When learning English, she searches on YouTube for the information she needs about the pronunciation of words or grammatical rules [interview]: *"I can go to YouTube and search for some pronunciation clips or grammar"*. She searches for vocabulary on the internet and can find videos or pictures on that [interview]. She communicates outside the classroom on the WhatsApp group they have created to manage the group work in this course [interview].

Lama's capacity to use technology has also improved after the course, though she was not given technology in the course, but her capacity is still lower than Nora's even after the improvement as shown in her qualitative data. Lama reported that she can now use technology better than before the course [FG]: *"Yes, Better"*. She reported using the internet any time she was asked to find information on a topic for any task [interview]. She uses her tablet to take notes and uses technology in everything in her daily life [FG]. Lama did not give as many details about her capacity to use technology as Nora and her responses were limited in comparison to Nora's. This can be due to her lower reflectivity (see section 5.2.1.11.1) and can indicate a limited capacity compared to Nora's as seen in their qualitative data [all sources].

Mapping qualitative and quantitative technology use, the quantitative score for Nora's technology use slightly increased with 3 points after the course (from 35 to 38). On the contrary, her qualitative data [all sources] showed a major improvement in the capacity of technology use. This is another evidence for her tendency to under-rate herself when she is aware that she is self-rating.

In contrast, Lama's quantitative score for technology use remarkably increased with 16 points (from 56 to 72) and her qualitative data indicates that her technology use increased not because the training was delivered via technology but because of the course's engaging and stimulating content. This increase made in her quantitative self-rating and in her qualitative data may have been over-rated because she is not expected to make an increase in technology use greater than Nora who received the training online and did the tasks online. Additionally, the observation and her qualitative responses [all sources] showed lower engagement with technology use as compared to Nora's technology use which presumably would not lead to a significant increase in her technology use.

6.2.4.2 The two low autonomy case studies

Samia reported in her qualitative data a better capacity to use technology that she was a little bit able to use technology for uploading documents before the course and the course helped to learn different skills of using technology [FG]. She now uses technology for learning better than she used to do before the course [FG]: *“it was good but now it is better”*. It is easy for her to discuss online in English with other people and when learning in the Strategy Course [interview] but it is not easy for her to manage her learning and that is why she was unable to continue participating to the online discussions [interview]: *“there was a lot of work”*. This may suggest that she can easily get distracted when she uses technology and accordingly she cannot manage her learning. The observation of her technology use during the course showed that she cannot deal with technology competently. This can be the reason for her inability to manage her learning when technology is used. For example, she uploaded files in the wrong place and submitted two different files for the task of gap1 [observation]. One of the two files was about the topic of the discussion which suggests that she did the discussion topic on a Microsoft Word document and submitted it to dropbox rather than to post it on the discussion forum [observation]. Another example is when she prepared the file for the task submission but uploaded it twice (gap2) which shows that she might be not very skilful in the use of technological tools. Additionally, she was not contributing to most of the topics on the online discussion forums.

Maha reported a good capacity to use technology and did not talk about the change in this capacity. It is easy for her to use technology in learning English whenever she needs it inside or outside the classroom to improve her language level [interview]. She uses her cell phone in the classroom to translate words [interview]. She speaks English with people on Facebook to practice speaking [interview]: *“I have friends on Facebook, I talk to them in English. To improve my English”*. She can cope with the group created on WhatsApp to continue the discussions and work management within her small group [interview]. Maha uses technology voluntarily though it was not given to her in the treatment and hence we might expect an improvement being reported or at least the same score for technology use.

Mapping qualitative and quantitative low autonomy students' technology use, Samia's score for technology use increased with 9 points (from 47 to 56) after the course and her qualitative responses showed an improvement in her capacity to use technology than she used to before the course, but the observation of her technology use showed that she did not continue to use technology and that she was low in capacity. This suggests that she over-rated her qualitative and quantitative self-reported technology use.

Maha decreased her quantitative self-rating of technology use with 6 points (from 31 to 25) and her qualitative data talked only about a good capacity but no improvement was mentioned. Both the quantitative and qualitative data are working similarly. It is possible that the voluntary use of technology did not lead to any improvement in her technical skills.

6.2.5 Independent learning

This section presents the findings from all of the qualitative data in relation to students' independent learning starting with the two high in LLA and then the two low autonomy case studies.

6.2.5.1 The two high autonomy case studies

Nora reported making positive actions about independent learning in her English language learning journey [FG]. She worked hard to learn independently to get to medical field and worked a lot to become fluent in English [FG]. She is used to watching movies with the English script to learn the English words with their spelling and pronunciation outside the classroom [FG]: *"I like to watch it with English substance. Translated and with English script. So I can read... see the spelling especially"*. Though she did not report spending more time on learning English, the observation of her performance during the course showed that this actually happened. Likewise, Lama reported positive actions about learning independently. She watches movies with no translation script to practice listening to the words said in the movie outside the classroom [FG]: *"I don't like to watch it with translation... So I like to hear the word"*. After hearing about Nora's way of learning from movies, she decided to add an English script to see how this can help in learning English [FG]: *"it is a good idea. I have to try it"*. She started to try doing the different types of tasks presented in the strategy course [interview]. She voluntarily spends more time on learning English in her free time as a result of the medical content of the strategy course [interview]. From the above, both Nora and Lama reported positive actions about learning independently. Nora did not report spending more time on learning English when the observation of her performance showed much greater actions about independent learning.

Nora showed engagement with independent learning based on the observation of her online performance and the details she gave on her independent learning. She reported that plenty of online resources can help her to learn independently and to progress from one level to another and that she was using these for her self-study [interview]: *"Not that important because sometimes if you want to learn English, there are a lot of websites on the internet that you can manage to take level 2, level 3"*. She was watching movies with English subtitle to learn spelling and pronunciation of the vocabulary [FG]. She worked during the three-week break on using the

training material on her own and contacted the teacher to enquire about difficulties [observation]. She was able to overcome difficulties [FG] and [RWFs]: *"In the begging I had a little difficulties..."*. Lama was also observed to be engaged with learning independently, but not much evidence was found in her qualitative data. Her negative belief about independent learning and the fact that she was not given technology in the training can lead to the assumption that she had low engagement with independent learning [interview]: *"Yes, but always we need someone to instruct us"*. However, that may not true because she actually used technology for her learning voluntarily during the training and this may have led to her engagement with independent learning. With her voluntary use of technology, she was not engaged as much as Nora who received the training through technology. Nora watches movies without subtitles to avoid using L1 in her English learning and to learn grammar from the movies [FG]. She believes that technology helps students to learn independently with the need for the teacher's guidance and instructions which implies that teachers are important for students if no technology is used in learning [interview]: *"if we don't have technology, the teacher should be available"*.

Nora reported good but unchanging capacity to do self-study confidently [interview]. She can learn grammar and spelling from the movies she watches, learn to do everything related to her English learning on her own, use LLS on her own without being taught, make progress, apply various skills of the course outside the classroom [interview]. She confidently said she can learn on her own [FG]: *"We all can do self-study, but we want to progress it and some follow it up"*, but she strongly believes that teacher is important when learning is linked to assessment and to passing a course [FG]. Teacher is only needed for helping to follow up learning and for guidance at the beginning of the course to explain where to go and what they can do in the course [interview]: *"In just the beginning...If she introduce about this side and you can do, you can go there"*. Plenty of online resources can help to progress from one level to another which she uses for her self-study [interview]. However, she said that her ability to learn without the teacher is the same as it was before the course and she reported a variety of things she can do independently [interview].

Lama reported good capacity to learn independently and did not talk about the change in this respect [interview], she said that technology use would increase this capacity [interview] and her voluntary technology use increased after the course. She is unconfident because she still needs the teacher for teaching the basics and for reassuring her correct understanding as argued by Littlewood (1996). She can learn English and learn grammar from the movies she watches without the teacher but she still needs the teacher's instructions and guidance and this need is less when technology is used in learning [interview]. She needs someone to confirm whether

what she understood is correct [interview]: *“you have to know if what I understand ... is it right or wrong. So the teacher have to tell you”*.

Lama’s qualitative responses [all sources] on the themes of capacity and engagement with independent learning are less in number and more limited in the variety than Nora’s. This can be due to her low reflectivity level as compared to Nora’s level (see section 5.2.1.11).

Mapping qualitative and quantitative data on independent learning, Nora increased slightly in her quantitative LLA (72-74) and she reported qualitatively that her capacity to learn independently is the same. Quantitative and qualitative data agreed about the slight change in her LLA and we can assume that she had this good capacity before the course and did not change it over time, but her qualitative responses [all sources] about her belief about independent learning and about technology use along with the observation of her online and face-to-face performance showed very positive evidence for an increased LLA over the course. This shows that she may have under-rated her capacity to learn independently.

Lama greatly increased her quantitative LLA (74- 86) (see Appendix 19), but no mention of any change in her capacity to learn independently was made qualitatively. Moreover, the observation did not show as many actions of hers as Nora’s. She believes that technology improves this capacity but she was not given the training through technology. Her voluntary technology use may have led to an improvement in her LLA but this improvement is not expected to exceed the change made by Nora who received the training through technology and whose group made a greater LLA improvement than Lama’s group (OFTG).

6.2.5.2 The two low autonomy case studies

Samia did not report any action about independent learning. Nevertheless, Maha made a few positive actions about learning independently. Knowing her weakness in speaking English, Maha started addressing the problem to improve this skill of language [interview]. She was searching to find more information about the given medical content as she became more curious to know more about medical English [interview]: *“I can do more research and research about it”*.

Samia showed no engagement with independent learning. Observation showed that she started working at the beginning of the course but was constantly asking about the rationale of the reflective writing and was complaining of the why question. In the middle and end of the course, she turned to be less active in the online discussions and any learning outside the classroom [observation]. Yet, Maha showed engagement with independent learning that she was using the internet on her cell phone in the classroom when she finds a word difficult to understand [interview]: *“we don't know the meaning, we take our cell phone to research the meaning on the*

dictionary". She started improving her weakness in speaking skill by speaking English with people on Facebook [interview]. She was taking part in the discussions and group work management happening on the WhatsApp group created for this purpose [interview]. This frequent group meetings may have provided Maha with the support she needed when she learned independently from the teacher outside the classroom. She was searching to find more information about the given medical content as she became more curious to know more about medical English [interview].

Samia reported low capacity about independent learning that she cannot work on learning without the teacher even if there is no need for the teacher, teacher has to exist in front of the students for any help whether in language or in the use of technology [interview]. However, Maha reported that she can learn on her own and would need the teacher only when a problem emerges to support her with the difficulties she might have, for instance, to correct her when she learns English [interview]: *"I can't. If I learn English, I want someone to correct me"*. The teacher is the one who makes her able to learn and technology use would help to increase the capacity to learn independently [interview].

From the above mentioned details, Samia showed no actions and no engagement with independent learning unlike Maha who made positive actions and was engaged with independent learning despite the fact that she was not given the merit of learning through technology. The ALA and MBL that the students hold may have influenced their engagement with independent learning.

Samia's capacity to learn independently is low in that she needs the teacher anyway; while Maha reported a good capacity with teacher needed only for any emerging difficulty and that this capacity would increase if technology is used in learning.

Mapping qualitative and quantitative independent learning data, Maha qualitatively reported a good capacity about independent learning and her quantitative LLA score increased with (13 points) (60- 73). The qualitative data about Maha's ALA was positive but negative about her MBL. She needs the teacher to be watching her while learning to correct her mistakes and to provide support and guidance [interview]. The teacher is the one who changes her ability to learn which shows that her assessment of the good capacity she reported to learn independently is mistaken.

The observation along with Samia's qualitative responses [all sources] revealed a low capacity for independent learning at the end of the course, but she reached the same quantitative LLA measuring band (D2) as Maha which illustrates an increase of (25 points) (53- 77). This conflict suggests that the quantitative increase in LLA was over-rated.

6.2.5.3 Overview of technology use and learner autonomy across groups

The following points are findings related to technology use and LLA across the case studies from both treatment groups (ONTG and OFTG):

- Both high students in LLA (Nora and Lama) reported a good capacity to use technology but they were different in the level of engagement with technology use because Nora was immersed in its use and gave many examples for inside and outside the classroom technology use. She was also found in the face-to-face and online observation to be fully engaged with technology use, e.g. she was almost all the time present online, her participation to the VLE were the greatest among the rest, and she was communicating with the students and the teacher via technology to solve technical problems. Lama was engaged and gave only a few examples about such use.
- Students' ALA and MBL influence their engagement with independent learning and accordingly impact their LLA capacities. Both high students had actions and were engaged with independent learning. The difference in their ALA and MBL and their level of engagement with LLA may have led to the difference in the change they made in LLA. Lama's MBL revealed the need for the teacher for the basics of the language, whereas Nora's MBL shows that independent learning is possible when the appropriate environment is given and teacher will only be needed for guidance and not for the basics of the language. This can cause a difference in their LLA with Nora making greater change in LLA than Lama.
- Students' capacity to use technology affects their engagement with technology use and eventually influences the difference in the change they can make in LLA. Samia was low in her capacity to use technology though she reported a good one. This led to her low engagement with technology use which eventually minimised the improvement she could have made in her LLA. Maha, instead, was good at technology use and she did that voluntarily though she was not given technology in the treatment. This engagement with technology use may have helped her to slightly enhance in LLA.
- Students' ATU and MBT can affect their engagement with technology and accordingly the difference in the change in LLA. Samia had a positive affective but negative behavioural ATU and therefore was not engaged with the given technology which negatively affected her LLA improvement. Nonetheless, Maha had a positive ATU and good engagement. Thus, her LLA capacity was good and maybe slightly increasing though she was not given technology in the training.

- Students' ALA and MBL can influence their engagement with independent learning opportunities (i.e. pedagogy) and will accordingly increase their capacity to learn independently. Samia had a negative ALA and hence she was not engaging in independent learning nor with the given pedagogy which contributed to her unchanged capacity to learn independently. Conversely, Maha liked independent learning but her MBL was negative. She was not engaged with the training which may have negatively affected her LLA progress.

6.2.6 Causal relationship between technology use and learner autonomy

Having the findings about technology use and LLA from the quantitative and the qualitative data, I will explore whether there is a relationship between the two constructs and the nature of this relationship. The descriptive results showed that the ONTG (M=11.19) and the OFTG (M=2.44) were increasing in their technology use over the time of learning, though the OFTG should not have increased in their technology use as they were given the training on paper. In fact, the types of tasks included in the training such as project-based tasks and others required them to go to the internet and to explore information using technology which may have contributed to the increase happening in their technology use.

The results of more advanced statistical test showed that the difference between the two treatment groups (ONTG and OFTG) in the change in technology use is significant which is expected because they are only different in the delivery mode of the training. As expected, the OFTG insignificantly increased their use of technology which means that the increase in technology use under the effect of a stimulating training cannot be generalised to the population while the ONTG's significant increase reveals that students' technology use will increase when it is integrated in the design of the training. To predict the relationship between students' LLA and their use of technology, a regression was carried out on their quantitative data and the output of the regression indicates that 3% of the variability in students' LLA can be explained by technology use. However, this does not yet say that technology use significantly affects LLA (see sections 6.2.1, 6.2.2, and 6.2.3).

The qualitative data can help to illustrate the causal relationship between students' technology use and LLA. Nora reported a belief that technology helps to enhance LLA, but that the training was the main cause for the change in her LLA capacities. This is evidence from the qualitative data is saying the same thing as the output of the regression that technology has an effect on students' autonomous behaviours, but that this effect is not as great as the impact of the given learner training. Students' qualitative responses revealed that this impact of technology occurred on

different capacities, e.g. reflection, decision-making, and confidence (see section 5.2.1.10).

Observation and students' qualitative responses indicate that technology made a difference in their metacognitive strategies (see section 6.3.3). Lama reported her expectation that if technology were used, it may have a positive effect on her learning time, information search, reflection capacity, decision making. Nora reported experiencing the benefits of such use in different aspects, e.g. reflection, language use, decision-making about tasks, and writing and spelling competences.

Having greater enhancement in language competences of the ONTG than of the OFTG, as was demonstrated in the SPR form, suggests that the change in language competences can be achieved faster when technology is used as compared to no use. However, students' data about LPT component showed that both groups improved in LPT which revealed that this difference in SPR is not directly related to technology but is related to their confidence as a result to technology use (ONTG) versus no use (OFTG) (see section 5.2.1.3).

Giving the training with opportunities to practice language outside the classroom would help to improve students' LPT but that technology use would be more influential to show a difference in the confidence level than to make a remarkable difference in the LPT of the two treatment groups. Technology made students able to talk confidently about their learning progress as was argued by Jones (2001) (see section 5.2.1.2).

Confidence seems to be the difference between the two high students as a result of the lack of technology on the part of Lama. Lama's low confidence in speaking competence can be linked to the limited access she was having for authentic learning material as authentic are said to be helpful to boost learners' confidence (Jones, 2001). It can also be linked to the lack of the support she could have got if technology were used in the training (Little and Ushioda, 1998; Schwienhorst, 2008).

6.3 Impact of learner training on LLA enhancement

As the change in students' technology use forms only 3% of the variability in their LLA over the course. Hence, the change in students' LLA may have been influenced by other factors such as the provided training. In this research question, I qualitatively explore the impact of the training on students' LLA development using their qualitative responses in the interviews and FG along with the online and offline observation of their performance. The discussion of this question presents evidence for the capacities of the four case studies with the features of the training, their metacognitive strategies, and their independent learning. Finally, conclusions about the impact of the training on students' LLA is given.

6.3.1 Metacognitive strategies and training features

The discussion of this question presents evidence for the capacities and engagement of the four case studies (starting with the high autonomy followed by the low autonomy case studies) with the features of the training and their metacognitive strategies.

6.3.1.1 The two high autonomy case studies

Nora's capacity to plan is very good with positive attitudes and beliefs towards planning and towards setting goals. She reported positive attitudes and beliefs about deadlines and learning management and a very good but unchanging capacity to manage her learning. The fact that her capacity to manage learning at the end of the course was good and that it did not change from the start of the course show that she started with a high capacity. She was doing reflection when they were using textbooks before taking part in the treatment. She did not like doing the RWFs at the beginning of the treatment, but this was changed to a positive attitude and belief at the end of it. She reported good capacity to reflect without allocating time for doing that.

Nora's lengthy, varied, and deliberate qualitative responses in the interview and focus group show her very good reflectivity. She was rated as high reflective in the RWFs and a slight increase was made in this skill starting from phase 2 all the way to the end of the course (see section 4.11.6). She reported a positive effect of her technology use on her reflectivity during the treatment [interview] which goes in line with her engagement with technology use before the course and during the course [all qualitative sources]. The fact that she was very engaged with task performance inside and outside the classroom and that the training was delivered to her through technology suggest that she made a greater increase in technology use which may positively affect her reflectivity.

A mostly positive attitude was reported by Nora towards task types and organization in that they broke the routine of the traditional teaching where the focus is on the four language skills using textbooks [interview]; and that they offer the language use opportunities students are lacking in all of the other subjects [interview]. She liked the variety of the tasks in the training, tasks with peer-assessment, role-play tasks, and tasks using monolingual general and monolingual medical dictionaries [reflective writing]. She only did not like bilingual dictionaries and the focus of module 1 on grammar, because she does not need to know the Arabic meaning of the words [reflective writing]. She reported that grammar is a weakness of hers [interview].

However, she was engaged with the tasks given in the training and she reported waiting for the restricted content to be released every week unlike her lack of excitement about the unchanged boring style of material presentation in textbooks [interview]. She reported that technology was

not the main thing that encouraged her to use language, but the given opportunities themselves [interview]; in other words, perhaps pedagogy was motivating her more than technology to engage more with language use. Moreover, she suggested giving this training to the following generations of students in order to engage them in learning English [interview] which illustrates her level of engagement with the pedagogy.

Nora said a content relevant to her field would increase her excitement and engagement and would make her spend more time on using the material [FG], while general topics make her bored and disengaged. She believes that medical English content is motivating to medical students because they need to use English in their field and because it will help them with the other medical courses [interview]. From all of her qualitative data, I concluded that she had a very positive attitude towards medical English and a good capacity to use it in her daily life.

Nora made very positive actions and was very engaged with discussion tasks in the training that she gets involved in online oral and written discussions using the keyboard inside and outside the classroom and she asks questions to other students and to the teacher for clarification and for engagement [observation]. She was posting comments to teacher in instant messenger (IM) [observation] and in RWFs. She reported a good but unchanged capacity to speak English whether in face-to-face or in online settings and to ask questions to colleagues to extend the discussion or to show engagement [interview]. This capacity was not affected by the learned strategies, but was a bit improved because of the role-play tasks and she can now ask about any information in a polite way to avoid rudeness in communication with others [interview]. She was positive about discussion tasks and enjoyed doing them from the beginning of the course except the first discussion (about cities) because it was a general topic [interview]. Online discussions are effective in increasing her language proficiency because they improved the structure of the sentence she can produce [interview].

Nora was positive about working in groups as well as in pairs and believes that they are equally important and that they complete each other [FG]. Because she likes to socialize with others, she liked discussion tasks, but it would be painful if members were not cooperating [interview]. Working in groups for projects would make the job easier but would take a long time to finish it [interview]. She believes that group work helped the members to maintain good relationships inside and outside the classroom [interview]. She is also positive about giving different roles to different group members which will allow them to try new roles with different skills [interview]. She was very engaged in group and pair work [observation] and had a good capacity to do both but this capacity did not change by the end of the course [interview]. She is also good at managing

groups creatively but would let anyone else who is more capable to lead because a leader needs to be strict to be able to encourage the group members to finish the work [interview].

The observation and Nora's interview responses showed multiple positive actions and great engagement with strategy use in learning (see section 5.2.1.13.1). She reported that she was using strategies before she takes part in the treatment, but she was unaware of this name and of their functions [interview]. Three examples on LLS use were given and they were basically about learning vocabulary and grammar [interview], but she was also found strategic in her communication with peers that she uses strategies of speaking and listening [observation]. She reported the same very good capacity to use LLS before and after the treatment but more awareness of strategies [interview]. She was positive about the importance of LLS and gave varied responses [interview] but this does not mean that she liked all of the LLS she learned. These results relate to the fourth step of the testing process for the measurement scale (see section 7.5.2).

Lama reported positive attitude and belief about planning, deadlines and learning management. She reported that she can plan and manage learning [FG and interview] but the latter capacity decreased over the course with the increasing work load in her discipline [interview]. She was engaged in reflection on her learning [FG] and had positive attitude and belief about reflection [FG and interview]. She reported a good capacity to reflect but doing less frequent reflection lately [FG]. The assessment of her reflectivity in the RWFs showed a medium level both at the beginning and end of the course but a high reflectivity in phase 2 (i.e. the middle of the course) (see section 4.11.6). This may suggest that she was progressing in reflectivity until phase 2, but the work load led to a minimized reflective capacity in phase3 when they were preparing for the final exams. Nonetheless, the level of reflectivity in her qualitative responses in the interview and the FG goes in line with the medium reflectivity found in her RWFs which refutes the possibility that she was progressing before the work load affected her reflectivity. Lama's medium reflectivity shows that her LLA should not have improved as her score indicates (see section 7.5.3).

Positive attitude and belief were reported by Lama about the importance of planning and time management to meet deadlines, but putting plans numbered in order and priorities is impossible for her. She had a good capacity to put a plan for every day, week, and month to keep checking them [interview]. She is positive about learning management and believes that deadlines are important to encourage her to finish tasks [interview]. She had a good capacity to meet deadlines and to manage her learning but reported that this capacity started to decrease by the end of the course with the increasing workload for her study [interview].

She is positive about reflection and believes that it helps to know what she is good at and what she likes to allow improvement of weaknesses [interview]. A lower engagement with reflection was reported that she used to reflect on her learning voluntarily every month before starting the course, but she is doing it now less frequently than she used to do, i.e. once a year [FG]. She reflects on her learning during the training but not all of the reflective writing forms were done [RWFs]. She reported a good capacity to reflect on her learning as a way to monitor her progress [interview]. The rating of her reflectivity in the RWFs showed that she started with a medium level and increased in phase2 to high, but a decrease was found in phase3 which comes in line with the reported lower engagement with reflection and the reported decreasing capacity in learning management.

Lama was positive about the variety of tasks in the training and particularly about role-play tasks [interview]. It was not possible to trace her engagement in doing the tasks because she was doing them offline outside the classroom, but she suggested changing the time of the given training either before or after their normal classes because they cannot feel engaged with the provided training when they are worried about their exams if they have exams after the English lesson. She was engaged with the tasks because she did all of the given tasks in the training including the homework and the group work assigned for homework [interview and observation]. Though she disliked the focus of module1 (grammar), it did not disengage her [interview].

A positive attitude was reported towards discussion tasks especially general discussion topics and those requiring information exploration. Discussion tasks were reported to be the only opportunity to use English on campus during the semester and to be motivating students to work together and to share ideas [interview]. A good capacity related to discussion in English was reported as well as confidence of ability to create opportunities for language use [interview]. She was engaged with discussions that she was managing the group interaction inside and outside the classroom as a leader [interview and observation]. The first discussion topic (i.e. on cities) encouraged her to participate to the discussions as it is the topic that she likes and it is easy to talk about in the first days of the training [interview].

Lama likes learning about medical content, but general topics are more favorable for discussions. She was engaged with medical English, but did not have enough time to give to this content. She spent more time on learning medical English in this course only when she could give more time [interview]. She tried to find opportunities to practice medical English but there were no opportunities to use it in everyday life except at the hospital when she takes her ill father for treatment [interview]. She had a good capacity to use medical English when speaking with the doctors of her father for emergencies like when her father had a surgery before a couple of

months [interview]. She even started to understand the medical language of her father who is a doctor himself and she became able to communicate [interview].

A positive attitude was reported towards group work, pair work, and having different roles for different members within the group. She believed that group members will work effectively in group work if they know each other before they work together [interview]: *"We know each other so that's really helpful"*. She believes that partners in pair work will create good stuff for both of them and will complement each other despite the differences they might have [FG]. She had a good capacity to work in group or in pair and to manage work within the group as a leader [interview]. She reported an increase in her capacity to work in pair by the end of the course [interview]. Great engagement was reported that students trusted her and chose her to be the leader in every group work they did without shifting roles [interview]. The group members were arranging regular meetings and were sharing the group work [interview].

Three mixed actions about LLS use were reported by Lama. One of them was negative and two were positive (see section 5.2.1.13.1). The observation revealed that Lama is less strategic than Nora as no listening or speaking strategies were found in her interview or FG. Her attitude was positive about LLS importance in learning but she did not explain anything about this importance and did not mention selecting any strategies.

6.3.1.2 The two low autonomy case studies

Though Samia reported positive affective attitude and belief about planning, she is unable to plan and has a negative behavioral attitude towards planning. She has positive attitude and belief about deadlines and learning management, but lacks the capacity to manage her learning that she always submits homework in the last minute before the deadline because she needs someone to push her to work [FG]. Positive affective attitude and belief were reported about reflection [FG], but she had negative behavioral attitude and belief [interview]. She can reflect, but cannot answer why-questions and cannot determine whether the progress she is making in learning is good which led to the negative behavioral attitude and belief [interview]. She had medium reflective capacity according to the rating of her RWFs (see section 4.11.6). The level of her reflectivity was medium as most of her responses were not meaningful.

Samia was not able to make decisions when she was producing responses in the interview and the focus group which reveals her low capacity to self-assess. Moreover, she was negative about many of the good things offered in the learning environment. Given that metacognitive strategies are included in learners' capacity for autonomous learning (Little, 1991; Nunan, 1997; Benson, 2011), the low capacity of planning, low capacity of learning management, and medium

reflectivity along with the mixed attitude towards these three indicate that her LLA has not developed as great as she reported in her quantitative and qualitative data.

Samia likes project-based tasks as they are helpful for learning [RWFs]; and likes module 1 which is focused on grammar because this is what she likes and what she needs [RWFs]. However, she was submitting tasks late and many were not submitted [observation]. She reported that difficult tasks requiring long time of study would make her spend less time on learning [interview]. This shows her limited engagement with the learning material. She also had limited engagement with the discussion tasks because she started participating but quitted after the break [observation]. She attributed that not to the difficulty of this kind of tasks but to the increasing load of work in her discipline which indicates to her low capacity to manage learning. She likes discussions in general and likes talking about general topics such as cities but not about medical services [interview].

Samia had a positive affective attitude to medical English but a negative behavioral attitude. She found this content interesting and feeding into the medical English course they take with their teacher and into communication with their teacher, but its vocabulary is difficult which requires spending longer time to learn and cannot be used in everyday life with people in the street. She was less engaged with medical English and this made her spend less time on learning.

Samia likes group work only when the group members work comfortably without any problems [FG], but the relationships among the group members do not go beyond the classroom [interview]. She found it difficult to deal with different people at the same time, but this slightly improved by the end of the course, though relationships did not extend to outside the classroom [interview]. She can work in pairs better than working in groups because it is easier for her to deal with one person than to deal with many [interview]. She hates taking the responsibility of group leading which might indicate that she cannot manage her learning duties with the responsibility of group leading [interview]. She is in favor of changing roles within her group because each member has a skill which can complement the skills of the other members, but she rejects assigning specific roles to specific members [interview].

Samia reported positive actions and good engagement with language learning strategies, but my observation showed very low use of LLS and her qualitative responses revealed lack of engagement with strategies (see section 5.2.1.13.2). Greater capacity to use LLS was reported which indicates more awareness, but actually she gave only one example of her strategy use [interview] and the observation proved her low capacity. She had a difficulty in identifying the difference between LLSs and tasks when she was doing the RWFs [observation]. She reported a positive attitude towards strategies and liking all of the strategies presented in the course, but she

does not want to learn their names or functions or to be obliged to use them all [interview]. Despite her report of improvement in capacity to use strategies, her observed low capacity and engagement with strategy use (i.e. the pedagogy) support the claim that she over-rated herself. This low engagement can be due to the negative belief of the potential impact of strategies (see section 7.5.1).

Maha reported in her qualitative data no capacity to plan or to manage her learning though she had a positive attitude and belief about planning, deadlines, and learning management [interview]. She reported a good capacity with a positive attitude and belief about reflection, however, the quality of her responses in the interview showed low reflectivity. Additionally, the rating of her reflectivity in her weekly RWFs showed a medium level at the beginning of the course and a reduced reflectivity at the end of the end of it starting from phase2. She did not mention planning in her qualitative data but she mentioned having a positive attitude towards deadlines [interview]. Deadlines are important for her to finish the work and important for students to work like a team [interview]: *"It make us to work as a team"*.

A low capacity was reported in time management that she would leave the task and not do it if she does not have any deadline to turn them in [interview]. In contrast, a good capacity and a positive attitude were reported towards reflection because it enabled her to assess herself and to identify the strategies and the tasks she liked [interview]. However, she missed doing the RWFs for Module5 and gap3 and she started the course with a 'medium' average assessed reflectivity, then the majority of the responses were rated as 'low or nothing' in phase2 and all the way to phase 3 (see section 4.11.6). Her reflectivity in phase2 works differently from the two highly autonomous students (i.e. Nora and Lama) who were able to focus more on the material and do the reflection properly during the break. She is also different from how Samia worked when she maintained her medium reflectivity to the end of the course and did not decrease to low level. Maha's low level of reflection goes in line with her short responses in her interview and RWFs. In short, she lacks the capacity for the metacognitive strategies.

Evidence for negative attitude and low engagement with the task types and organization was found in Maha's interview. She did not like the focus on grammar in module1 and the tasks which require listening to and writing what is heard, but these negative points had a medium negative effect on her learning. The change from individual, to pair, to group work was not enough to engage her and she suggested to letting students move around in the class to increase their enjoyment in learning [interview]. She reported that the types and organization of tasks included in the material did not impact her motivation to use English with others or the time she spent on learning English [interview].

Maha had a positive attitude towards discussion tasks and was engaged in doing them. She liked the interaction she had with her group members while doing the discussion tasks and found it easy to discuss with other students which might have increased her motivation to do them [interview]. This can indicate that her speaking is not that good but she can still discuss with her group members as it is an informal setting and they know each other.

Maha said she had a positive attitude towards medical English content. It motivated her to keep working with the material, made her curious to know more about content relevant to their study and to their future career, made her spend more time to search for information [interview]. Yet, there was no impact on her ability to communicate as it cannot be used outside the classroom [interview]. She can search for information about medical English and can use it with peers in the class only [interview].

Maha's qualitative responses showed engagement with group and pair work. She talked about the benefits of group work and reported setting a specific time in the week for group discussion and the creation of a virtual space on their phones to communicate outside the classroom [interview]. She was positive about group work and having different roles for different members within the group, but did not like to be a leader [interview]. Her capacity to work with a partner in pair work was good and did not change after the course, however, her ability to work in group improved because of the group work she took part in during the semester [interview].

Maha reported positive actions about starting to use LLS but she only gave one example of her LLS use. Her qualitative data [interview] showed low engagement that she reported LLS affecting her thinking which may mean greater awareness about LLS, but no impact on her learning (see section 5.2.1.13.2). She did not do more work or effort to learn English because of strategies [interview]. Greater capacity to use strategies was qualitatively reported (i.e. more use) [interview], but actually she gave only one example of her strategy use and my observation proved her low capacity. Maha liked the idea of embedding LLS in different types of tasks but believed that LLS had no impact on learning [interview].

Given the above evidence, I conclude that she was low in capacity and engagement with LLS use (i.e. the given pedagogy) though she reported an improved capacity. This low engagement can be due to the negative belief of the potential impact of LLS as learners' engagement can be affected by their willingness (i.e. beliefs and attitudes). Learners' receptiveness to learning can be influenced by their attitudes and beliefs (Oxford, 1999; Kohonen, 1999 cited in Everhard, 2015a). These results are related to her self-assessment capacity (see section 7.5.4).

6.3.2 Independent learning

The discussion of this question presents evidence for the capacities of the four case studies (starting with the high autonomy followed by the low autonomy case studies) to learn independently.

6.3.2.1. The two high autonomy case studies

Nora reported good but unchanging capacity to do self-study confidently. Lama reported good capacity to learn independently and did not talk about the change in this respect, she said that technology use would increase this capacity and her voluntary technology use increased after the course. She is unconfident because she still needs the teacher for teaching the basics and for reassuring her correct understanding (see section 6.2.5).

Both Nora and Lama had positive MBL and positive MBT on students' capacity to learn independently from the teacher. Both believe that teachers are needed for support and guidance, but Lama needs the teacher for reassurance about understanding the grammatical rules and for teaching the basics of the language if there is no technology to support her learning.

Metacognitive strategies and confidence seem to be the difference between both high students as a result of the lack of technology on the part of Lama. Moreover, Nora is more able to explain why students are dependent on their teachers and is more able to describe the relationship between capacity to learn independently and learning with technology versus using textbooks and being required to pass a course. Nora quantitatively under-rated her MBL and accordingly her LLA while Lama over-rated her ALA and MBL which led to an over-rated LLA score (see sections 5.2.1.5 and 5.2.1.6).

6.3.2.2 The two low autonomy case studies

Samia reported low capacity about independent learning that she cannot work on learning without the teacher even if there is no need for the teacher, teacher has to exist in front of the students for any help whether in language or in the use of technology [interview]. However, Maha reported that she can learn on her own and would need the teacher only when a problem emerges to support her with the difficulties she might have, for instance, to correct her when she learns English [interview].

The ALA and MBL that the students hold may have influenced their engagement with independent learning. Though Maha qualitatively [interview] reported a good capacity about independent learning and her LLA score increased with (13) points (60- 73), she reported that the teacher is the one who changes her ability to learn [interview] which shows that her assessment

of the good capacity she is having to learn independently is mistaken and that her LLA score was somewhat over-rated. The observation and the qualitative responses [all sources] of Samia revealed a low capacity for independent learning at the end of the course, but her LLA score showed an increase of (25) points (53- 77) which suggests that the increase in her LLA score was over-rated (see section 6.2.5).

Samia had a very negative ALA and MBL. In contrast, Maha had a positive ALA but a negative MBL. Samia over-rated her quantitative responses about ALA and MBL and accordingly her LLA score. There was no conflict in Maha's self-rating in these two concepts and the two types of data validated each other. She over-rated herself in other themes but not in this one (see sections 5.2.1.5 and 5.2.1.6).

6.3.3 Causal relationship between training and learner autonomy

This section will bring together all the instances of evidence from the different sources of students' qualitative data about their LLA and how they were working with the training material and with its metacognitive strategies to be able to pinpoint the impact of the training on the change they were making in their LLA.

The triangulated data used in this thesis shows that a carefully designed learner-centred training (pedagogy) is what leads to the promotion of students' LLA. Technology use in language learning may not be the main cause for LLA enhancement, but it helps to deepen the benefit the students can get while improving in LLA and to make a difference between those using it and those with no use. For example, Nora reported a positive impact of technology on reflection, language competences, and LLA in general. However, she asserted that technology use was not the main cause for the change in LLA but the given opportunities to use language in the learner training she took part in. It was also found that technology use made a difference between the two high autonomy students in their confidence, engagement with the training, and metacognitive strategies.

Engagement with technology use helps to enhance students' LLA, but the difference it can make in the amount of progress in LLA depends on students' autonomous capacities. Technology may work better to enhance LLA of high autonomy students (e.g. Nora vs. Lama) than that of low autonomy students (e.g. Samia vs. Maha). The high autonomy students were making different amounts of change in LLA due to the difference in the amount of exposure to and use of technology they had. The resulting difference in the LLA of the two high autonomy students was in their confidence to learn independently, engagement with the training, the capacity of

metacognitive strategies (e.g. reflection, planning, and learning management), and accordingly engagement with these skills (see section 6.2.6).

However, technology use did not make a distinctive difference between the two low autonomy students. They both had technology, but it did not help them to increase LLA because Maha was just voluntarily using technology which is not a substantial use in learning. Samia did not use the given technology effectively due to her lack of capacity and negative attitude towards technology. Having technology was not motivating to Samia because she needed the training to help her develop basic capacities of LLA first before being given technology. What is worse is that technology functioned as a challenge for her because her technical skills were limited. Therefore, it is recommended that low autonomy students are given a helpful pedagogy with a focus on a change in their attitudes, beliefs, and capacities (e.g. reflection, self-assessment, and technology skills) before giving them technology to use in their language learning and before working on the enhancement of their LLA (see sections 2.6 and 7.11).

Thus, it is the pedagogy that led to the improvement in LLA. Nora believes that the given pedagogy was effective to increase their language use, speaking functions (because of the role-play tasks), and the systematic training on reflective writing as opposed to the simple way she was doing when reflecting on learning using textbooks only in learning English. Lama improved also in her LLA under the effect of the training and with no use of technology apart from her voluntary technology use she was doing. The difference in the progress made by the two high autonomy students was caused by the use of technology on the part of Nora. Therefore, we can conclude that technology can speed up and deepen the promotion of students' LLA but the training is more effective in LLA enhancement (see section 6.2.6). The pedagogical framework of the training helps to make balance because it facilitates students' use of the training and the technology in a meaningful way as it was observed by Schwienhorst (2008) (see section 2.11.3.3).

6.4 Summary

This chapter attempts to answer research question 2 on the relationship between students' technology use and the change they made in LLA over the course by integrating the quantitative and qualitative findings. It also provides qualitative results for research question 3 on the relationship between learner training and LLA. It was found that the training is the starting point for the enhancement of LLA, but technology would make a difference in the amount of progress they can make. Students' willingness played an important role in their engagement with the provided opportunities whether it was training or technology. It was also found that technology

may not be very effective or it may hinder the enhancement of LLA if the students were very low in their autonomous capacities.

Chapter 7: Discussion of the assessment model

7.1 Introduction

In this study, there are many substantive findings about LLA enhancement and its manifestations, but there are also findings about the assessment of LLA. This chapter provides the answer to research question 1 which seeks to identify how we can measure LLA within a blended learning environment. It starts with a brief overview of the experiment and the conclusions made about LLA measurement. It presents the created LLA scores for the students in the three groups and the difference in enhancement in LLA over the course among the ONTG and the OFTG. It also discusses the codes found in the qualitative data of the case studies to inform and validate the quantitative measurement.

Moreover, it discusses the relationship between the two approaches used for the assessment (quantitative and qualitative) and undertakes the weighting of the importance of the scale components. It also provides links between the models proposed for the enhancement and for the assessment of LLA and the underpinning theory of these two models. The factors influencing LLA enhancement are also discussed and the deconditioning process needed for low autonomy students as preparation before working on the enhancement. It finishes with suggestions for the model's modification.

By presenting the findings of the scale components and the weighting of their importance along with the suggested modifications, it is hoped that the question about how autonomous students are is answered. A reliable, appropriate, and robust way to measure LLA was proposed and validated. It was found that the most reliable and robust way to get tangible evidence and an accurate assessment of LLA is to combine quantitative and qualitative assessment methods in a formative and a summative view and to look at the assessment of LLA at the macro and micro levels. It is appropriate because it avoids assessing it through the use of tests and it incorporates students' voices to do self-assessment to go in line with the essence of this concept and to ensure the authenticity of the findings. This is a reliable and robust method for the assessment because it does not only assess LLA in a certain task but it goes beyond that to the overall learning experience; it includes formative besides the summative assessment to help with the triangulation and to improve the pedagogical outcomes; and it uses two approaches (i.e. quantitative and qualitative) and multiple methods for data collection to help with the triangulation and the validation of the findings from either approaches or methods. It was also

found in this study that language proficiency is a key indicator of students' autonomous language learning level and that learners need training on self-assessment.

7.2 An overview of the experiment

The aim of the present study is to investigate in an empirical manner whether students with more use of technology in language learning can be seen as more autonomous language learners than those with less or no use of technology and it is also to assess LLA. An action research was carried out for the intervention intended to develop students' autonomous learning and an experimental design was chosen to be able to examine the causal relationship between technology use and the development of LLA. For this experiment, three groups (online, offline, and control) were selected to examine the difference in LLA enhancement across the groups after delivering the training to two groups using two different modes (online and on paper) in a blended fashion of learning with the existing taught medical English course.

The quantitative measurement revealed that students with more use of technology were also making the greatest change in LLA than the rest of the groups. The qualitative side of the assessment using two case studies from each of the treatment groups (high and low autonomy student per group) illustrated other aspects of the complex LLA construct. It was found that technology helped to increase the confidence of the learners and the capacity to take control of learning, in particular the metacognitive strategies (e.g. planning, reflection, self-assessment, learning management). Additionally, learners' willingness played an important part in their engagement with the provided opportunities whether it was training or technology. Findings also showed that language proficiency is a key indicator of students' autonomous learning level and learners need training on self-assessment.

7.3 Results of LLA measurement (scale)

Having created the quantitative LLA variable, this newly created variable was used to measure students' LLA prior to the experiment (at T1) and after the experiment (at T3). The change that they made in LLA from T1 to T3 was calculated. This section reports on the results of the frequency of the LLA variable that was run for T1, T3, and the change made in LLA. Similarly, the results of the significance testing of the differences in the change in LLA across the three groups (ANOVA TEST), between the two treatment groups (Independent T-test), and within each group (Paired T-test) is presented in this section.

a. Descriptive statistics

| Groups | Mean (of the change) | Standard deviation | Total number of students |
|---------|----------------------|--------------------|--------------------------|
| Offline | +5.10 | 6.71 | 26 |
| Online | +10.03 | 9.85 | 24 |
| Control | - 4.06 | 9.27 | 25 |

Table 23: Frequencies of students' change in LLA

A frequency test was run on the OFTG's LLA change to show an improvement of (M=5.10). Likewise, the ONTG's mean of LLA change revealed an increase of (M=10.03) from the start of the course which was double the OFTG's improvement. However, the CG showed a declined LLA (M= 4.06). The greater enhancement in the LLA of the ONTG compared to the OFTG's may indicate that the use of technology led to this difference between the two groups as it was the only variable that was not given to the OFTG. The decline in the CG's LLA can show that they were getting more dependent on their teacher as a result of learning in a traditional classroom and not being exposed to the treatment.

a. Generalizability (Inferential statistics)

| Groups | Change significance within groups | Change significance between 3 groups | Change significance between 2 treatment grs |
|---------|-----------------------------------|--------------------------------------|---------------------------------------------|
| Offline | t (25) =3.877, p <0.05 | F (2, 72) = 16.712, p < 0.05 | p < 0.05 |
| Online | t (23) =4.987, p <0.05 | | |
| Control | t (24) = - 2.188, p < 0.05 | | |

Table 24: Significance of students' change in LLA

To look at the significance of the changes made in LLA from the start of the course within each group, a paired sample T-test was carried out. It was found that the OFTG significantly improved LLA with five points on a -100 to +100 scale. Likewise, the ONTG made a significant 10-point improvement on a -100 to +100 scale. A four-point reduction on a -100 to +100 scale in LLA was significantly made by the CG which can be a result for the lack of training and technology. The

significant improvement made by the OFTG and ONTG over the course revealed the positive impact of technology on helping ONTG to make double the increase of OFTG.

A One Way ANOVA test was carried out on the change in LLA score to test the significance of the difference among the three groups and it was found highly significant (see table 24). The post hoc test (S-N-K) showed each one of the groups on a different column which revealed that the three groups are different from each other. The CG showed significantly less LLA after the course than the two groups; and the treatment groups made significantly different amount of increase in their LLA. This result goes in line with the results of the paired sample T-test above that the learner training led to a difference between OFTG and CG and that technology led to a difference between ONTG and OFTG.

An independent sample T-test was run on the change in LLA to test the significance of the difference between the treatment groups and it was a significant difference which supports the above results that technology made a difference in the improvement of LLA.

So far, I have quantitatively assumed LLA level for each individual and tried to identify the differences in the levels of LLA in the three groups of the experiment. The conclusions made from the quantitative work are tested using students' qualitative responses in the FG interview, one-to-one interviews, and guided reflective writings along with the researcher's online and offline observations (see section 4.10.7).

7.4 Results of LLA assessment model (qualitative data)

We can look at LLA from a positivist perspective based on all of the assumptions we made quantitatively to understand this construct, but there is interestingly another way of learning about it which is the interpretivist perspective using students' qualitative data. The quantitative LLA level was assumed based on the measuring scale and this assumption can be tested and explained using the qualitative data of four case studies. The principle for selecting these case studies is explained in sections 4.6.2 and 4.15.

Firstly, I test students' LLA scores by exploring whether these quantitative scores compare and contrast with their qualitative data (i.e. comparison at the macro level). Knowing who is the highest and the lowest students in their LLA according to the measuring scale allows me to see how that kind of measurement manifested itself qualitatively. I am able to see whether the high and low LLA students in the quantitative data are still high or low in the qualitative data. I could also get an idea about students' self-assessment capacity.

Looking at the two low autonomy students, Samia increased her LLA score greatly and her qualitative responses reported high LLA capacities which could be attributed to the impact of both technology and training (though she had lots of negative attitudes and beliefs), but I need to find evidence for this reported great change in LLA which contrasts with my observation of her learning performance. Maha's LLA score increased less than Samia and this could be due to the impact of being exposed to training only with no technology except for the superficial voluntary technology use she had.

Coming to the two high autonomy students, Lama's LLA score increased greatly perhaps because she started higher than the low students (i.e. Samia and Maha) and her qualitative [all sources] responses showed that she was influenced by both technology and training though she was not given technology in the treatment. However, Nora started with a lower LLA score than Lama and made less increase despite that she was expected to show a greater increase than Lama because the design of her treatment has both technology use and training and because her group showed a greater mean of enhanced LLA than the OFTG.

In fact, Nora's qualitative data [all sources] showed that she is able to learn independently and that technology helped her a lot in this respect which matches her absolute belief reported about her capacity to replace teacher with technology [interview]. Her LLA scores at T1 and T3 contrast with her control over learning as evidenced by the observation of her learning performance which suggests that there is an issue with her LLA score. Moreover, it was found that she tends to under-rate her performance in more than one instance in her qualitative data and this led to the conclusion that this could be the case with her self-assessment of the LLA components in the SRS. Reflecting on how LLA score was created, I realized that most of the components were measured by taking students' self-assessment on the SRS. I recognized that perhaps students' self-assessment in the LLA components led to a somewhat distorted LLA score.

These initial findings from the comparison of the four case studies at the macro level can be a form of Breen and Mann's (1997) mask of LLA and can illustrate the complexity of LLA (Benson, 1997, 2010, 2011; Sinclair, 1999a; Cotterall and Malcolm, 2015). 'Quantitative measurement largely depends on the self-reporting of students', but this is unavoidable because 'autonomous behaviour is not usually observable' (Murase, 2015: 41). Cooker (2012) gives the comment of one of her respondents that the use of several data collection methods can disclose intricate results and can avoid 'bias' (p. 167) Though I used multiple methods with different types to test the obtained LLA scores, I was unable to come to a reliable result. This was because both the quantitative (mostly) and qualitative data rely on students' self-report in the assessment. Yet, these initial findings from the macro-level comparison regarding the assessment of LLA of the four

case studies can completely change when the quantitative and qualitative data are mapped at the micro level of assessment. Three more steps for testing the quantitative measurement of LLA will be explained in the following paragraphs.

Secondly, to test the reliability of these initial findings from the quantitative and qualitative data of the four case studies at the macro level of measurement, I needed to identify which of the LLA components was assessed using a reliable method. Their language proficiency test scores (LPT) were gained by undertaking a standardised test and there was no self-report in these scores. Thus, LPT was used as the starting point for the detection of the actual change students were making in LLA. A diagram was drawn in Microsoft Excel to compare the change made by the four students in their LLA and LPT (see figures 8, 9, 10, and 11). Given that LPT scores serve as the most reliable measure for the change made in LLA and that LPT is said to be developing in parallel with other LLA capacities (Morrison, 2005; Oxford, 1999; Benson, 2010; Sinclair, 1999a), the change in LLA score should match the change in LPT. If they did not, then the obtained score for LLA was either under-rated or over-rated as they are based mainly on students' self-report.

From the diagrams on the change in LLA and LPT of the two high autonomy students (see figures 8 and 9), it was found that the change made by Nora in LLA and LPT scores was working to some extent in the same way which suggests that the change in her LLA score is true, though slight under-rating occurred in some components (see Appendix 21). Looking at Lama's diagram, the zero change made in LPT is completely different from the huge change she made in LLA score and the two lines are not moving in the same direction. Therefore, Lama's change in LLA score is thought to be over-rated. She either over assessed her competence or was wearing "the mask of autonomy".

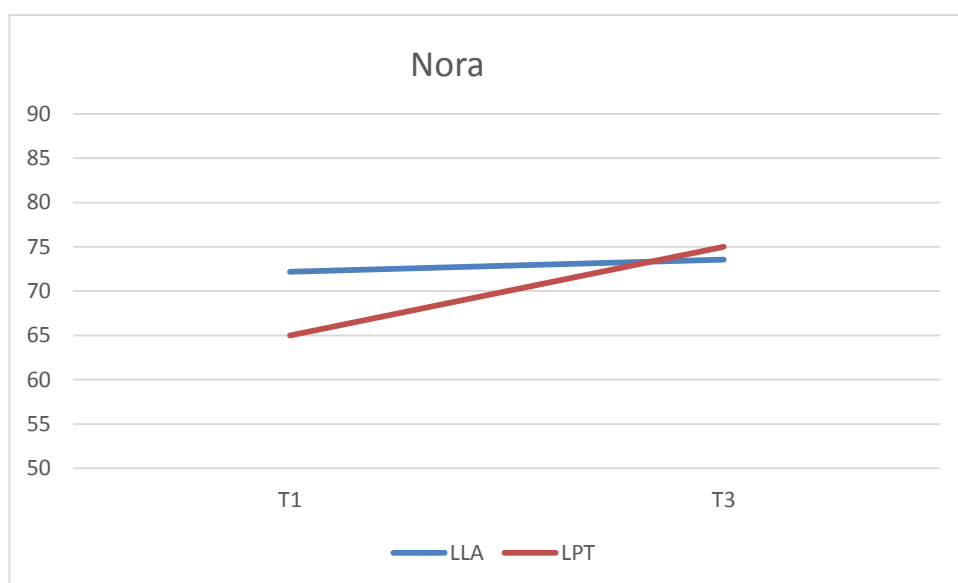


Figure 8: Nora's change in LLA and LPT

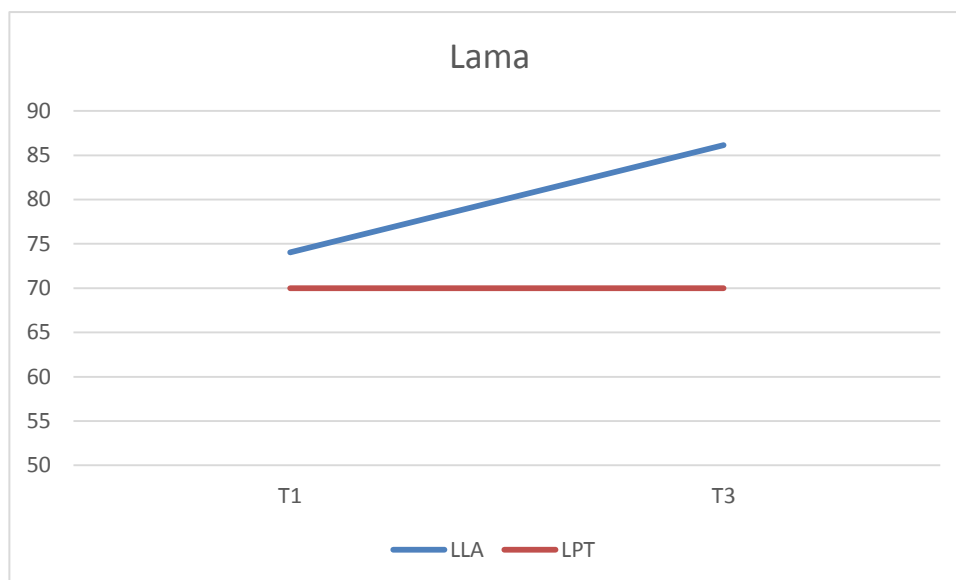


Figure 9: Lama's change in LLA and LPT

Looking at the diagrams of the two low autonomy students (see figures 10 and 11), it was found that Samia made a 5-point increase in her LPT by the end of the course and surprisingly, a 25-point increase in LLA. The two lines are not working in a similar way at all which suggests that her self-assessment in the components composing her LLA score was over-rated. However, the change made by Maha in her LPT works to some extent in a similar way to the change she made in LLA which suggests that the score she obtained in LPT and LLA may be correct, though some over-rating occurred in some of the components. Then a question occurs as to why Lama and Samia over-rate their LLA scores. More analysis is required here to find a convincing answer to this question.

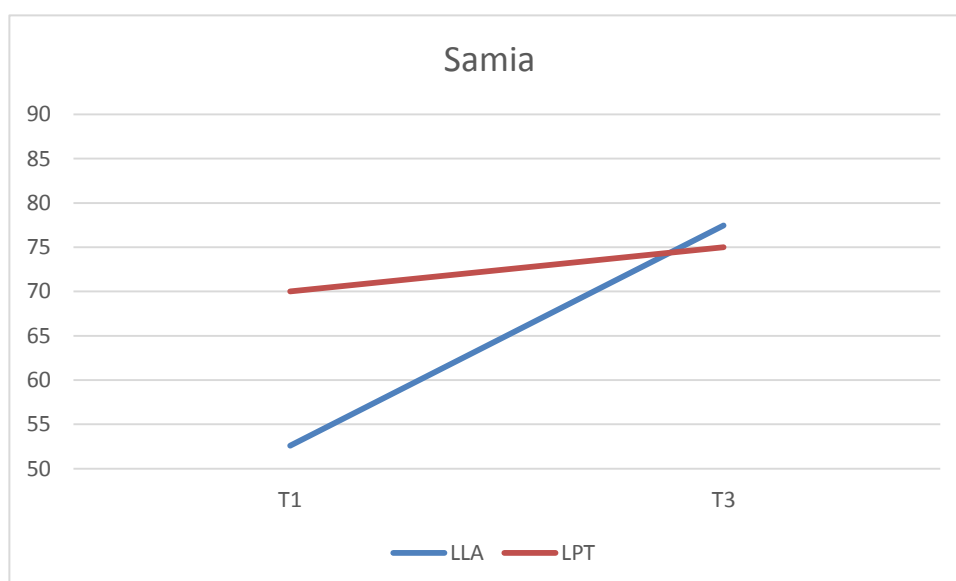


Figure 10: Samia's change in LLA and LPT

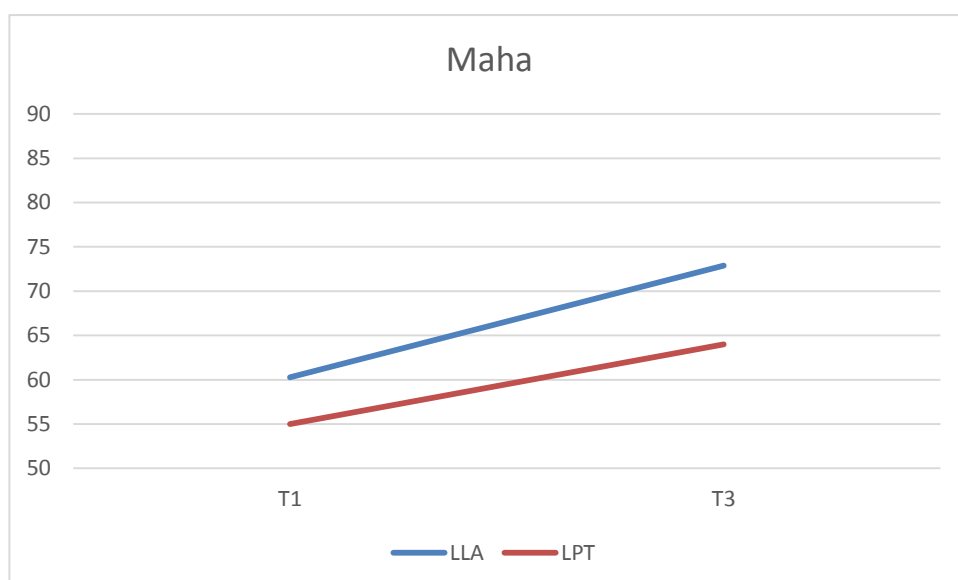


Figure 11: Maha's change in LLA and LPT

Thirdly, another source of evidence for the actual change in LLA was found by comparing students' quantitative and qualitative self-rating (i.e. comparison at the micro level) in the other six components of the LLA score (i.e. MBL, ALA, MBT, ATU, PSU, SPR). This was done to detect any chance of over-rating or under-rating in the quantitative measurement of the components making the final LLA scores. Details about this micro-level comparison will be given (see section 7.5) (see tables 35, 36, 37, and 38 in Appendix 21).

Fourth, conclusions made about students' self-rating of their overall LLA were tested using the triangulated data sources to look at their willingness, capacity, and engagement in three dimensions: metacognitive skills, pedagogy (training), and technology use. Details about the result for this step of testing will be provided in the following section (see section 7.5).

7.5 Testing the learner autonomy levels for the case studies

7.5.1 Validating Samia's LLA (low ONTG)

From the second step of the testing of the measurement scale, I concluded that Samia may have over-rated her performance. To test this conclusion, the third step of testing was undertaken where the score she obtained for each of the LLA components in the SRS was imported from SPSS and was compared with her qualitative responses in relation to each of the components. It was found that the majority of her qualitative responses were in contradiction with (less than) the scores she had in the self-rating of these components on the SRS form (see table 35 in Appendix 21). This contradictory result was caused by Samia's mistaken self-assessment when she was self-rating these components in the SRS which resulted eventually in a mistaken LLA score.

Therefore, it was concluded that the change made in her LLA score is not real as she was over-rating herself in many of the LLA components which would over-rate the overall score of her LLA. She was expected to achieve positive changes in many aspects due to the affordances of technology and to the provided training, but she did not use the given technology and training efficiently and her participation to the training was low in quantity and quality. I would come up with incorrect understanding of LLA if I counted only on her LLA score. This confirms Benson's (2010, 2011), Murase's (2015), and Sinclair's (1999a) hypothesis that quantitative measurement is not enough to decide on students' capacities for autonomous learning.

As part of the fourth step of the testing process for the measurement scale, metacognitive skills (i.e. reflection, planning, learning management) were considered as they may add to our understanding of how students' LLA was improving. I used the qualitative codes (reflection, planning, and learning management and deadlines) to explore students' willingness, engagement, and capacity to use the metacognitive strategies. Also exploring students' willingness, engagement, and capacity to deal with the features of the provided training (e.g. task types and organization, relevant learning content, discussion tasks, group and pair work, and learning strategies) can make a difference in LLA measurement (see section 6.3 for more details).

To sum up, Samia's medium reflectivity level suggests that she could have improved in reflectivity if she was using the given technology efficiently and if she had better willingness about it and this is supported by her reported MBT that technology helps doing the reflection. Maintaining the same reflectivity level, inability to plan and manage learning, and negative behavioural attitude to planning and to reflection indicate that she might have been progressing in LLA, but she should not have made the great progress she perceived in her LLA. The evidence from the fourth step of the testing process supports the conclusion I had from the previous testing steps that she was over-rating herself in many of LLA components.

Low engagement with task types, discussion tasks, learning strategies, medical English content, and group work reveal her low engagement with the provided training. Additionally, inability to work in group, lead the group, and take any assigned role within the group show her limited capacity which could have improved if she were more engaged with the opportunities in the training. She was not engaged with the given pedagogy nor with the technology. Her negative attitude and belief about technology and about the elements of the training may have led to her low engagement with them. Students' attitudes and beliefs affect their receptiveness of and involvement in learning (Littlewood, 1997; Sinclair, 2000a; Kohonen, 1999, 2012 cited in Everhard, 2015b; Chan, 2001; Everhard, 2015a). This is further evidence for her over-rating in the self-

assessment of many of LLA components and accordingly in LLA score and they suggest that she was going to do better if she were more engaged with the training.

7.5.2 Validating Nora's LLA (high ONTG)

Given that Samia's qualitative-quantitative assessment of each LLA component (in step 3) showed contradiction, I decided to map the quantitative and qualitative self-assessment of the rest of the students in each LLA component. As mentioned above in the second step of the testing process, similar slight improvement was found in LPT and LLA on Nora's diagram of change (figure 8).

In the third step, the two types of Nora's data in each LLA component were charted (see table 36 in Appendix 21). Her quantitative self-rating in all of LLA components except MBT was slightly lower than what she reported in her qualitative responses and what my observation suggests. This suggests that she might have under-rated herself in the quantitative assessment of the six LLA components in the SRS form. Therefore, a greater change in her LLA score should have been made which answers my earlier question about the contrast between the slight improvement she made in LLA score (only two points) as compared to the 12-point increase made by Lama.

As part of the fourth step of the testing process, I looked at Nora's data relating to the three dimensions of metacognitive skills, pedagogy, and technology use (see section 6.3). Starting with a high but unchanging capacity to work in pair and in group and starting with a high capacity to hold discussions which led to an increased language proficiency by the end of the course can indicate that she started high in all of these capacities and either slight effect or none was reported in these capacities in relation to the given pedagogy. Starting the course with high capacity in the three metacognitive strategies and slightly increasing in reflectivity is evidence for the high LLA level she started with and the slight increase she made in LLA by the end of the course under the effect of the training she received.

Being positive about learning strategies, pair and group work, discussion tasks, and learning medical English suggests that she was fully engaged with the training. Nora's positive attitude and belief about task types and organization of the material given in the training and her suggestion to give this material to the coming generations of students reveal her good engagement with the training. Saying that the given opportunities in the training rather than technology encouraged her to use language shows that the training was more important to her. She was positive about the design of the training and was capable to deal with it and this led to her engagement with the training. The same case was with Lama, as it will be explained in the coming section, that she was engaged with and positive about LLS (i.e. pedagogy) which suggests that they both were high in

LLA and were receptive to the training. Yet, the actual improvement they made in LLA (as it was reported and observed in the qualitative data) was different and this may be due to the different modes (online vs. offline) through which the training was delivered to each one of them.

7.5.3 Validating Lama's LLA (high OFTG)

Because of the different amount of progress Lama made in her LPT (no change) and LLA scores (great improvement), as shown on the diagram drawn for step 2 of the testing process of the measurement scale, I decided to look at how her qualitative and quantitative self-assessment of each LLA component were working (see table 37 in Appendix 21).

In step 3, Lama's scores show an increase in all of the LLA components. However, this increase is expected to be equal to or less than the increase made by Nora because of the nature of their qualitative responses relating to these components and because of the difference in the delivery mode. Lama's ATU and MBT are not expected to improve greatly as they did because she was not given technology as a delivery mode. She was only given a stimulating training which sometimes sends her to search for information. She reported the need for the teacher and the need for reassurance and she attributed that to the lack of opportunities for technology use. Additionally, her qualitative responses disprove the high self-rating she made in the SPR and SRS forms. Therefore, Lama was over-rating herself in all of the components and accordingly in LLA score. This is another evidence for Nora's under-rated self-assessment in several LLA components and in LLA. Further evidence from other perspectives will be presented for Lama's over-rating as part of step 4 of the testing process (see section 6.3.1).

Step 4 shows that Lama was positive about and was engaged with all of the training features, e.g. LLS, task variety, role-play tasks, discussion tasks especially the general topics and those requiring information exploration, medical content, group work, pair work, and different roles performed by different members in the small group. All of these provide evidence to expect that her LLA has improved by the end of the course.

Lama reported a good capacity related to discussion in English as well as confidence that she can create opportunities for language use. She was capable to use medical English when speaking with doctors in emergencies, to work in group or in pair, and to manage work within the group as a leader. Her capacity to work in pair increased by the end of the course. Having good capacities and some improving ones to deal with the features of the training can suggest that she has benefited a lot from the given training and therefore has enhanced her LLA.

However, the positive attitude and the good capacities she reported about metacognitive strategies made me expect that she will be engaged with the training, but she reported limited engagement with these high skill. The positive attitudes and beliefs reported about reflection, planning, learning management and deadlines suggest that she is open to learn and practice these skills, yet her capacity in all of these metacognitive skills were not improving. Her average engagement with planning and her reduced engagement with reflection and learning management can be linked with the good capacity she reported about putting different plans and with her decreasing capacity of reflection, meeting deadlines, and learning management when the workload of her study started to increase. Metacognitive strategies are said to be important for autonomous learning (Hurd, 2000a in Hurd, 2008b; Hurd, 2008b). Hence, given that reflectivity is one of the fundamental concepts in the enhancement of autonomous learning (Little, 1999a, 2001, 2003a; Oxford, 1999; Hurd *et al.*, 2001; Schwienhorst, 2008; Dam and Legenhausen, 2010; Lamb, 2010; Benson, 2011; Murphy, 2015) and that Lama has a medium reflectivity, I conclude that Lama's LLA level is not as high as Nora's but she was over-rating herself in many of LLA components.

The low engagement with metacognitive strategies can indicate that Lama's LLA did not improve a lot because no improvement happened in the metacognitive skills which are responsible for learning management. Consequently, the change in her LLA score became greater than Nora's who is very high in reflectivity and very capable to plan and manage learning. This is another evidence for Lama's over-rating in the self-assessment. Her LLA score does not reflect the actual level she reached as evidenced by her medium reflectivity and low engagement with planning and learning management.

Therefore, I can claim that Lama (a low performer only when compared to Nora) over-rated her LLA which should not be as big as Nora's (high performer) based on all of the evidences which reflect the opinion in the literature that says low performers tend to over-rate their self-assessment and vice versa (Oscarson, 1984; Brantmeier and Vanderplank, 2008; Hung *et al.*, 2016). This difference between Lama and Nora in relation to self-assessment and LLA can be seen in Everhrad's (2015a) expression of the link between reflection, self-assessment, and LLA. Accuracy in self-assessment is a pre-requisite for autonomous leaning (Blanche, 1988).

7.5.4 Validating Maha's LLA (low OFTG)

The change made in Maha's LPT and LLA as indicated in the diagram drawn for step 2 of the testing process can be further tested, for step 3, by comparing her qualitative and quantitative data in each of the LLA components (see table 38 in Appendix 21). This step of testing showed

that some of the components were over-rated by Maha while others were found to be accurately rated. This over-rating supports my claim that Maha was slightly over-rating herself in some of the components and accordingly in LLA change.

In step 4, further evidence for Maha's LLA improvement will be explored from her qualitative data (i.e. interview and RWFs) about her willingness, engagement, and capacity to use the metacognitive strategies. To further test the reliability of her LLA score, those three aspects will be discussed in relation to the features of the training (see section 6.3).

Maha's attitude towards deadlines and reflection was found positive, but nothing was said about planning. A low capacity was reported about time and learning management but a good one about reflection. However, the assessment of her reflection and the observation of the quality of her responses in the interview and in her RWFs showed a medium and decreasing level of reflectivity. Nothing was said about her engagement with these skills but perhaps her low reflective capacity led to her low engagement because reflection is a fundamental capacity for LLA development (Little, 2001; Hurd, 2008b).

The fact that she had low or medium capacities about metacognitive strategies and that they are decreasing can give other evidence that her LLA should not have increased with (13 points) as she self-assessed it. Her LLA was over-rated because low capacity about metacognitive skills implies low LLA as was observed by Hurd (2000a) in Hurd (2008a) and Hurd (2008a). It may also indicate that she was not very engaged with the training to get the benefit of its design and content to enhance in LLA.

Maha's attitudes towards the elements of the training were mixed. She was negative about task types and organization, learning strategies, and leading the group, but was positive about discussion tasks, medical English content, group work, and having different roles. She was engaged with most of the elements of the training, e.g. discussion tasks, medical English content, group and pair work, but was less engaged with task types and organization. She had a good capacity to discuss with group members though she was not good at speaking, to use medical English only in classroom, to work in pair (unchanged), and to work in group (increasing). Her positive attitude towards most elements of the training suggests that she accepted the training and might have been engaged with it based on what is known about the effect of students' attitude on their involvement in autonomous learning (Littlewood, 1997; Sinclair, 2000a; Kohonen, 1999, 2012 cited in Everhard, 2015a; Chan, 2001; Everhard, 2015a).

To avoid the potential problem of the mask of autonomy, Benson (2001) recommends looking at the authenticity of the behavior and what they tell us about the actual capacities. Maha's

engagement only with some features of the training shows that she might have benefited even if it was not the most benefit. The good capacities to deal with the training features, though limited with certain contexts in some of the features (e.g. use of medical English), and the increased capacity to work in groups may show that the training had a positive effect on her LLA.

In step 3 of the testing process, I claimed that Maha had a mixture of reliable self-assessment of LLA components in the SRS with unreliable ones and this claim can be explained in step 4 of the testing process. Step 4 provided evidence for Maha's mixture of low and good capacities, negative and positive attitudes, and low and good levels of engagement with the different features of the training. Also it gave me evidence for her low and medium capacities about metacognitive strategies which were decreasing. Therefore, this evidence for her low engagement with some of the features of the training, in particular with reflection, and for her low and medium metacognitive strategies reveal that her LLA score should not have improved as much as it did. The fact that engagement with reflective processes is known to lead to effective and autonomous learners (Little, 2003a; Schwienhorst, 2008; Dam and Legenhausen, 2010) confirms that her self-assessment of some LLA components was accurate but others were overrated.

7.6 Conclusions about quantitative LLA measurement

7.6.1 Change versus baseline of LLA measurement

One of the things found in this study is that it is important to talk about the change in learning as well as the base line because although the participants (three groups) in this study were sampled with consideration of the similarity and equality in language proficiency level (i.e. pre-intermediate level), students came in at different ability levels, e.g. attitude, motivation, learning management, and reflection. The groups within the same level of language proficiency have different levels of abilities. It just happened that the OFTG was slightly more able when they started out. This can mean that when they increased proportionally over time, they became more able than the ONTG at the end of the course. The minimum LLA level in the OFTG was one level higher (C2) than the ONTG's (C1) at T1 and its maximum LLA level was one level higher (E2) than the ONTG's (E1). The CG started with the same LLA level (C1) as the ONTG and ended one level less (D2) than the ONTG. Although the OFTG increased less on average than the ONTG, the ONTG's top student at T3 (E1) is not as high as the top in the OFTG (E2).

Therefore, I conclude that the important thing is not where they started and where they ended up, but how far they have moved and their level of LLA at the beginning is not a concern. It is what happened over the course of the research that we focus on. It is worth saying that the CG's

average change in LLA is (-4). They slightly decreased their LLA level (1-point change) which means that there is no remarkable progress in their LLA.

7.6.2 Quantitative LLA change after the intervention

From the results of the quantitative LLA measurement in the three groups, there is not a huge difference between the ceiling of LLA scores (the level of the highest scoring) in the ONTG at T1 (82) and T3 (85), but also not a big difference between the ceiling of the OFTG at T1 (88) and T3 (93). However, the ONTG's base increased whilst the OFTG's base remained the same. That means that the variability within the ONTG was decreasing over the time which indicates that they are all moving in the same direction of change and that more students are making change in the ONTG than in the OFTG. The ONTG became more homogenous when the LLA scores of the bottom increased more than those of the top. Those students who were at the bottom in the ONTG made greater change than with those at the bottom of the OFTG where everyone is generally just slightly increasing. Regardless of the reliability of students' self-assessment to obtain their LLA scores, this difference in the change between the treatment groups suggests that technology was more effective than the training to cause change in greater number of students in the ONTG than in the OFTG.

It is concluded that the intervention was increasing the levels of students' LLA who are sitting at the bottom of the treatment groups, but those sitting at the top remained similar throughout the course of the intervention. This is explained by the progress made by the low autonomy students in both groups which was much greater (two bands) than in the high autonomy students in both groups (one band). The agreement between what the overall picture of the three groups and the selected case studies say about LLA change leads to posing questions about the accuracy of self-assessment skill in both low and high autonomy students (see sections 7.5 and 2.11.2.2).

Overall, almost everybody (in the ONTG) had a positive score and increased their levels of LLA except three students who decreased in the ONTG and, interestingly, a few more students (6 students) were decreasing in the OFTG. The average LLA change suggests that the ONTG (10) became more autonomous over the time twice as much as the OFTG (5). The negative number in the control group (-4) may indicate that students are getting more dependent on the teacher or are unaware of what they are rating themselves at. They were not excited to help the research or to engage with the research work after the intervention. However, we need to explore whether anyone of the components of the measurement scale is not working in the qualitative approach. This can be done by looking at how each of the components of the scale is working in the qualitative data and whether they work in a similar way.

7.7 Relationship between quantitative and qualitative assessments

An interesting contribution to the area is the exploration of this relationship with a critical assessment perspective when something is studied quantitatively versus qualitatively. To some extent, there is a disconnection between what the quantitative data and what the qualitative data are saying about LLA of the four case studies examined in the case study e.g. Nora's progress in LLA. Students' quantitative self-rating in the individual components of LLA in the SRS form highlighted the phenomenon found in LLA quantitative measurement (overall LLA scores) in that people who had high levels of LLA at the beginning do not increase very strongly over time whilst we see a greater increase at the lower end. However, looking at what each of the case studies said in the qualitative data about these components, it was found that Nora's LLA was high and perhaps she should have shown a greater increase in her LLA score. It was also found that LLA of Lama and the two low autonomy students (Samia and Nora) was not as high as their LLA scores were showing; and that they should have shown a lower increase in their LLA scores based on the qualitative triangulated data of these four case studies. This is linked to the issue highlighted by (Oscarson, 1984; Brantmeier and Vanderplank, 2008; Hung *et al.*, 2016) in that high achievers tend to under-rate their performance while a tendency for self-overrating is common among low achievers (see sections 7.5 and 2.11.2.2).

This disconnection is not about the reliability of the quantitative measurement because a variety of procedures have been undertaken to ensure the quantitative measurements are as reliable as possible. For example, all the items included in the questionnaire were tested, each individual item was tested to ensure that they map onto what they are meant to be measuring, and the actual data at the ground level for every individual question was looked at. After ensuring that the quantitative side of the assessment is as reliable as possible, the focus was to do the same for the qualitative side.

Yet, it is about two different ways of exploring something. It is completely natural that some elements of the quantitative and the qualitative assessments are not the same because we are asking the question we are after in a different way. The criterion for the self-assessment done in the qualitative data are not the same as the criterion used in their quantitative data. In the quantitative measurement of LLA, it was clear to the students that there was some sort of rating in which they might have given themselves higher scores, but in the qualitative data they were asked to talk about their experience in language learning, how they feel, what they did. They were not aware that they were declaring things about themselves which would be used to rate them.

The quantitative measurement used learners' self-assessment to measure observable and non-observable constructs. The qualitative assessment revealed the importance of combining both

types of assessment methods to be able to capture the authenticity of the observable and non-observable autonomy-related constructs.

7.8 Weighting the components of the LLA assessment model

As mentioned in section 4.4, the qualitative approach would help to understand LLA improvement and to test the reliability of students' self-assessment (i.e. the authenticity). Also, one of the aims of the mixed method approach for this study is to explore whether or not and to what extent the qualitative data will demonstrate the quantitative ratio between all of the concepts. The focus here is to examine whether the qualitative responses from all of the sources map onto the assumption of the quantitative LLA (i.e. all of the LLA components are of equal importance to students). For instance, the LLA components will be all equally important in the qualitative assessment if students (high and low) in each of the treatment groups (ONTG vs. OFTG) show a very similar profile in the qualitative assessment to the mean of change of their own group. We could find out that the quantitative measurement is either right or that there are some concepts of the qualitative LLA assessment that contrast with the quantitative. This contrast demonstrates a critical aspect of the assessment because it will help to reveal if these aspects are less important for those high or low LLA students or if something has influenced students' qualitative self-report about the components.

This section is concerned with the examination of the relative importance of the components included in the LLA measurement scale from the qualitative and quantitative approaches. To carry out the weighting of the qualitative components, I used what each of the four case studies was saying about each of the LLA components for the comparison with the mean of change for the group they belong to (i.e. ONTG and OFTG) in each of the LLA components. This section presents the details of the weighting process and the results for each of the LLA components followed by a conclusion about this weighting to reveal the match or mismatch between the quantitative and qualitative ratio between the LLA components.

7.8.1 Self-proficiency rating

The mean for the change made in students' SPR was greater among the ONTG (+13) than among the OFTG (+4) (see table 5 in section 5.2.1.1). The qualitative data of Nora (ONTG) showed that she improved in writing and grammar when Lama (OFTG) remained with weaknesses in writing and speaking. Samia reported no weaknesses and an improvement was reported in Maha's weakness in speaking and writing. The four students agreed about weaknesses, but the two ONTG

high and low (Nora and Samia) reported an improvement when the two OFTG high and low (Lama and Maha) reported no change in their problematic areas.

This result from the qualitative SPR reflects the greater mean of the ONTG versus the smaller mean of the OFTG. This shows that this component worked similarly in both approaches of the investigation (quantitative and qualitative) for all of the students whether high or low autonomy. Having greater enhancement in language competencies of the ONTG than of the OFTG suggests that the change in language competencies can be achieved faster when technology is used as compared to no use. However, students' data about LPT component revealed that this difference in SPR is not directly related to technology but is related to their confidence as a result to technology use (ONTG) versus no use (OFTG).

7.8.2 Language proficiency test scores

A similar increase was found in students' LPT scores in the ONTG and the OFTG (+7) (see table 7 in section 5.2.1.3). Students' qualitative data revealed a progress being perceived in Nora's language proficiency whereas a marginal improvement was perceived by Lama. An increase was also reported by Samia when no mention was made by Maha about this aspect of learning (see section 5.2.1.4). The two groups were making a similar change in LPT scores and it was expected to have similar results in the qualitative responses about this component, but the ONTG showed a perception of improved proficiency when the OFTG did not. This can bring us back to the difference in confidence level between the ONTG and the OFTG as a result of their use of technology in language learning (see section 5.2.1.7).

This component did not work similarly in both approaches of the investigation (quantitative and qualitative) for the OFTG because their qualitative data did not reflect the increasing mean of change of their group. This difference between the treatment groups highlights the role of confidence in developing students' LLA capacities which suggests that LPT component is as important for the quantitative side of assessment as it is for the qualitative side. It also tells us that giving the training with opportunities to practice language outside the classroom would help to improve students' LPT but that technology use would be more influential to show a difference in the confidence level than to make a remarkable difference in the LPT of the two treatment groups. Technology made students able to talk confidently about their learning progress (see section 5.2.1.4).

7.8.3 Perceived strategy use

The mean of the change made by the ONTG in their PSU (+6) was slightly greater than that of the OFTG (+7) (see table 17 in section 5.2.1.12). Looking at the qualitative data of the four examined case studies, it was found that Nora increased her PSU with greater awareness and Lama reported more use of some strategies with quitting others and observation did not show her strategic competence (see section 5.2.1.13). Samia reported no change in PSU and better awareness, but lack of engagement was observed. Maha reported more PSU but low engagement and low use were observed.

The difference between the treatment groups in the mean of PSU change can be seen in the changes made by the two high autonomy students but not the two low autonomy students. Nora and Lama were showing this difference in the means of the two groups as the observation and their qualitative responses showed that Nora was making greater increase in PSU than Lama. Samia and Maha can be an exceptional case because they were not engaged with strategies during the training which affected their PSU. Low engagement can be influenced by other factors such as willingness which means that they need a special treatment before developing their LLA (see sections 2.6 and 7.11).

This component is important for the assessment of LLA because the qualitative assessment of the high autonomy students reflects the mean of PSU change of their own groups, and because it underlined the impact of students' willingness on their PSU which will eventually impact their LLA.

7.8.4 Critical reflection

This component was assessed qualitatively only but the qualitative data was analysed in two different ways (see section 4.11.6). Nora reported a good capacity and a positive attitude and belief about reflection; the observation showed high reflectivity just like what the content analysis said when the RWFs were assessed (see section 5.2.1.13). Lama reported a good capacity to reflect with a positive attitude and belief about reflection, but a reduction in doing it lately. This reduction goes in line with the reduction in the assessment of her reflectivity in phase3. Samia's reported inability to answer the why question, complaints about having to do reflection, low observed reflectivity, and negative attitude and belief about reflection all together reveal her medium unchanged level of reflectivity as a result of the content analysis (see section 5.2.1.13). Maha reported a good reflectivity and a positive attitude and belief, but very low reflectivity was observed and decreasing medium level was found from the content analysis in her RWFs.

The mapping here was done by comparing what the students reported (qualitative assessment) about their reflectivity and how their performance in the RWFs was rated (quantitative assessment) across the three phases of the study (see tables 31, 32, 33, and 34 in Appendix 20). It was found that the two assessment approaches of the high autonomy students are more compatible than those of the low autonomy students which indicates that they need more training to self-assess and to reflect on learning (see section 2.6 and 7.11).

This component is important for both sides of the assessment of LLA because it worked similarly in both approaches for those high in LLA and because it showed the impact of students' self-assessment capacity on their reflectivity.

7.8.5 Attitude towards LLA

The quantitative side of the assessment showed that the mean for the change in ALA was greater among the ONTG (+22) than among the OFTG (+18) (see table 9 in section 5.2.1.5). A positive ALA was reported by Nora and Lama, but the latter was unconfident. Samia had a very negative ALA and a positive and unconfident ALA was expressed by Maha. The two OFTG students (Lama and Maha) were positive but unconfident about LLA which can explain the smaller mean of increase that the OFTG had. The positive ALA of Nora works in line with the greater mean of increase made by the ONTG, but the very negative attitude of Samia is exceptional and does not seem to be working in the same direction as the majority of the ONTG. This extreme case with negative willingness (attitude) (Dam, 1995) may have resulted from personality differences (i.e. disposition) when she was resisting any change in the learning environment as was observed by (Benson and Cooker, 2013) and perhaps from the low skills and experience she had with technology use as was observed by (Thang and Alias, 2007; Le, 2013).

Overall, this component worked similarly in the quantitative and qualitative LLA assessment because it worked with all the case studies except Samia for justifiable reasons and also because it demonstrated the impact of skill in technology use, willingness, and dispositions on students' LLA.

7.8.6 Motivational belief about LLA

The quantitative measurement revealed a slightly greater mean for the enhancement in students' MBL among the ONTG (+3) than it is among the OFTG (+2) (see table 11 in section 5.2.1.6). Nora and Lama had a positive MBL but the latter was unconfident. Conversely, Samia and Maha had a negative MBL. The positive MBL reported by the two high autonomy students (Nora and Lama) reflects the increase happening in the means of change in the self-rated MBL of the two groups and Lama's low confidence coming from the qualitative data illustrates the difference in the

means of both groups. The negative MBL of the two low autonomy students suggests that those students are a special case in LLA assessment because it is not easy to change their negative MBL in a short time and they need a special care before developing their LLA (see section 2.6 and 7.11).

This result shows that this component is important for the quantitative and qualitative parts of the assessment because it worked with high autonomy students in both approaches and because it highlighted the impact of students' willingness (belief) on their LLA enhancement (Dam, 1995).

7.8.7 Attitude towards technology use

The mean for the change of ATU showed a slight reduction in the self-rating among the OFTG (- 2) and a remarkable increase among the ONTG (+11) (see table 13 in section 5.2.1.8). Nora and Lama reported a positive ATU. Samia expressed a positive affective ATU but a negative behavioural ATU, whereas Maha showed only a positive affective ATU and no mention of behavioural ATU (see section 5.2.1.10). The mixed ATU or having only an affective ATU by the two low autonomy students suggests that they are exception and they need a special treatment to enhance their ATU before giving them the training and to help improve their reflection and self-assessment capacities.

This component is equally important for the quantitative and qualitative sides of the assessment because the qualitative data of the two high autonomy students in this component worked in a similar way to the means of ATU change of their groups and because it stressed the impact of willingness (attitude) (Dam, 1995), capacity to reflect and to self-assess on the enhancement of students' LLA (Little, 2003a; Murphy, 2015).

7.8.8 Motivational belief about technology use

The mean for the change in students' self-rating of their MBT also marginally reduced (- 0.5) among the OFTG and highly increased among the ONTG (+12) (see table 15 in section 5.2.1.9). Nora and Lama had a positive MBT but the latter believes that it has no effect on language proficiency. Samia had a mixture of a positive and negative MBT, but Maha had a positive MBT (see section 5.2.1.10). The marginal reduction in the mean of the OFTG's MBT indicates that they have not changed in their MBT because they were not given technology in the training. The two OFTG students (Lama and Maha) are generally positive in their MBT which can reflect the unchanged MBT of the OFTG. Nora's very positive MBT with the varying aspects tackled in the discussion of her MBT can show the dramatic increase in the ONTG's mean of.

Samai is behaving differently from what was expected from the students in her group and differently from what the mean of the ONTG is showing. This can be related to her low willingness (belief) as was suggested by Dam (1995), personality effect (i.e. disposition) as was observed by Benson and Cooker (2013), or her low skills and experience in technology use as was noted by Thang and Alias (2007) and Le (2013) which minimises her engagement with the given environment.

This component is important to both approaches of the LLA assessment because it worked similarly in both quantitative and qualitative assessment for three case studies except for Samia for satisfying reasons and because it illustrated the factors that can influence students' LLA development, e.g. willingness (belief), disposition, and experience in technology use.

7.8.9 Result of the weighting for LLA measurement components

All of the eight components of the proposed LLA measurement scale worked similarly in the quantitative and qualitative data which led me to conclude that the equal weighting given to these components in the quantitative measurement is still applicable to the qualitative assessment. The qualitative data of the four case studies mostly worked in line with the mean for the group they belong to in each of the LLA components except in four components, i.e. PSU, critical thinking, MBL, and MBT.

In these four components, the qualitative data of the low students in both ONTG and OFTG did not agree with what the means of their groups were saying and this confirmed my conclusion that the two low autonomy are exceptional. They need a special care to enhance their attitudes, beliefs, ability to reflect, ability to self-assess, and ability to use technology before giving them the training. They need preparation to make them ready to accept the technology and the training and ready to self-assess their learning.

7.9 Link between theory and LLA enhancement and assessment models

This section presents the theoretical relationships: relationship between the enhancement model and the definition of LLA adopted in the current study, relationship between the assessment model and the definition of LLA, and finally relationship between the two models for the enhancement and for the assessment.

7.9.1 LLA enhancement model and theory of LLA

The enhancement model which is proposed in this study informed the training provided to students (see model in section 2.12). This enhancement model aims to answer the ‘HOW’ question about the capacities of autonomous learners while the ‘WHAT’ question is demonstrated in my definition to LLA in section 2.2 To visualise the link between the theoretical constructs related to LLA and their implications in the proposed model for the enhancement of LLA, see the diagram in figure 1.

7.9.2 LLA assessment model and theory of LLA

The model proposed for the assessment of LLA in this study encompasses a number of components to be measured quantitatively and assessed qualitatively (see section 3.7.4). These components are related to the theoretical concepts which are discussed as the fundamental concepts associated to the construct of LLA (see section 2.2). The implications of my definition for LLA in the proposed assessment model are demonstrated in the diagram in figure 1.

7.9.3 The models of LLA enhancement and assessment

There are a number of points where the proposed models for the enhancement and the assessment meet:

First, the continued implementation of the three principles of the proposed LLA enhancement model established a ‘learning community’ showing both learning outcomes (‘how much is learned’) and learning process (‘the value that learners attach to what is learnt’) as observed by Little (2001: 53). Likewise, the assessment model tests these two perspectives of learning using quantitative and qualitative methods.

Second, the enhancement and assessment models proposed in this study seek to solve the mystery about autonomy and assessment and to link them together with language learning.

Third, they worked together to produce an understanding of the nature of the construct of LLA.

Fourth, the assessment model helped to reinforce the effectiveness of the proposed enhancement model and illustrated how LLA can be promoted.

Fifth, reflection was used as the cohesive for the enhancement and assessment of LLA components which links the two proposed models. Reflection was used in this study to integrate quantitative (summative) self-assessment with qualitative (formative and summative) self-

assessment with the learning advisor rather than using only one of these approaches to self-assessment.

Sixth, self-assessment was helpful for students to enhance LLA and for me (as a researcher) to identify their LLA level based on their own self-assessment capacity.

Seventh, both models focused on language proficiency, one from the enhancement perspective (TL use) and another from assessment perspective (language proficiency) (see figures 1, 3, and 5).

7.10 Factors influencing LLA enhancement

As mentioned before, the mixed approach to assess LLA which was carried out in this study helps me to enhance understanding of the nature of the construct of LLA, the processes by which students develop their LLA, and the factors that might influence students' LLA. In this section, I link the evidence I found from the data with what the literature says about the factors that can influence students' LLA enhancement. These factors can be the lack of / low capacity in one of the components of the assessment model or they could be the lack of / low capacity in a 21st skill (e.g. technology use in learning). The way to deal with these factors will be presented afterwards. This section brings us back to the theoretical framework of this study (the theoretical concepts related to the LLA construct).

7.10.1 Capacity in technology use

It can be said that students with greater capacity to use technology in learning are more encouraged to use technology in language learning. Nora (high ONTG) had a great capacity at technology use and was engaged in using it which led to improved LLA. Lama (high OFTG) was also good at it and was engaged in its use though it not integrated in the training given to her and she improved her LLA.

Samia's low skill at technology use adversely affected her ALA and MBT (Thang and Alias, 2007; Le, 2013). She had a very negative ALA and she was resisting any change in the learning environment. Her negative MBT minimised her engagement with technology. Her low capacity to use technology along with her negative ALA and MBT led to low engagement with technology which affected the amount of increase she should have made in LLA (if her self-assessment were accurate).

This is not to say that lower autonomous students would not be interested to use technology because they might have a good capacity to use technology which will help to develop LLA, e.g. though technology was not included in the training provided to Maha, she had a good capacity

and positive actions about technology use outside the classroom which would have improved her LLA if there were no other factors. Nevertheless, her limited voluntary technology use did not help her to make a great improvement in LLA because her engagement with the training was low. This is because of her negative willingness (attitude and belief) to learn autonomously and to engage with many of the training features.

7.10.2 Confidence

The significant difference in SPR across the three groups can mean that the effect of training and technology given to the treatment groups helped them to make a different change in language competences from the CG's. However, the three groups showed no significant difference in LPT change because they were all developing in their LPT, though slightly differently, whether they were given training or not. Confidence in reporting progress for different reasons (i.e. training or technology) led to the significant difference in SPR among the three groups.

Both ONTG and OFTG improved significantly in LPT but the significant increase in SPR was only found amongst the ONTG who made the greatest improvement in LLA which may indicate the OFTG's low confidence about their progress in language proficiency and that the ONTG were more able to confidently report this improvement than the OFTG as a result of their technology use (see section 5.2.1.3). This statistical result from the SPR form and LPT can be supported by the findings from the qualitative data of the four case studies.

Being capable is not enough to develop LLA; confidence to take control of learning can make a difference in autonomous learning (Cotterall, 1995a; Dam and Legenhausen, 2010). Nora was confident about her speaking competence and about learning on her own when an appropriate learning environment is given and she reported doing that in the past before joining the training. In contrast, Lama reported confidence only about some capacities such as discussion about familiar topics and creating opportunities for language use; but she reported lack of confidence about independent learning and that technology might help her to do that. The analysis proved that the actual improvement in Nora's LLA was greater than Lama's (see sections 7.5.3 and 7.5.2). Similarly, low autonomy students (Samia and Maha) had low confidence because they reported the need for the teacher even when technology is used which suggests that they have a great level of dependence on the teacher in language learning and that they need teachers' support besides technology to be confident in language learning (see sections 5.2.1.7 and 5.2.1.10). With this low confidence, their LLA improvement was less than the high autonomy students which reveals the impact of students' confidence on their LLA development.

7.10.3 Willingness

It is not enough to just give students learner training to improve their LLA and it is not just giving them technology that can entirely change their LLA, but the difference between students in their capacity as well as attitude and belief about technology use and learner-centred pedagogies can greatly influence their acceptance of and engagement with the given training technology and accordingly will improve their capacity for LLA (Dickinson, 1987; Kohonen, 1999 cited in Everhard, 2015a; Sinclair 2000b; Chan, 2001; Hsu, 2005; Sinclair 2009; Le, 2013; Everhrad, 2015b) (see sections 3.7.4.3 and 3.7.4.6).

Samia had a very negative ALA and MBL which made her resist any change in the learning environment (Benson and Cooker, 2013). Samia had mixed ATU and Maha had only a positive affective ATU. Samia had a mixture of a positive and negative MBT, but Maha had a positive MBT. This lack of willingness minimised their engagement with the training and technology. The negative MBL and MBT of the two low autonomy students suggest that those students are a special case in LLA assessment because it is not easy to change their belief in a short time and they need a special treatment before giving them the training to enhance their ALA, MBL, ATU, and MBT (see sections 2.6 and 7.11).

7.10.4 Metacognitive strategies

High autonomy students who are learning with and without technology may be equally capable and may have positive attitude and belief, but their LLA enhancement can be different due to the difference in their metacognitive capacity (i.e. reflection, planning, learning management, and self-assessment). High autonomy students in this study (Nora and Lama) are both able to use language in spoken and written form without hesitation, to work collaboratively in groups, to work on their own when learning, and to use learner strategies in learning. They have positive attitudes and beliefs about independent learning and about technology use in language learning.

For instance, Nora started with high reflective, planning, and learning management capacities and a slight change occurred in these capacities. She was confident about learning on her own when an appropriate learning environment is given and she reported doing that in the past before joining the training. Conversely, Lama reported very low capacities about planning and learning management. Low autonomy student had low capacity and negative attitude and belief about metacognitive strategies (see sections 5.2.1.11 and 6.3.3).

7.10.5 Self-assessment

Self-assessment capacity is important for students' LLA promotion (Holec, 1981; Dickinson, 1987; Little, 2003a; Murphy, 2015). Good level of self-assessment capacity helps students to reflect on learning (Everhrad, 2015b). The self-assessment of the low autonomy students about their reflective capacity was found not compatible in the two assessment approaches (i.e. students' qualitative reports about their reflectivity and the assessment of reflection in RWFs) which indicates that they need more training to self-assess and to reflect on learning. Additionally, Samia's mixed ATU and Maha's affective but no behavioural ATU suggests that low autonomy students had a low capacity to reflect and to self-assess learning.

The quantitative results shows that the intervention was sucking up the bottom of the groups (ONTG and OFTG) but the top remains similar throughout the course of the intervention. This is explained by the progress made by the lower autonomous students in both groups which was much greater (two bands) than in the higher autonomous students in both groups (one band). The overall picture of the three group from statistics agrees with what the selected case studies say about LLA change and this leads to posing questions about the accuracy of the self-assessment capacity in both low and high autonomy students (see sections 7.5 and 2.11.2.2).

This inaccuracy in self-assessment is not only between high and low autonomy students, but it can also take place within the low autonomy students themselves. This result is to do with the difference between high and low achievers. Samia's decision-making capacity was less than Maha'. She was unable to decide on her progress and had mixed feeling towards the training features and technology. Samia over-rated herself in quantitative and qualitative data unlike Maha who did this over-rating only in the quantitative measurement of some of the concepts. Maha's qualitative responses did not show this over-rating tendency. Therefore, they need training on self-assessment before giving them the training (see sections 2.6 and 7.11).

7.10.6 Reflective capacity

Capacity to reflect influences the development of students' LLA (Little, 1997b; Little, 2003a; Schwienhorst, 2008; Dam and Legenhausen, 2010). Reflection leads to creating new constructs; and linking new constructs with existing ones is the essence of LLA. The strategy which links previous experience with new ones was reported by Nora to be the favourite. As mentioned above, students' reflective capacity is affected by their self-assessment capacity (see section 7.10.5).

Students' reflective capacity develops when they have a sufficient metacognitive knowledge (Wenden, 1999; Schwienhorst, 2008; Lamb, 2010). Low reflection affects metacognitive knowledge (Schwienhorst, 2008). Nora's metacognitive maturity helped her to have a high ability to reflect. Low autonomy students (Samia and Maha) were not able to reflect properly which considerably influenced their self-assessment and LLA development.

Reflection is important for language learning improvement (Little and Ushioda, 1998; Little (1999a). Low autonomy students had low ability to reflect and they were not able to improve in language proficiency as much as high autonomy students who were good at reflection.

Lack of or low Reflection curtails development of metacognitive strategies (Olson, 1991 cited in Schwienhorst, 2008). The low autonomy students had low capacity to reflect and they also had low capacity to plan or to manage their learning. Instead, Nora as one of the high autonomy students was very capable to reflect, plan, and manage learning (see section 6.3.3).

Students with low reflective capacity may resist to perform this mental activity if they are not convinced of its importance to their learning (Hurd *et al.*, 2001). Samia was continuously complaining of RWFs and reported hating to do reflection in the interview. I tried to constantly communicate the benefit of reflection and many students changed their attitude (e.g. Nora), but Samia insisted on her negative attitude and remained with the same medium capacity. She needs a special training on reflection (see sections 2.6 and 7.11).

7.10.7 Metacognitive knowledge

Awareness is a crucial component for the promotion of LLA (Dam, 1995; Schwienhorst, 2008; Dam and Legenhausen, 2010). This awareness affects students' reflection level (Wenden, 1999; Schwienhorst, 2008; Lamb, 2010). For example, the awareness of the low autonomy students about how to learn was low which reduced their level of reflection about learning and the enhancement of their LLA. Instead, Nora and Lama were more aware about language learning and its process which led to their higher levels of reflection than the low students.

Low metacognitive knowledge affects decision-making capacity (Dam and Legenhausen, 2010). Samia and Maha had a low knowledge about language learning and this led to their inaccurate self-assessment. Samia in particular had a very low decision-making capacity because she was reporting mixed attitudes and beliefs in different data methods about a single feature of the training. This is very common in her interview responses about the different features.

Students' awareness about their language competencies which is called 'self-knowledge' is part of their metacognitive knowledge which is required for LLA enhancement (Ho and Crookall, 1995

cited in Chan, 2001: 506). Samia over-rated her language competencies in the SPR form and her interview did not reveal any weakness in her language skills. Her self-knowledge is low and accordingly her LLA level is low. Her low self-knowledge was also seen in her positive reports about her capacity to use technology when her ATU and MBT along with the observation revealed a negative result.

Doing Reflective writing (Little, 1999a) and discussion forums on the VLE as a CALL environment (Schwienhorst, 2008) has the merit of improving awareness of the learning process and of the linguistic. Nora had an active participation to discussion forums and reflective writing on the VLE and she had a very mature metacognitive knowledge. Lama (OFTG) did not have the opportunity to do reflective writing and discussion forums on the VLE and she had less awareness about the learning process than Nora. The low autonomy students did not do these two on the VLE (though a VLE was given to Samia) and they had low metacognitive knowledge.

Awareness is important for both teachers and learners (Dam, 1995). It is this awareness that illustrated the need of the low autonomy students for a deconditioning process to enhance their beliefs, attitudes, awareness, and technology skills (see sections 2.6 and 7.11).

7.10.8 Language proficiency

The development in TL proficiency is as important as the development of other autonomy related capacities to enhance LLA (Littlewood, 1996; Little, 2003a; Little, 2007). In other words, students higher in language proficiency are more autonomous (Peek, 2015). Nora improved in language proficiency more than Lama and she improved her autonomous capacities and skills greater than Lama. Samia improved language proficiency less than Maha and her capacity to learn autonomously after the testing process was found less than Maha's, though her highly over-rated LLA score shows greater improvement (see sections 5.2.1.4 and 7.5).

More TL use leads to higher proficiency which is important for LLA development (Peek, 2015). Language proficiency communication skills develop when language is used (Little, 1999a; Little, 2003a; Schwienhorst, 2008) (see section 2.11.1). Samia did not use language frequently and was not able to improve in language proficiency as good as Nora who used language in every learning activity (see section 5.2.1.4).

Collaborative interaction fosters LLA (Dam, 1990) which makes group work significant in the collaborative constructions of knowledge (Littlewood, 1996; Little, 1999a). Those who did not contribute to group work or were not given online discussion forums were not able to improve in LLA as much as those who had it and were active participants there. This is also to do with

technology affordances as well. Samia (low ONTG) hated group work and was not active in group work and discussion forums which led to her low improvement in LLA, whilst the two high autonomy students and Maha (low OFTG) worked well with their groups and enjoyed group interaction whether online or offline and they improved in LLA greater than Samia (see section 6.3.3).

Technology with its affordances has an impact on the development of LLA (Schwienhorst, 2008), even if it is not the main reason for the change. It helps to expedite the change in LLA. The high autonomy students were improving in LLA but Nora improved more than Lama and she used technology for interaction, reflection, and language learning when Lama did not. Samia was expected to improve more than Maha in LLA, but she did not because she did not take the given opportunities for technology use in language learning (see sections 7.10.1 and 7.10.2).

TL use helps learners to develop metacognitive strategies (e.g. reflection) (Little, 2003a). Nora had a great TL use and had a high reflective capacity, but Samia had a very low TL use and a medium level of reflective capacity. Lama, as the leader of her group and the manager of group interaction, used the TL and had lots of actions to improve her language. She had a medium level in reflection, but Maha had a low level because of her low TL and her reported weaknesses in speaking (see section 5.2.1.2).

If any one of these factors discussed above is lacked or low, the enhancement of students' LLA will be influenced. To overcome the negative effect of any of these factors, students need to go through a deconditioning process to facilitate their acceptance of the intervention meant to enhance their LLA and to help them get the most benefit of it. This process is explained in relation to a number of LLA concepts in which the individuals in the current study had limited capacities.

7.11 Need for deconditioning process before training

Engagement with technology use and with the training (i.e. pedagogy) leads to greater capacities and better attitude and belief about independent learning, technology use, and metacognitive strategies. Consequently, greater engagement with technology use and with the training (i.e. pedagogy) leads to more increase in LLA.

For instance, Nora started the course with high capacities and positive attitudes and belief about technology and independent learning which led to greater engagement with both technology and pedagogy, but she slightly under-estimated the change she made in her LLA in the quantitative side of assessment. In contrast, Lama was not given technology which resulted in low engagement with technology and LLA which led to less LLA capacities even if she over-rated herself because

other data will reveal her capacities. Low autonomy students (Maha and Samia) engaged with only some features of the given training and did not engage with technology.

Lerner empowerment and responsibility for learning should be given to learners from the very beginning of the course but teachers must not suppose that learners can control all aspects of learning or that all learners can do that from the outset (Little, 1999a). However, not all learners have the same capability for autonomous learning and not all aspects of learning can be managed at the same time (*ibid*). This study finds that the difference in the extent to which students engage with the training depends on students' capacity to take control of their learning and on their attitudes and beliefs about learner-centred pedagogies (Benson and Cooker, 2013: 7; Le, 2013), technology, and metacognitive strategies.

Therefore, it is recommended that researchers improve students' attitudes and beliefs about learner-centred pedagogies as well as technology use along with their capacities before they give them training or technology (Le, 2013). This will prepare them for the training and make them accept the pedagogy. The results show that low autonomy students in this study need more support and special care, e.g. technology training, special training, longer training time, and more teacher support to change their attitudes and beliefs about LLA and about technology use and to develop capacities which would motivate them and accordingly enhance their LLA.

7.11.1 Training in willingness

As mentioned above, students' willingness plays an important role in their engagement. For instance, the low engagement of the lower autonomous students (Maha and Samia) with the given training is related to their very negative attitudes and beliefs along with their low capacities to deal with the varying elements of the given training. Their attitudes and beliefs need to be improved and their capacities need longer time of training in order to have a remarkable effect for the training (see sections 5.2.1.7 and 5.2.1.10).

7.11.2 Training in reflection

Students need to be convinced of the value of reflection (Hurd *et al.*, 2001) and they should use the TL for reflection to improve their LLA (Little, 1999a). Students' Reflection to identify whether the pedagogical framework was appropriate with the learners' level of autonomy (Schwienhorst, 2008). It was found that Samia and Maha need a special training to improve their reflective capacity. They need a training to convince them of the important and relevance of reflection to successful learning. Training should help them to start using the TL for reflection.

7.11.3 Training in self-assessment

The intervention was sucking up the bottom of the groups but the top remains similar throughout the course of the intervention. This is explained by the progress made by the lower autonomous students in both groups which was much greater (two bands) than in the higher autonomous students in both groups (one band). The quantitative self-assessment of the individual components of LLA for each of the four case studies highlighted the phenomenon found in LLA quantitative measurement (overall LLA scores) that people who had high levels of LLA at the beginning are not increasing very strongly whilst we see more increase at the bottom.

The agreement between what the overall picture of the three group and the selected case studies say about LLA change leads to posing questions about the accuracy of self-assessment skill in both low and high autonomy students (see section 2.11.2.2). However, looking at what each of the case studies said in the qualitative data about these components, it was found that Nora should have shown a greater increase based on her qualitative triangulated data and that Lama and the two low autonomy students (Samia and Maha) should have shown less increase in their LLA scores.

Samia's final LLA score increased more than Maha's. Nonetheless, her language proficiency increased less than Maha's. Maha had positive attitudes towards technology and had some superficial voluntary use which shows that she was not very resistant to any change in her learning. Yet, Samia had negative attitudes, beliefs, and capacity to use technology in language learning besides other features of the given training which increases the likelihood of her resistance to the training.

This is linked to the issue highlighted by (Oscarson, 1984; Brantmeier and Vanderplank, 2008; Hung *et al.*, 2016) that high achievers tend to under-rate their performance while a tendency for self-overrating is common among low achievers (see sections 7.3 and 7.4). As the capacity to accurately self-assess learning is important for LLA development (Murphy, 2015), all the four case studies (perhaps except for Nora) need to be trained on how to assess their learning which can be related to the training on reflection as these two capacities are related (Hedge, 2000; Dam and Legenhausen, 2010).

7.12 Suggested modifications on the assessment model

The results of statistics on LLA score and its individual components (see the scale components in figure 6 in section 3.7.4) were satisfying and were showing what was expected to happen in that the ONTG will outperform the OFTG and the CG in the change they make in LLA over time. The

qualitative data of the four case studies showed a similar thing but with some issues in self-assessment which resulted in moderate distortion in students' LLA measurement. The scale helped me to do the statistics which gives a holistic view of LLA assessment across the sample and inferences about the population. The qualitative assessment goes deep into the selected four case studies and contributed to my understanding of how LLA develops and what might influence this development. It also gave me insights on how we can help students develop and how we can design our research and the learning environments to help students enhance their LLA. It illustrated the importance of examining the authenticity of students' autonomous behaviour.

One of the findings that came from the qualitative investigation of LLA assessment is the impact of students' confidence and metacognitive strategies on their LLA enhancement. These two components were qualitatively assessed as I was conducting the data-driven analysis approach, but they were not included in the measuring scale. Similarly, metacognitive knowledge was considered in the assessment carried out for LLA when it was elicited from students' qualitative reports on their attitudes, beliefs, and perceived strategy use in the interview and FG, but it was not treated statically because it was not originally measured in the SRS. These three concepts were not included in the quantitative measurement of LLA (and accordingly in the LLA score) but they were assessed qualitatively which excluded them from the weighting process.

It was not possible to include students' language course grades (LCG) in the LLA measurement conducted in this study though it was included as part of the proposed model but then was excluded for contextual reasons (see section 4.10.2).

Therefore, I recommend that other researchers use this assessment model and consider the inclusion of these three concepts (i.e. confidence, metacognitive strategies, and metacognitive knowledge) as separate components for the assessment model, with equal importance, both in the quantitative and qualitative parts of the assessment.

7.13 Who can use the proposed assessment model?

The assessment model proposed in this study (see figure 5 in section 3.7.4) is meant to be used as a research model for researchers who aim to go beyond the assessment for autonomy to work on the measurement and assessment of autotomy in language learning in the 21st century.

Moreover, it can be a research model used by action researchers (i.e. teacher-researchers) or researchers with other focuses to either investigate different aspects of LLA, understand LLA, conceptualise evaluation (assessment) of LLA, conduct assessment of LLA, and promote LLA in light of the assessment model components.

7.14 Summary

In this chapter, LLA scores were created for the students in the three groups and a significant greater enhancement in LLA over the course was found among the ONTG than the OFTG. This chapter provides the case studies to inform and test the quantitative measurement. It was found that the LLA scores help to direct the process of assessment of LLA. Because the created LLA score relies on students' self-assessment in most components of LLA, the accuracy of their self-assessment played an important role in the over-rating and under-rating happening in the LLA scores of the four case studies. This inaccurate capacity to self-assess was proved when the measurement scale has undergone a testing process of four steps using the triangulated data of the four case studies. Furthermore, an overview of the experiment and the conclusions made about LLA quantitative measurement is provided. It introduces how the two approaches used for the assessment are related, how the importance of the model components are weighted, and how the models proposed for the development and assessment of LLA are linked with the underpinning theory. A discussion of the potential factors and when we need a deconditioning process is given along with suggestions for modifications of the model.

Chapter 8: Conclusion

8.1 Introduction

Chapters 5, 6, and 7 present and discuss the three research questions set for this study. Chapter 5 presents the findings of the quantitative tests and those of the students' qualitative data in relation to the components of the proposed assessment model. The second and third research questions are answered in chapter 6 which forms an evaluation of the enhancement carried out in this study using the model proposed in chapter 2 for the enhancement of LLA. Chapter 7 provides the created scores for students' LLA and a description of the process carried out for the validation of students' LLA levels. It discusses the weighting of the importance of each of the components of the proposed LLA measurement scale. It also talks about other aspects of the assessment model including, what might influence LLA enhancement, how to deal with students low in their LLA before working on the enhancement, suggested modifications to the model, and who can use it.

In this chapter, globalisation of LLA is discussed and answers to the three research questions are summarised. This chapter concludes the thesis by briefly describing the major contributions, implications for theory, and limitations of the study with suggestions for further research.

8.2 Globalisation

The concept of autonomy has spread in the western cultures as a research and a focus of practice (Paiva and Braga, 2008). Self-access centres were first associated with the promotion of learner autonomy in the West (Benson, 2001; Little, 2007) and works of some scholars such as Benson (2001); Benson and Voller (1997); Sinclair (1997); and Paiva (2006) have tried to come to an understanding of autonomy as an important educational goal.

Enhancement of LLA is an educational goal sought by different countries, institutions, and teachers. For example, this goal is included in the higher education Benchmark statement for languages in the UK, printed in school programs in France, Hong Kong, Singapore and Turkey (Tok, 2011 cited in Murphy, 2015). Despite the fact that this goal is highlighted in language education policies, less attention is given to the exercise of reflection and decision-making in the practice of learning assessment, especially in 'mass education systems' (Murphy, 2015: 143).

The West and the East emphasise the significance of individuals in the learning process, but the different values they give to learning have led to a cultural difference in the conceptualization of LLA (Xiaoli, 2008). The west stresses that learning comes from a sincere interest to learn (Callan,

1988), but it is more related to instrumental purposes in China (ibid), for example, a “special attention is paid to the learners' genuine inclination in the West and to learners' rationalized choice in China.” (p. 26)

LLA has become a ‘buzzword’ in language learning research and practice (Schwienhorst, 2008). Yet, Xiaoli (2008) reports that there is an inconclusive discussion in the literature of LLA about whether LLA is a western concept that might be inappropriate for non-Western cultures (e. g. Jones, 1995; Sinclair, 2000b; Benson, 2001; Athanasiou, 2006; Benson, 2006a; Moreira, 2007), a Chinese concept (e. g. Hsu, 2005), or a concept which is applicable to non-Western contexts (Sinclair, 1997; Little, 1999b; Smith, 2003; Holliday, 2005; Barfield and Brown, 2007).

The increasing number of discussions about the concept of learner autonomy does not mean that it is a globally shared concept with no problems (Xiaoli, 2008). Schmenk (2005: 116) believes that if LLA is treated as a global concept, this means that we have minimised it into a number of elements which are not subject to ‘personal, institutional, social, and cultural’ differences. An agreement can be found in the literature of LLA that it is a capacity which entails different cultural characteristics in different cultural context (Xiaoli, 2008). This difference between ‘Western’ and Eastern cultures is often made in the literature at a theoretical level with no attempts to explore the cultural characteristics of LLA (ibid). She attempts in her study to take participants’ perspectives on the LLA concepts. “Moreover, research reveals its validity in non-Western contexts though it possibly may have particular characteristics (Ruan, 2007; Huang 2007).” (p. 42)

Similarly, instead of simply practising autonomy in different cultures, as Schmenk (2005) suggested, researchers should consider its cultural implications (its cultural backdrops in western cultures) which will lead to negotiations about its potential meanings and importance in different contexts. “Holliday (2005) criticized simply transplanting ‘Western’ theories and practice to ‘other’ cultures without consideration of their origin in the West and local conditions in the ‘other’” (Xiaoli, 2008: 6-7). Schmenk (2005) calls for ‘glocalization’ which refers to specific versions of “globalization” as explained by Kellner (2002). The starting point for the glocalization is the researcher’s focus on the exploration of its specific cultural frameworks and impacts (Schmenk, 2005). Glocalization is important to demonstrate that teaching for autonomy implies important but maybe problematic meanings in different cultural contexts (ibid).

The cultural and political characteristics of a society can affect students’ LLA development (Sinclair *et al.*, 2000). Because autonomy has individual, psychological, social, and political dimensions, Sinclair (1997) observes that the concept could be appropriate to different societies. It can take different interpretations rather than just being confined within western beliefs (ibid). The exercise and development of learner autonomy is an educational goal that is applicable across different

cultures and dealing with this goal requires different pedagogies to overcome different kinds of restriction in different contexts (Smith, 2003; Barfield and Brown, 2007). Teacher-centredness may not mean a lack of capacity to learn autonomously, but it can mean that students' autonomy is influenced by the socio-cultural aspects of their society (Thang and Alias, 2007). Consequently, Le (2013) suggests that researchers aiming to assess learners' readiness for or level of LLA need to consider the cultural background of the students.

Teacher-centredness does not necessarily mean that students are unable to learn autonomously, but it can mean that our definition and interpretation of LLA is different from one context to another. The literature shows contradictory results on autonomy within the same context e.g. European (Breeze, 2002; Yildirim, 2008) and Asian (Chan, 2001; Thang and Alias, 2007) (Le, 2013). A dependent student may be actually able to be independent if they were in a different cultural context. Consequently, it is important to consider the cultural context when measuring students' LLA or readiness to LLA. Besides, it is important to provide 'scaffolding' to students in a teacher-centred classroom to improve their capacity to make decisions before changing the roles and giving the responsibility (ibid).

The 'West' was used by Xiaoli (2008) to refer to Europe, North America and Australia. To her, the 'non-west' is only referring to China. However, the current study is concerned with the non-West context in particular Saudi Arabia (SA). If it is a western concept, it is a contribution to investigate to what extent it is appropriate in an Eastern context and what are the characteristics of autonomous learners in these different contexts.

The assessment model and the measuring scale (see figures 5 and 6 in section 3.7.4). I am proposing in this research do not specify the use of a particular instrument which makes them applicable for different contexts. They rather focus on identifying the fundamental and influential components of LLA in order to be able to measure it with students at the tertiary level in the twenty-first century in different contexts. However, it is possible that the bands established in the present study and their descriptors do not work at the global level for the assessment of LLA because of the cultural differences in different parts of the world. Someone who is found to be in the highest level (E2) of this scale of LLA measurement in the eastern part of the world might be different in the nature of their LLA or even in the LLA level from another learner who is measured to be the highest in LLA in the West.

These cultural discrepancies bring in the possibility that this scale proposed for the measurement of LLA may work differently in a context different from Saudi Arabia. For example, students' lack of or low capacity in technology use can form one of relevant contextual characteristics of Saudi Arabia. To make sure that this scale can work on the global level and that it can be a universal

measure of LLA around the world, further research studies may tackle this point by looking at what descriptors can be found from the learners' qualitative data to be given to each band of this scale in order to make the descriptors as universal as possible and to make the educators and practitioners in language learning contexts aware of these bands and their accompanying descriptors. Having a shared understanding of the meaning of these bands, teachers and professionals can be better equipped at monitoring their learners' progress in their LLA and to be able to measure the level of learners' LLA in any part of the world.

8.3 Answers to research questions

The first question seeks to identify the students' autonomy level in their language learning and the change they may make over time after being exposed to treatment. It was found that the most reliable and appropriate method to get a tangible evidence and an accurate assessment for students' LLA level is to combine quantitative and qualitative assessment methods in a formative and a summative view and to look at the macro and micro levels of language learning. Language proficiency was found to be a key indicator to students' actual autonomous language learning level and that self-assessment is a skill which needs training to develop.

The second question asks about the impact of technology on LLA enhancement. It was found that technology use in language learning may not be the main cause for LLA enhancement, but it helps to make a difference between those using it and those with no use in the engagement with the training, confidence, decision-making, language competences, and metacognitive strategies, e.g. planning, reflection, self-assessment, and learning management (see section 5.2.1.10). Moreover, students' willingness (attitude and belief) was found to play an important role in their engagement with the provided technology. In addition, the impact of students' technology use on the amount of progress they can make in their LLA depends on their autonomous capacities. Technology may work better to enhance LLA of high autonomy students (e.g. Nora) than that of low autonomy students (e.g. Samia). In fact, technology use may not be very effective or it may hinder the enhancement of LLA for students with very low autonomous capacities.

The third question asks about the impact of learner training on LLA enhancement. The triangulated data used in this thesis shows that a carefully designed learner-centred training (pedagogy) is what actually leads to the promotion of students' LLA and that technology can only show a difference among students in the enhancement they are making in some autonomous capacities. Furthermore, students' willingness was found to play an important role in their engagement with the provided training. It was also found that students low in LLA need to be

provided with special training beforehand in order to enhance their attitudes, beliefs, reflection, self-assessment, and technology skills before working on the enhancement of their LLA.

8.4 Major contributions

This section outlines the contributions of this research in terms of the implications for practice and implications for theory.

8.4.1 Implications for practice

First, the current study contributes to the volume of literature on the assessment of LLA with an assessment model which combines contrasting investigation perspectives including learning outcome vs. process, formative vs. summative assessment, qualitative vs. quantitative methods, and micro vs. macro learning levels to overcome the complexity of the construct of LLA.

Second, an interesting contribution is the critical view of LLA assessment when the relationship between quantitative and qualitative assessment perspectives was explored.

Third, the assessment model provides teachers with a tangible measuring scale to justify their students' LLA development and it helps to describe LLA in terms of observable behaviours.

Fourth, the assessment model with its components helped to capture the impact of students' willingness and capacities on LLA development and this reshaped the concept of LLA and indicated what needs to be considered before giving the training or before carrying out the assessment.

Fifth, the model proposed for the enhancement of LLA can provide teachers and researchers with a pedagogy that fits with language learning in the 21st century.

8.4.2 Implications for theory

The two proposed models (see figure 3 in section 2.11 and figure 5 in section 3.7.4) will hopefully enrich learner autonomy theory in language education.

First, by producing these two models for the enhancement and the assessment of LLA as implications for the theoretical concepts underpinning and influencing the construct of LLA, I hope I have provided a shared understanding of this construct and its components, both observable and non-observable ones, which can serve as “an essential foundation of learner autonomy” (Cotterall, 1995a: 203). I hope this shared understanding can be used as the basis for

Chapter 8

plans for the promotion of LLA which requires exploring learners' readiness before its implementation.

Second, the assessment model shed light on the relationship between the enhancement of LLA and the improvement of language proficiency.

Third, the measuring scale with its established bands confirmed the hypothesis recurrent in the literature that LLA is a matter of degrees and students are moving on the continuum when learning.

Fourth, the application of the measuring scale students' data helped to shed light on how to promote LLA when they moved from one level to another across the scale.

Fifth, the two proposed models worked successfully to unveil the ambiguities about the 'secret garden' of assessment (Weeden *et al.*, 2002: 150) and the 'secret garden' of autonomy (Everhard, 2015a).

Sixth, the two models proposed in this study illustrate the interconnection between assessment, autonomy, and language learning, which is a gap in the literature of autonomy as Everhard (2015a) observed.

Seventh, the assessment for autonomy carried out in this study does not look for evidence for students' LLA, but it develops their autonomy during the assessment of LLA components. It focuses on the exercise of students' self-assessment capacity for their LLA development and for the assessment for LLA. To validate the accuracy of their self-assessment, it integrates quantitative self-assessment with qualitative reflective self-assessment with the learning advisor rather than using only one of these approaches to self-assessment.

Eighth, the two proposed models for the enhancement and the assessment of LLA take into consideration learners' metacognitive knowledge which was said to be a neglected element of LLA.

8.5 Limitations and implications

Practical reasons have led to some limitations in the present study. Hence, reporting them helps to make them recognised and addressed in future research. First, learners' attrition can affect research (Rossiter, 2001). In Rossiter's (2001) quasi-experimental study, she reports that her sample was reduced because of students withdrawing from the course. This limitation took place in the present study and may have considerable effect on the dynamics of the classroom for the participating groups. After the administration of the instruments (the Self-Rating Scales and the

proficiency test) for the pre-assessment for LLA to the three groups and before starting the treatment, a student from the ONTG moved to the OFTG for personal reasons. I had to move her name and data from the two instruments of the ONTG to the new group which was difficult to do. I had to move her research code (15) from the list of the ONTG to the list of the new group to avoid any number confusion in the sequence of the numbers in the old group.

Second, this study deals with Medical students who focus only on duties related to their subject study and future career and they avoid any extra work load e.g. ungraded task (cf. Dörnyei, 2007). Their aims are inconsistent with mine as a researcher which requires me to put considerable weight on encouraging them to get engaged with the study (Pica, 2005).

Third, based on Murphy's 'universal law' "if something can go wrong, it will", "classroom equipment will fail particularly at those times when we have forgotten to bring spare equipment" (Dörnyei, 2007). Given that we can never count entirely on technology, some instances of technology failure occurred in the classroom during the delivery of the treatment which affected the progress of the class learning. Using the blog built into the VLE, I scheduled it to post the RWFs each form on the day of its module, but the content did not appear and an alternative space was created within every module. Additionally, students need to listen to some audio and video materials but sometimes the headsets do not work and new headsets were ordered to save the class time. Considerable time was spent to fix the problem in the computers when their settings did not allow some of the students to record their interaction for some of the tasks. Moreover, a video clip uploaded to the VLE did not play for some students and students shared the computers and the personal laptops to save the class time. Slow network, crashed computers, and the low capacity of my personal speakers compared to the classroom size (OFTG) form other examples of the technical problems.

Fourth, it was not possible to include students' language course grades (LCG) in the LLA measurement conducted in this study for contextual reasons though it was proposed as part of the proposed assessment model (see section 4.10.2).

Sixth, I was unable to do Structural Equation Modelling (SEM) to test the proposed measuring scale and to test the fit of its components because it requires a large sample which is not the case with this study.

Seventh, the sample size led to the small p value of the regression (between technology use and LLA change variables) which makes it less reliable to be extrapolated to the whole population. Statistics and the use of p value in the significance testing often assumes greater power of analysis (i.e. greater sample size) than what the current study actually has. However, this is the

case with research in the educational field where only studies which do population datasets do not have small sample size.

Eighth, I did not consider measuring students' readiness to LLA by exploring their attitudes and beliefs about LLA and technology use before I design the learner training, though I identified their needs via needs analysis. However, it is interesting that the assessment of LLA undertaken in the present study captured this impact of students' willingness and capacities to shed light on understanding of how LLA improves and what might influence its development along with what needs to be considered before giving the training.

8.6 Suggestions for further research

Given the limitation I had in this research, further research may look at the inclusion of LCG in the LLA assessment model after ensuring that it is systematically measured at T1 and T3, but researchers need to ensure that LCG is measured in a systematic way where the same test will be applied at the beginning and at the end.

Further research can run structural equation model on the proposed measurement scale and examine whether its components fit together. This would also help to test the causal relationship between technology and LLA more accurately than a regression would do.

It is recommended that other researchers promote the work on significance testing by having a bigger sample size than the one I had in the current study and to look at replicability and effect size of the research.

Appendices

Appendix 1

Illustrative pictures of the VLE and the course design

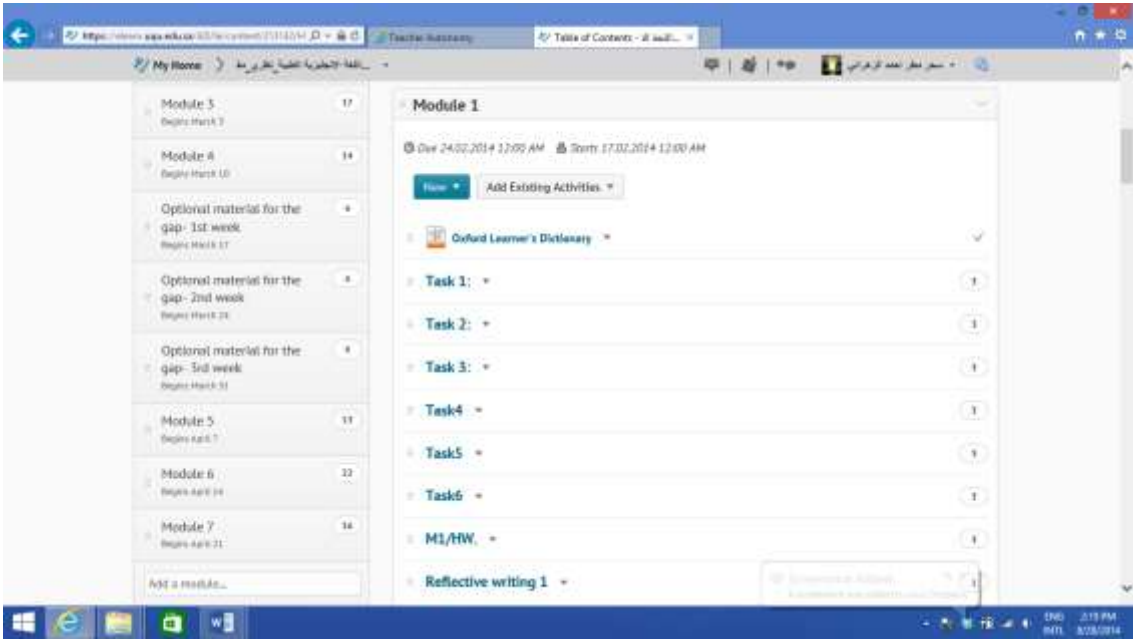


Figure 12: Course table of contents (Module 1)

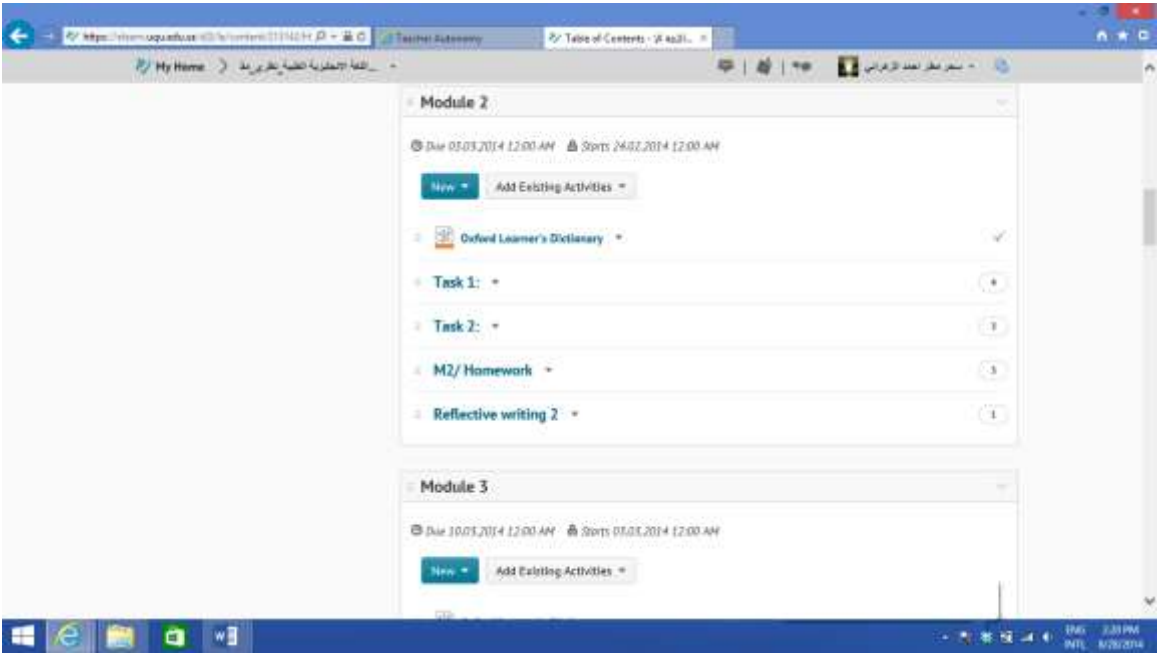


Figure 13: Course table of contents (Module 2)

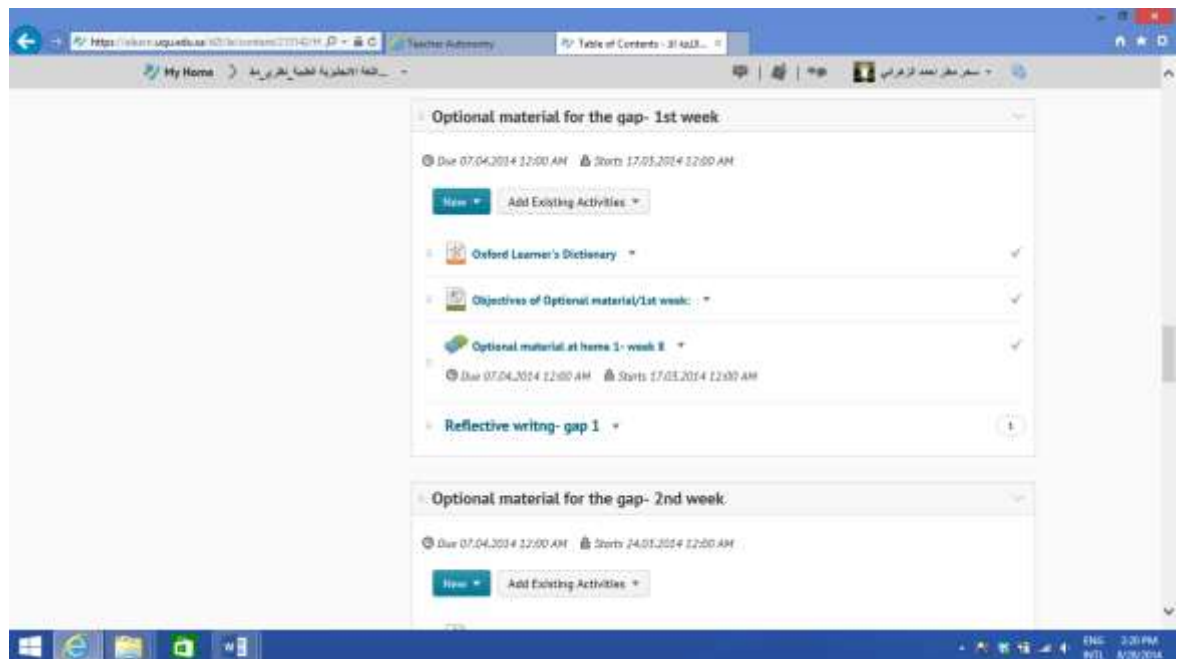


Figure 14: Course table of contents (Optional material for gap1)



Figure 15: The reflective writing block on the VLE

Appendices

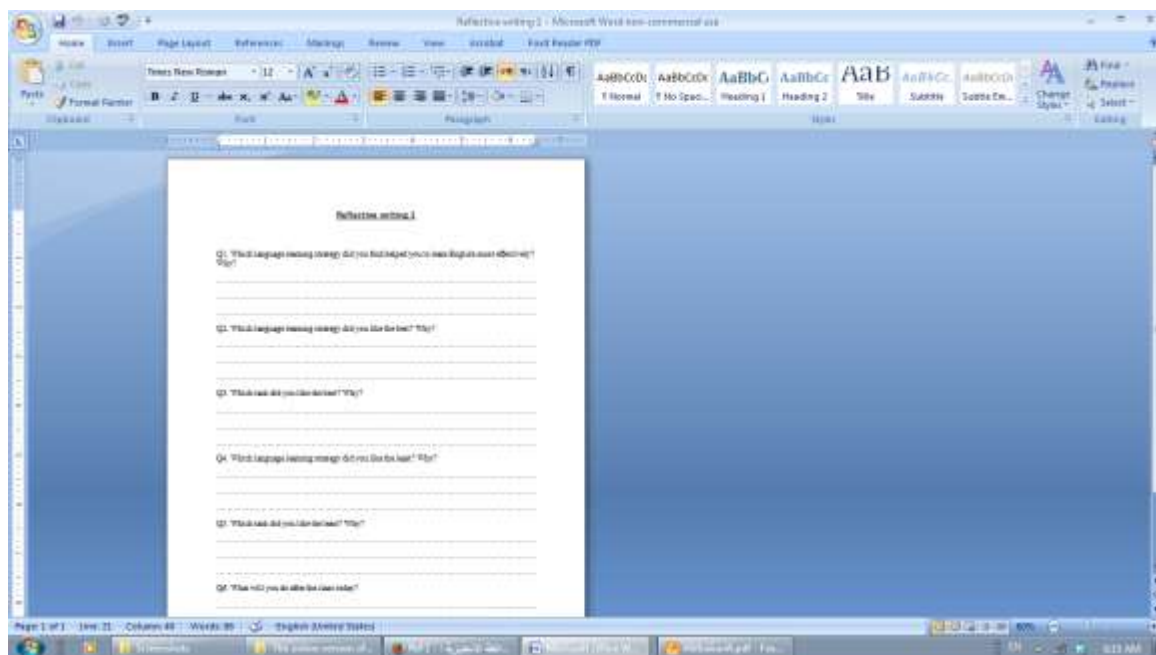


Figure 16: The reflective writing questions



Figure 17: A sample of the statement of the tasks learning objectives and strategies (M1T1)

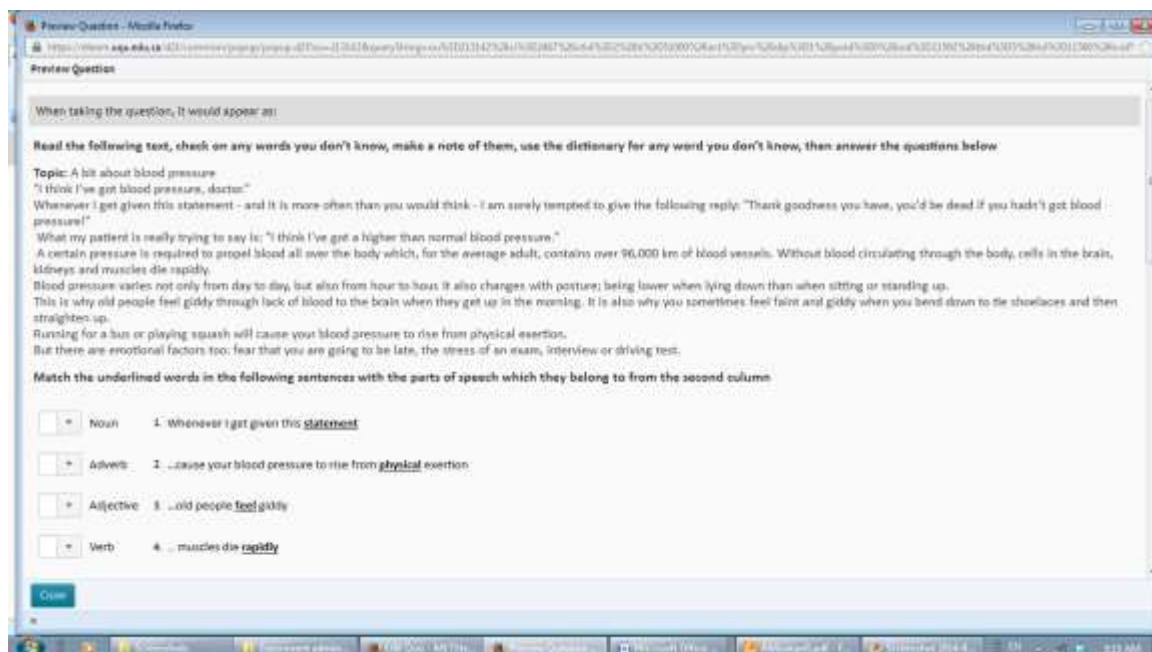


Figure 18: A sample of the tasks instructions and items (M1T1)

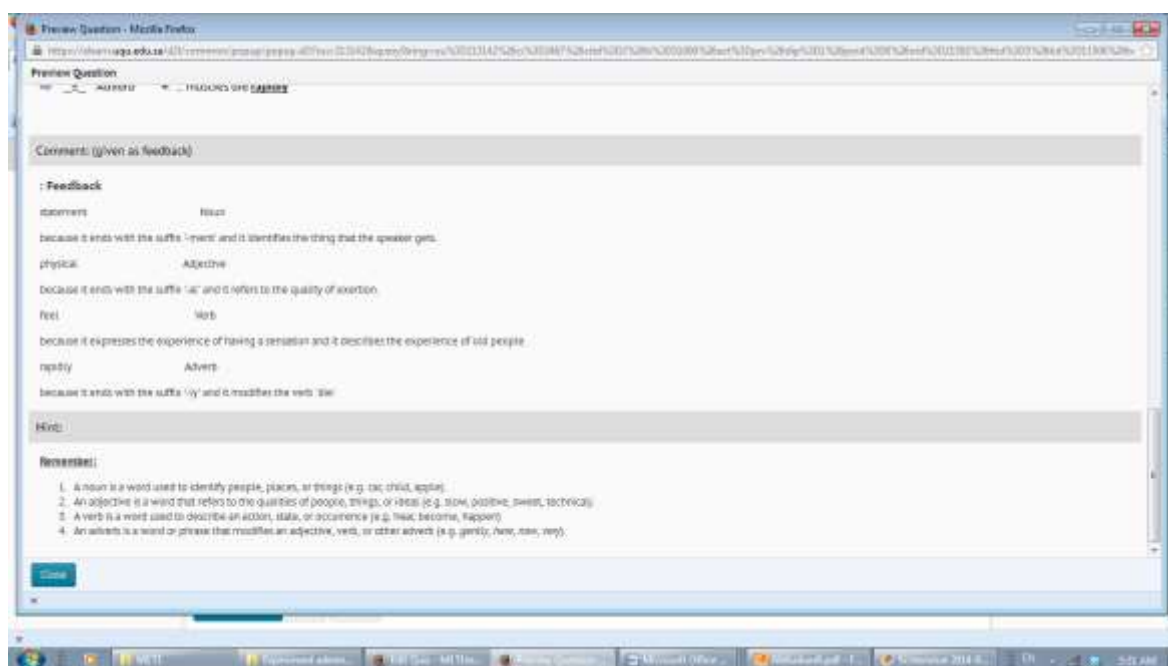


Figure 19: Built-in feedback and hints on the VLE

Appendix 2

List of the tasks with the implied LLS and objectives

| M | T | Taught LLS | Learning Objective | type | context |
|-------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|
| Module 1/ week 16.02.14 | Task1 | Strategy: Using awareness of parts of speech to identify different parts of speech from the text in an attempt to understand its language. | To develop the ability to analyze language data to find grammatical patterns and to discover rules | Matching- Parts of speech | individual |
| | Task2 | Using awareness of regular/irregular verbs to identify kinds of verbs from the text in an attempt to understand its language. | To develop the ability to analyze language data to find grammatical patterns and to discover rules | short answer question- reg/irregular verbs | individual |
| | Task3 | Using awareness of grammar tenses to identify types of grammar tenses from the text in an attempt to understand its language. | To develop the ability to analyze language data to find grammatical patterns and to discover rules | Multiple choice- Grammar tenses | individual |
| | Task4 | Using awareness of collocation to identify instances of collocation from the text in an attempt to understand its language. | To use the knowledge of collocations to understand and analyze language data | Matching- medical collocations | individual |
| | Task5 | Learning words in groups helps the brain to make it easy to acquire these words. | To develop effective strategies for learning vocabulary | Multiple selection- word meaning | pair work |
| | Task6 | Using newly learned words in sentences to help in memorizing them. | To develop effective strategies for learning vocabulary | Dropbox- use words in sentences | small groups |
| | HW | Looking for opportunities to read as much as possible in English. | (1)To use out-of-class resources for learning English (2)To develop the ability to explore new information and language around them | Dropbox- learning English outside classroom | individual |
| Module 2/ week 23.02.14 | Task1 | Practicing strategies for interpersonal communication such as taking and holding turns, introducing a topic, or shifting to a new topic, and encouraging responses and other contributions. | (1)To develop effective strategies for interpersonal communication (2)To develop the ability to learn collaboratively | Dropbox- free discussion about a given topic | small groups |
| | Task2 | Thinking of relationships between what is already known and things newly learned. | To develop the ability to learn collaboratively | Dropbox- Writing a paragraph about the | small groups |
| | HW | Using research skills to search for information when learning English. | (1)To develop the ability to explore new information in project work (2)To find ways of exploiting out-of-class resources for learning English in project work | Dropbox- project about breast cancer | small groups |

| | | | | | |
|-------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|
| Module 3/ week 02.03.14 | Task1 | Effective use of bilingual dictionaries as an important classroom and personal resource. | To develop effective strategies for using bilingual dictionaries | Dropbox - Bilingual dictionary | small groups |
| | Task2 | Effective use of monolingual dictionaries as an important classroom and personal resource. | To develop effective strategies for using monolingual dictionaries | Dropbox - monolingual dictionary | small groups |
| | Task3 | Effective use of monolingual Medical dictionaries as an important classroom and personal resource. | To develop effective strategies for using monolingual medical dictionaries | Dropbox- monolingual medical dictionary | small groups |
| | Task4 | Effective use of monolingual Medical dictionaries as an important classroom and personal resource. REPEATED FOR DIFFERENT OBJ. | To develop the ability to use dictionaries to look up the meaning of words relevant to a particular context | Dropbox- application on monolingual | small groups |
| | HW | Using English and practicing it with other students in the discussion about given topic 'describe a country or a city you have been to'. | (1)To develop the ability to construct meaning (2)To develop the ability to discuss information and ideas in online discussions. | Discussion- Description of a country you have | small groups |
| Module 4/ week 09.03.14 | Task1 | Thinking of words' associations and categorizing them into a word-net to help the brain understand and remember new words. | (1)To develop effective strategies for learning vocabulary (2)To develop effective strategies for reading comprehension | Dropbox- Semantic mapping technique | small group |
| | Task2 | Thinking of relationships between what is already known and the information available in the reading text to understand and remember it. | To develop effective strategies for reading comprehension | Dropbox- the Experience -text- | small group |
| | Task3 | Learning new words by making a mental picture of the situation in which the word might be used to help in remembering them. | (1)To develop the ability to solve problems in project work (2)To develop the ability to learn collaboratively (3)To develop the ability to discuss information and ideas | Dropbox- Pair information gap activity | Pair work |
| | HW | Making a summary of what is heard or read in English and sharing it with the others. | (1)To develop the ability to learn collaboratively in project work and online discussions (2)To develop the ability to evaluate each other's work (3)To develop the ability to summarize what was heard | Discussion- Reading syndicate | small groups |
| Gap 1 | Task1 | Using English and practicing it with other students in the discussion about a given topic 'a healthy mind or a healthy body?' | To develop the ability to discuss information and ideas | Discussion -about a healthy mind or a | small groups |

| | | | | | |
|-------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------|
| Gap 2 | Task1 | Connecting the sound of a new word with an image or a picture of the word to help in remembering it. | (1)To develop effective strategies for learning vocabulary (2)To develop the ability to transform the audio form of the word into the visual form. | Long answer question- listening & writing from | individual |
| Gap 3 | Task1 | The use of search skills to search for information while learning English. | (1)To develop the ability to explore new information in project work (2)To find ways of exploiting out-of-class resources for learning English in project work. | Long answer question- project about heart attack | small groups |
| Module 5/ week 06.04.14 | Given | Speaking cognitive strategies (1)Ways of opening a conversation to get practice with other students of English-speaking members of a community. (2)Ways of asking for repetition, asking someone to speak more slowly, or requesting clarification, in order to get more comprehensible input. (3)Ways of checking that someone has understood. E.g. 'Ok?' or 'do you follow me?'. (4)Ways of getting information about language e.g. 'How do you pronounce this?' 'How do you say that?' (5)Ways of keeping a conversation going with phrases like 'right', 'yes', 'I see'. | | | |
| | Task1 | Starting conversations in English. | (1)To develop effective strategies for speaking/ To develop the ability to discuss information and ideas (2)To develop the ability to summarize information included in something heard or read. | Dropbox- practice speaking strategies on different topics (recording speaking) | small groups |
| | Task2 | Writing notes, messages, letters, or reports in English. | (1)To develop the ability to construct meaning (2)To develop the ability to learn collaboratively (3)To develop the ability to solve problems (4)To develop the ability to negotiate plans (5)To develop the ability to manage team members. | Discussion- planning a trip guide | small groups |
| | HW | Using English and practicing it with other students in the discussion about a given topic 'something have been researched or found interesting as a normal part of work'. | (1)To develop the ability to construct meaning (2)To develop the ability to discuss information and ideas. | Discussion- Something interesting to you | small groups |

| | | | | | |
|-------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|
| Module 6/ week 13.04.14 | Task1 | Thinking of relationships between what is already known and new things learned from the reading text. | (1)To create the link between the learners' prior knowledge and the reading text (2)To activate the learners' existing prior knowledge about the topic of the reading text (3)To introduce the learners' missing knowledge about the topic of the reading text (4)To develop effective strategies for reading comprehension. | Long answers question- pre-reading questions | individual |
| | Task2 | Thinking of relationships between what is already known and new things learned from the reading text. | (1)To improve the learners' processing and comprehension of the reading text (2)To improve the learners' reading rates | Long answers question- While- | individual |
| | Task3 | Connecting the sound of a new English word and an image or picture of the word to help in remembering the word. | To develop effective strategies for learning vocabulary. | Dropbox- 2 Links to other websites + | individual |
| | Task4 | Scanning information from the text for effective reading comprehension. | To develop effective strategies for reading comprehension. | Multiple choice- Post-reading | individual |
| | Task5 | Scanning information from the text for effective reading comprehension. REPEATED FOR REINFORCEMENT | To develop effective strategies for reading comprehension. | Multiple choice- what you have | individual |
| | HW | Using research skills to search for information while learning English. | (1)To develop the ability to explore new information in project work (2)To find ways of exploiting out-of-class resources for learning English in project work | Dropbox- project | small groups |
| Module7/ week 20.04.14 | Given information | Listening Strategies: (1)Ask for clarification as one of the uncertain strategies e.g. 'Sorry, I did not catch that' or 'Could you repeat that please?' (2)Ways to indicate that the speaker is holding our interest such as: nodding, smiling, frowning, using expressions of surprise or concern, making noises such as 'mmm', 'wow', and 'tut tut', or using words like 'yes', 'I see', and 'right'. (3)We can contribute to the speaker's line of thought by coming in with queries such as 'Are you saying...?' and reformulating what the speaker has just said. (4)Of course all of these strategies can be used negatively if we wish to indicate disagreement or displeasure. | To develop the ability to keep the conversation going. | | |

| | | | | | |
|--|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------|
| | Task1 | Thinking of relationships between what is already known and the new information from the listening text. | (1)To find out the link between the learners' prior knowledge and the spoken message(2)To activate the learners' existing prior knowledge about the topic of the audio file (3)To introduce the learners' missing prior knowledge about the topic of the audio file (4)To develop effective strategies for listening comprehension. | Dropbox- pre-listening stage | small groups |
| | Task2 | (1) paying attention when someone is speaking English; (2) asking the other person to slow down or say it again if something is not understandable; in this case, asking the teacher to replay the recording if needed. | (1)To link the while-listening stage in relevant ways to the pre-listening work (2)To confirm the learners' expectations about the topic of the recording (3)To help the learners to get the gist of the content. | True or False- while-listening stage | small groups |
| | Task3 | Making summaries of information heard or read in English. | To develop the ability to summarize information included in something heard or read. | Dropbox- Post-listening (Follow- | small groups |
| | Task4 | Trying to talk like native speakers of English. | To develop effective strategies for interpersonal communication in role play. | Dropbox- Role play | small groups |

Appendix 3

Students' LLA scores and levels

| Student no. | LLA score T1 | LLA bands | LLA score T3 | LLA bands | Change in LLA | LLA Levels |
|-------------|--------------|-----------|--------------|-----------|---------------|------------|
| 48 | 88.32 | E1 | 78.96 | D2 | -9.36 | 1 down |
| 32 | 82.73 | E1 | 93.09 | E2 | 10.36 | 1 up |
| 33 | 82.55 | E1 | 76.81 | D2 | -5.74 | 1 down |
| 49 | 81.93 | E1 | 78.49 | D2 | -3.44 | 1 down |
| 42 | 78.68 | D2 | 74.09 | D2 | -4.59 | 0 |
| 47 | 74.03 | D2 | 86.16 | E1 | 12.13 | 1 up |
| 45 | 71.36 | D2 | 69.97 | D1 | -1.39 | 0 |
| 26 | 71.22 | D2 | 75.82 | D2 | 4.6 | 1 up |
| 46 | 71.11 | D2 | 71.34 | D2 | 0.23 | 0 |
| 15 | 70.29 | D1 | 73.49 | D2 | 3.2 | 1 up |
| 27 | 68.04 | D1 | 75.61 | D2 | 7.56 | 1 up |
| 30 | 67.98 | D1 | 81.05 | E1 | 13.07 | 2 up |
| 28 | 67.62 | D1 | 68.26 | D1 | 0.65 | 0 |
| 35 | 67.48 | D1 | 70.99 | D2 | 3.51 | 1 up |
| 50 | 66.3 | D1 | 71.12 | D2 | 4.81 | 1 up |
| 41 | 66.13 | D1 | 67.81 | D1 | 1.69 | 1 up |
| 38 | 62.82 | D1 | 74.88 | D2 | 12.07 | 1 up |
| 40 | 61.36 | D1 | 72.74 | D2 | 11.38 | 1 up |
| 43 | 60.28 | C2 | 72.9 | D2 | 12.63 | 2 up |
| 34 | 57.49 | C2 | 62.67 | D1 | 5.18 | 1 up |
| 36 | 56.86 | C2 | 65.06 | D1 | 8.2 | 1 up |
| 31 | 56.77 | C2 | 65.24 | D1 | 8.47 | 1 up |
| 39 | 56.71 | C2 | 70.39 | D1 | 13.68 | 1 up |
| 44 | 56.02 | C2 | 68.06 | D1 | 12.04 | 1 up |
| 37 | 55.72 | C2 | 54.77 | C2 | -0.96 | 0 |
| 29 | 55.2 | C2 | 67.79 | D1 | 12.59 | 1 up |

Table 25: Offline group LLA scores and bands

| Student no. | LLA score T1 | LLA bands | LLA score T3 | LLA bands | Change in LLA | LLA Levels change |
|-------------|--------------|-----------|--------------|-----------|---------------|-------------------|
| 19 | 82.05 | E1 | 82.57 | E1 | 0.52 | 0 |
| 10 | 80.63 | E1 | 83.18 | E1 | 2.55 | 0 |
| 25 | 76.44 | D2 | 75.61 | D2 | -0.83 | 0 |
| 21 | 72.19 | D2 | 73.57 | D2 | 1.38 | 0 |
| 16 | 72.15 | D2 | 75.22 | D2 | 3.07 | 0 |
| 5 | 72.02 | D2 | 72.15 | D2 | 0.13 | 0 |
| 24 | 71.93 | D2 | 65.77 | D1 | -6.16 | 1 down |
| 2 | 71.78 | D2 | 81.07 | E1 | 9.29 | 1 up |
| 17 | 69.47 | D1 | 81.87 | E1 | 12.4 | 2 up |

| | | | | | | |
|----|-------|----|-------|----|-------|------|
| 7 | 67.9 | D1 | 72.05 | D2 | 4.15 | 1 up |
| 4 | 67.61 | D1 | 75.94 | D2 | 8.33 | 1 up |
| 13 | 66.85 | D1 | 74.99 | D2 | 8.15 | 1 up |
| 8 | 66.64 | D1 | 81.3 | E1 | 14.66 | 2 up |
| 1 | 65.44 | D1 | 81.42 | E1 | 15.98 | 2 up |
| 11 | 63.57 | D1 | 73.92 | D2 | 10.36 | 1 up |
| 23 | 63.32 | D1 | 79.69 | D2 | 16.36 | 1 up |
| 3 | 62.71 | D1 | 73.18 | D2 | 10.47 | 1 up |
| 6 | 62.65 | D1 | 84.96 | E1 | 22.31 | 2 up |
| 20 | 55 | C2 | 50.71 | C2 | -4.29 | 0 |
| 18 | 54.27 | C2 | 84.64 | E1 | 30.37 | 3 up |
| 22 | 53.01 | C2 | 66.63 | D1 | 13.62 | 1 up |
| 12 | 52.59 | C2 | 77.44 | D2 | 24.86 | 2 up |
| 9 | 52.02 | C2 | 79.6 | D2 | 27.58 | 2 up |
| 14 | 41.59 | C1 | 56.96 | C2 | 15.37 | 1 up |

Table 26: Online group LLA scores and bands

| Student no. | LLA score T1 | LLA bands | LLA score T3 | LLA bands | Change in LLA | LLA Levels change |
|--------------------|---------------------|------------------|---------------------|------------------|----------------------|--------------------------|
| 51 | 79.4 | D2 | 62.56 | D1 | -16.84 | 1 down |
| 74 | 79.03 | D2 | 80.35 | D2 | 1.33 | 0 |
| 68 | 78.91 | D2 | 74.1 | D2 | -4.8 | 0 |
| 69 | 78.77 | D2 | 76.46 | D2 | -2.31 | 0 |
| 59 | 78.08 | D2 | 60.88 | D1 | 17.21 | 1 down |
| 75 | 75.89 | D2 | 74.05 | D2 | -1.84 | 0 |
| 56 | 74.13 | D2 | 75.77 | D2 | 1.65 | 0 |
| 63 | 73.92 | D2 | 62.88 | D1 | -11.04 | 1 down |
| 58 | 73.53 | D2 | 65.15 | D1 | -8.38 | 1 down |
| 53 | 73.46 | D2 | 75.05 | D2 | 1.58 | 0 |
| 71 | 70.49 | D2 | 62.64 | D1 | -7.86 | 1 down |
| 73 | 70.29 | D1 | 60.74 | D1 | -9.55 | 0 |
| 52 | 68.15 | D1 | 65.23 | D1 | -2.92 | 0 |
| 61 | 68.11 | D1 | 69.43 | D1 | 1.33 | 0 |
| 66 | 65.95 | D1 | 76.42 | D2 | 10.47 | 1 up |
| 65 | 65.71 | D1 | 62.82 | D1 | -2.9 | 0 |
| 70 | 64.35 | D1 | 57.64 | C2 | -6.71 | 1 down |
| 57 | 61.9 | D1 | 60.38 | C2 | -1.52 | 1 down |
| 62 | 58.69 | C2 | 58.47 | C2 | -0.23 | 0 |
| 55 | 58.67 | C2 | 56.77 | C2 | -1.9 | 0 |
| 54 | 58.52 | C2 | 48.59 | C1 | -9.92 | 1 down |
| 67 | 56.88 | C2 | 32.48 | B2 | -24.4 | 2 down |
| 60 | 54.85 | C2 | 78.45 | D2 | 23.6 | 2 up |
| 64 | 51.95 | C2 | 49.51 | C1 | -2.44 | 1 down |
| 72 | 46.14 | C1 | 57.53 | B2 | -8.61 | 1 down |

Table 27: Control group LLA scores and bands

Appendix 4

Proficiency test

EF Test available at: <http://www.ef.co.uk/test/#/options>

Test score screenshot:



Figure 20: Proficiency test

Appendix 5

Self- Proficiency Rating Form

Please, choose one statement from each skill that can most properly and sincerely describe your English proficiency in the following table. Tick the most appropriate one in the column to the right (Ps. Only one answer).

| | Statement | Tick |
|----------|------------------------------------------------------------------------------------------------------|------|
| A | When listening in English, I can ... | |
| 1. | Understand familiar everyday expressions (e.g. greetings) | |
| 2. | Understand sentences and frequently used expressions relevant to the immediate situation | |
| 3. | Deal with most situations likely to arise whilst travelling to English-speaking countries | |
| 4. | Understand native speakers when they speak on everyday matters | |
| 5. | Understand complex and long talks by native speakers and recognize implicit meaning | |
| 6. | Understand with ease virtually everything I hear | |
| B | When reading in English, I can... | |
| 1. | Understand simple short paragraphs | |
| 2. | Understand short texts on limited topics | |
| 3. | Understand the main points of clear standard input on familiar matters | |
| 4. | Understand the main ideas of complex texts | |
| 5. | Understand a wide range of demanding, longer texts, and recognise implicit meaning | |
| 6. | Understand with ease virtually everything I read | |
| C | When speaking in English, I can... | |
| 1. | Introduce myself and others | |
| 2. | Describe in simple terms aspects of my background | |
| 3. | Describe experiences and events, dreams, hopes & ambitions | |
| 4. | Interact with a degree of fluency that makes regular interaction with native speakers quite possible | |
| 5. | Express myself fluently and spontaneously without much obvious searching for expressions. | |
| 6. | Express myself spontaneously, very fluently and precisely, even in the most complex situations. | |
| D | When writing in English, I can... | |
| 1. | Produce a short paragraph to introduce myself | |
| 2. | Produce a short text to describe my background | |
| 3. | Produce simple connected text on topics which are familiar | |
| 4. | Produce clear, detailed text on a wide range of subjects | |
| 5. | Produce clear, well-structured, detailed text on complex subjects | |
| 6. | Summarise information from different sources to reconstruct arguments | |

Appendix 6

Table 28: Self-Rating Scale Form

This questionnaire aims to investigate E-learning and learner autonomy in learning English as a foreign language in higher education in Saudi Arabia and to explore the learners' perceptions of and attitudes towards E-learning and learner autonomy.

Participant Number:

A. Experiences in e-learning:

Read the following statements, circle the most appropriate answer. If you do not know what the statement means, choose '0'.

0= Don't know, 1= Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Always

| | Statements | Scale | | | | | |
|---|----------------------------------------------------------------------------------------------------------------------|-------|---|---|---|---|---|
| 1 | I use web pages in English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2 | I use emails in English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3 | I use Microsoft Office in English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4 | I use search engines in English language learning (e.g. Google). | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 | I use discussion forums/ boards in English language learning (e.g. www.uqu1.com). | 0 | 1 | 2 | 3 | 4 | 5 |
| 6 | I use chat applications (e.g. MSN, Skype, or Whats app) in English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7 | I use social networking sites (e.g. Twitter or Face book) in English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8 | I use a learning management system to learn English language actively. | 0 | 1 | 2 | 3 | 4 | 5 |

B. Experience in learning autonomy:

Read the following statements, circle the most appropriate answer. If you do not know what the statement means, choose '0'.

0= Don't know, 1= Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Always

| | Metacognitive awareness of yourself: | Scale | | | | | |
|----|-------------------------------------------------------------------|-------|---|---|---|---|---|
| 1 | I can identify my language learning needs. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2 | I can learn English even without a teacher. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 3 | I can decide on my English language level. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4 | I can learn English with problem-solving | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 | I can spot the important points in a reading text. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6 | I can use technology effectively in learning English. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 7 | I can ask questions in English in the classrooms. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8 | I question teachers' decisions when they encourage me to do so. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9 | I am able to set up working groups. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10 | I am able to allocate functions in the working groups. | 0 | 1 | 2 | 3 | 4 | 5 |
| 11 | I am able to identify my role within a language learning group. * | 0 | 1 | 2 | 3 | 4 | 5 |

| | | | | | | | |
|----|---------------------------------------------------------------------------------------------------------------------------|--------------|---|---|---|---|---|
| 12 | I am able to use the learning facilities available for me to learn English. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 13 | I am able to decide my language learning strategy. | 0 | 1 | 2 | 3 | 4 | 5 |
| 14 | I am able to find appropriate materials. | 0 | 1 | 2 | 3 | 4 | 5 |
| | Metacognitive awareness of task: | Scale | | | | | |
| 15 | I participate in small group discussions in class. | 0 | 1 | 2 | 3 | 4 | 5 |
| 16 | I work with my friends in pairs to learn English. | 0 | 1 | 2 | 3 | 4 | 5 |
| 17 | I participate in 'role play'. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 18 | I participate in interactive classrooms more than I do in traditional lectures. | 0 | 1 | 2 | 3 | 4 | 5 |
| | Metacognitive awareness of strategy: | Scale | | | | | |
| 19 | I rehearse and revise new lessons. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 20 | I use modern interactive technology to enhance my language learning process. | 0 | 1 | 2 | 3 | 4 | 5 |
| 21 | I relate my experiences with new information in learning English. | 0 | 1 | 2 | 3 | 4 | 5 |
| 22 | I use concept mapping to comprehend a wide range of information. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 23 | I analyse and critically reflect on new ideas, information, or any language learning experiences. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 24 | I keep a summary of all my ideas and new language learning (e.g. plans, projects, lists of vocabulary, produced texts). * | 0 | 1 | 2 | 3 | 4 | 5 |
| 25 | I take a break during long periods of work. | 0 | 1 | 2 | 3 | 4 | 5 |
| 26 | I relate knowledge with practice. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 27 | I keep an open mind to other's point of view. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 28 | I use any opportunity I come across for language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 29 | I share information with others. | 0 | 1 | 2 | 3 | 4 | 5 |
| | Motivation | Scale | | | | | |
| 30 | I am able to maintain self-motivation. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 31 | I reward myself after every achievement. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 32 | I am inspired by others' success. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 33 | I intend to learn more about other cultures and languages. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 34 | When I read something difficult, I try harder to get meaning. * | 0 | 1 | 2 | 3 | 4 | 5 |
| | Self-assessment | Scale | | | | | |
| 35 | My ability to identify areas for further development in my learning is good. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 36 | My ability to monitor my language learning progress is low. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 37 | My ability to identify my areas of strength and weakness in language learning is low. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 38 | I appreciate it when my work can be peer-reviewed. | 0 | 1 | 2 | 3 | 4 | 5 |
| 39 | I value criticism as the basis of bringing improvement to my language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 40 | I work on achieving my language learning goals. * | 0 | 1 | 2 | 3 | 4 | 5 |
| | Self-management | Scale | | | | | |
| 41 | I keep myself up to date on different language learning resources available. | 0 | 1 | 2 | 3 | 4 | 5 |
| 42 | My responsibility for my English language learning is limited. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 43 | My responsibility for identifying my areas of deficit is limited. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 44 | I am able to plan and set my language learning goals. | 0 | 1 | 2 | 3 | 4 | 5 |
| 45 | I am able to suggest approaches to achieving language learning goals. | 0 | 1 | 2 | 3 | 4 | 5 |
| 46 | I am able to make decisions about my English language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 47 | I am able to manage time. | 0 | 1 | 2 | 3 | 4 | 5 |
| | Communication | Scale | | | | | |
| 48 | I maintain good interpersonal relationships with others. | 0 | 1 | 2 | 3 | 4 | 5 |
| 49 | I work in collaboration with others in class. | 0 | 1 | 2 | 3 | 4 | 5 |
| 50 | I am successful in communicating verbally. | 0 | 1 | 2 | 3 | 4 | 5 |
| 51 | I express my ideas effectively in writing. * | 0 | 1 | 2 | 3 | 4 | 5 |

| | | | | | | | |
|----|----------------------------------------------------|---|---|---|---|---|---|
| 52 | I express my views freely in class. | 0 | 1 | 2 | 3 | 4 | 5 |
| 53 | I use English language in classroom communication. | 0 | 1 | 2 | 3 | 4 | 5 |

C. Attitudes towards and perceptions of learning autonomy:

Read the following statements, circle the most appropriate answer. If you do not know what a statement refers to, choose '0'.

0= Don't know, 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

| | Statements | Scale | | | | | |
|----|-----------------------------------------------------------------------------------------------------|-------|---|---|---|---|---|
| 1 | Peer coaching is an effective method of language learning. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 2 | 'Role play' is an effective method for language learning. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 3 | Interactive classrooms are more effective than just listening to lectures. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4 | Concept mapping is an effective method of language learning. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 | Learners' interaction in the classroom facilitates English learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6 | Learning English with collaboration raises excitement in the classroom. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7 | Doing problem-solving tasks in the classroom decrease my interest in learning English. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 8 | Reflection on the process of language learning helps me identify my problems and their solutions. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 9 | I become more interested in learning English when I receive appropriate learner training. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10 | I become more competent in English when I receive appropriate learner training. | 0 | 1 | 2 | 3 | 4 | 5 |

D. Attitudes towards and perceptions of e-learning:

Read the following statements, circle the most appropriate answer. If you do not know what a statement refers to, choose '0'.

0= Don't know, 1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

| | Statements | Scale | | | | | |
|----|------------------------------------------------------------------------------------------------------|-------|---|---|---|---|---|
| 1 | Online instruction makes discussion with others active. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 2 | Online instruction makes me read actively. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3 | Online instruction makes me find information actively. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4 | Online instruction improves my thinking skills. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 | Online instruction enhances my problem-solving skills. | 0 | 1 | 2 | 3 | 4 | 5 |
| 6 | I like the use of colourful pictures in online instruction. | 0 | 1 | 2 | 3 | 4 | 5 |
| 7 | I like the use of learning videos in online instruction. | 0 | 1 | 2 | 3 | 4 | 5 |
| 8 | I like the instructor's support and guidance in the learning management system. | 0 | 1 | 2 | 3 | 4 | 5 |
| 9 | I like the use of MS- Word and MS-PowerPoint files in learning English. | 0 | 1 | 2 | 3 | 4 | 5 |
| 10 | I like the use of the traditional way of teaching only (face-to-face classroom). | 0 | 1 | 2 | 3 | 4 | 5 |
| 11 | I like the use of face-to-face teaching as well as online teaching. | 0 | 1 | 2 | 3 | 4 | 5 |
| 12 | I like the use of online teaching with no face-to-face teaching. | 0 | 1 | 2 | 3 | 4 | 5 |
| 13 | Teaching English by using technology encourages me to explore information and to avoid memorisation. | 0 | 1 | 2 | 3 | 4 | 5 |
| 14 | Teaching English by using technology wastes my time. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 15 | Teaching English by using technology wastes my efforts. * | 0 | 1 | 2 | 3 | 4 | 5 |
| 16 | Teaching by using technology makes me more enthusiastic about | 0 | 1 | 2 | 3 | 4 | 5 |

Appendices

| | | | | | | | |
|----|-------------------------------------------------------------|---|---|---|---|---|---|
| | learning English language. | | | | | | |
| 17 | Teaching by using technology enhances my language learning. | 0 | 1 | 2 | 3 | 4 | 5 |
| 18 | Online learning improves my ability to learn independently. | 0 | 1 | 2 | 3 | 4 | 5 |

Thank you for your time and effort to fill this questionnaire!

If you would like to have a look at the results of the questionnaire, I will be happy to share it. Also, if you would like to participate in an informal chat about it as a group or individually, please contact me on my email address: sma1g11@soton.ac.uk

I will be pleased to have you in subsequent chat which will benefit you, me, and the learners following you.

Appendix 7

Semi-structured focus group interview

Tech and internet use generally & in Lang learning:

1. How do you feel about the technical aspect of the use of technology in learning English: download, upload, save a doc, etc..?
2. What do you think of your knowledge of the use of technology at the end of the semester?
3. What do you think of the use of online resources combined with face-to-face classes in your English course? (RQ 2)

Learning in a community:

1. How do you feel about group work?
2. How do you feel about pair work?

Language proficiency level:

1. How do you feel about your language level at the end of the semester? Is there any difference from the beginning of the semester? Why?

Time management, planning, self-assessment:

1. What do you think of your ability to manage your time and to meet the deadlines?
2. Do you plan ahead?
3. What do you think of your ability to plan what you need to do for your language learning?
4. What do you think of your ability to think about your progress in learning English?

Course content (medical and Strategies):

1. How important is medical content to learning English?
2. What kinds of tasks do you think are very helpful to learning English?
3. How important is language learning strategies to learning English?

Learner independence:

1. How important is the existence of the teacher in learning English?
2. How much do you use what you learn in the classroom outside the classroom?

Appendix 8

Semi-structured one-to-one interview (Online group)

Tech & internet use generally & in Lang learning:

1. What effect do you think does the use of technology have on:
 - a. the amount of work you do in learning English?
 - b. your ability to reflect on your English learning?
 - c. your ability to use English whether in speaking or in writing?
 - d. pushing you to work without the teacher in class and out of class?
 - e. your choice to work more on learning English?
 - f. your ability to learn English without the need for the teacher whether in class or outside the class?
 - g. your ability to take decisions in your English learning?
2. What do you think of learning English using online resources and technology whether in the class or outside the class? Important? Useful? Useless? It doesn't make any difference? Easy? Difficult to deal with?

Learning in a community:

1. What do you think of your ability to work in groups at the beginning and at the end of the semester?
2. What do you think of your ability to work in pairs at the beginning and at the end of the semester?
3. How did group work in the classroom and outside the classroom affect the relationships among the group members?
4. What do you think of your ability to manage people in your group? What was it like having different roles within each small group? How do you feel groups go on with the group work?

Interaction:

1. How do you feel about interaction with the students and the teacher in the discussion board?
2. What do you think of your ability to interact with others online in English? When you did a discussion online, did you find it easy to have a discussion with students? Or you took some time to get used to discussing without hesitation?

Language proficiency level:

1. What is the effect of your use of technology in learning English on your language proficiency level?

Language learning strategies:

1. Can you remember examples of language learning strategies? How useful do you think language learning strategies?
2. How much do you use the language learning strategies?
3. Which one of the strategies you have started to use in learning English?
4. How often do you use these learning strategies?

Reflective writing:

1. If you remember we did reflective writing, how do you feel about the reflective writing? Did you like them? Did you like thinking about your learning English?

Time management, planning, self-assessment:

1. Was your ability to manage your time different at the beginning and end of the semester? Give me examples of what you did. What made you change, if there was a change?
2. How important were the deadlines for the tasks you did in the Strategy Course?

Course design:

1. What do you think of the way tasks were organized within the whole course and within each module?
2. What kinds of tasks do you remember were very helpful to learning English?
3. Did you think having the topic 'describe a city/ country you have been to or you wish to visit' as the first topic in the discussion forum encouraged you to participate in the discussion or it is just the nature of the online discussion is the reason?
4. Did you think having Module 1 focused on grammatical rules you already know and some vocabulary made it easy for you and made you more excited to know more about the Strategy course? Or do you think there was no difference? It was just a module like any one of the modules.
5. How do the kinds of tasks and the way they were organized in the Strategy course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to use English whether in speaking or in writing?

Course content (medical & Strategy):

1. How does the medical content of the Strategy Course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to interact with others in English in the discussion forums?
2. How does the language learning strategies you have learned in the Strategy Course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to interact with others in English in the discussion forums?

Language learner autonomy:

1. How much do you think of the knowledge and the skills you have learned in class from the Strategy Course you were able to apply in your life outside the classroom? (taken from Little, 2001)
2. After you did all the work on the online system without the need for the teacher to teach you the content throughout this semester, what do you think of learning English independently, i.e. the teacher should not be lecturing in the class?
3. What do you think you need the teacher for when you learn English online?

Appendix 9

Semi-structured one-to-one interview (Offline group)

Tech & internet use generally & in Lang learning:

1. If we were using technology and internet in the Strategy Course, would there be any effect on:
 - a. the amount of work you do in learning English?
 - b. your ability to reflect on your English learning?
 - c. your ability to use English whether in speaking or in writing?
 - d. pushing you to work without the teacher in class and out of class?
 - e. your choice to work more on learning English?
 - f. your ability to learn English without the need for the teacher whether in class or outside the class?
 - g. your ability to take decisions in your English learning?
2. What do you think of learning English using online resources and technology whether in the class or outside the class? Important? Useful? Useless? It doesn't make any difference? Easy? Difficult to deal with?

Learning in a community:

1. What do you think of your ability to work in groups at the beginning and at the end of the semester?
2. What do you think of your ability to work in pairs at the beginning and at the end of the semester?
3. How did group work in the classroom and outside the classroom affect the relationships among the group members?
4. What do you think of your ability to manage people in your group? What was it like having different roles within each small group? How do you feel groups go on with the group work?

Interaction:

1. How do you feel about interaction with the students and the teacher in discussion tasks?
2. What do you think of your ability to interact with others in English in the class? When you did a discussion task, did you find it easy to talk to students? Or you took some time to get used to talking without hesitation?

Language proficiency level:

1. If we had used technology in learning English in the Strategy Course, would there be any effect on your language proficiency level?

Language learning strategies:

1. Can you remember examples of language learning strategies? How useful do you think language learning strategies?
2. How much do you use the language learning strategies?
3. Which one of the strategies you have started to use in learning English?
4. How often do you use these learning strategies?

Reflective writing:

1. If you remember we did reflective writing, how do you feel about the reflective writing? Did you like them? Did you like thinking about your learning English?

Time management, planning, self-assessment:

1. Was your ability to manage your time different at the beginning and end of the semester? Give me examples of what you did. What made you change, if there was a change?
2. How important were the deadlines for the tasks you did in the Strategy Course?

Course design:

1. What do you think of the way tasks were organized within the whole course and within each module?
2. What kinds of tasks do you remember were very helpful to learning English?
3. Did you think having the topic 'describe a city/ country you have been to or you wish to visit' as the first topic in the discussion tasks encouraged you to participate in the discussion or it is just the nature of the discussion task is the reason?
4. Did you think having Module 1 focused on grammatical rules you already know made it easy for you and made you more excited to know more about the online course? Or do you think there was no difference? It was just a module like any one of the modules.
5. How do the kinds of tasks and the way they were organized in the strategy course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to use English whether in speaking or in writing?

Course content (medical & Strategy):

1. How does the medical content of the Strategy Course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to interact with others in English in the discussion tasks?
2. How does the language learning strategies you have learned in the Strategy Course affect:
 - a. the time you spend on learning English?
 - b. the amount of work you do on learning English?
 - c. your ability to interact with others in English in the discussion tasks?

Language learner autonomy:

1. How much do you think of the knowledge and the skills you have learned in class from the Strategy Course you were able to apply in your life outside the classroom?
2. After you did all the work on the strategy course without the need for the teacher to teach you the content throughout this semester, what do you think of learning English independently, i.e. the teacher should not be lecturing in the class?
3. What do you think you need the teacher for when you learn English?

Appendix 10

Learners' weekly reflective writing form (regular modules)

The following questions will be given to the students in a blog post weekly. They will be given some time to answer the questions in the classroom before they leave so the tutor will make sure they all do.

According to today's class, answer the following questions:

1. Which language learning strategy did you find helped you to learn English most effectively? Why?

.....

.....

2. Which language learning strategy did you like the best? Why?

.....

.....

3. Which task did you like the best? Why?

.....

.....

4. Which language learning strategy did you like the least? Why?

.....

.....

5. Which task did you like the least? Why?

.....

.....

6. What will you do after the class today?

.....

.....

Appendix 11**Learners' weekly reflective writing form (optional modules)**

Q1. How helpful was the language learning strategy (LLS) you have learned today to learn English most effectively? Why?

.....

.....

Q2. How difficult was the task? Why?

.....

.....

Q3. What will you do after doing the task today?

.....

.....

Appendix 12

Small-scale survey (baseline study)

Because our phones are increasingly internet-connected and we are using them for different purposes, I am interested in how we use the internet-connected phone and the computer to learn English language.

This survey is meant to take only 10 minutes of your time.

Circle the most appropriate answer.

Response Key: 5=Always; 4=Often; 3=Sometimes; 2=Seldom; 1=Never

| A | What do you use computers for (laptops or desktops): | score | | | | | Ar. | Eng. |
|----|------------------------------------------------------------|-------|---|---|---|---|-----|------|
| 1 | I use computers in formal study | 1 | 2 | 3 | 4 | 5 | | |
| 2 | I use computers in my independent-learning | 1 | 2 | 3 | 4 | 5 | | |
| 3 | I use computers in my free time for gaming | 1 | 2 | 3 | 4 | 5 | | |
| 4 | I use computers in my free time for watching movies | 1 | 2 | 3 | 4 | 5 | | |
| 5 | I use computers for searching information | 1 | 2 | 3 | 4 | 5 | | |
| 6 | I use computers in my free time for text-chatting online | 1 | 2 | 3 | 4 | 5 | | |
| 7 | I use computers to keep diaries | 1 | 2 | 3 | 4 | 5 | | |
| 8 | I use computers for emailing | 1 | 2 | 3 | 4 | 5 | | |
| 9 | I use computers for talking (e.g. phoning or skypeing) | 1 | 2 | 3 | 4 | 5 | | |
| 10 | Are there any other uses? | | | | | | | |
| B | What do you use internet-connected phones or tablets for: | score | | | | | | |
| 1 | I use internet-connected phones in formal study | 1 | 2 | 3 | 4 | 5 | | |
| 2 | I use internet-connected phones in my independent-learning | 1 | 2 | 3 | 4 | 5 | | |
| 3 | I use internet-connected phones in my free time for gaming | 1 | 2 | 3 | 4 | 5 | | |

| | | | | | | | | |
|----------|------------------------------------------------------------------------------|---|---|---|---|---|--|--|
| 4 | I use internet-connected phones in my free time for watching movies | 1 | 2 | 3 | 4 | 5 | | |
| 5 | I use internet-connected phones for searching information | 1 | 2 | 3 | 4 | 5 | | |
| 6 | I use internet-connected phones in my free time for text-chatting online | 1 | 2 | 3 | 4 | 5 | | |
| 7 | I use internet-connected phones to keep diaries | 1 | 2 | 3 | 4 | 5 | | |
| 8 | I use internet-connected phones for emailing | 1 | 2 | 3 | 4 | 5 | | |
| 9 | I use internet-connected phones for talking (e.g. phoning or skypeing) | 1 | 2 | 3 | 4 | 5 | | |
| 10 | Are there any other uses? | | | | | | | |
| C | What new internet-connected technology do you use in your daily life? | | | | | | | |

*Ar= Arabic, Eng.= English, independent-learning= free learning, formal study= study for school

D. Tick the choices that apply to you:

| | | | | | | | | |
|----------|-------------------------------------------------------------------------------------------------------------------|--|-------------------------|--|--|-------------------|---------------------------------|--|
| 4 | Do you use internet-connected computer or other devices (laptops, tablets, iPads) to learn English better? | | | | | | | |
| | Applications and softwares | | | | | Activities | | |
| | Skype | | Dictionary applications | | | | Text chatting (e.g. What's app) | |
| | Second life | | Dictionary websites | | | | Texting (e.g. SMS) | |
| | Live mocha | | Podcasts (mp3 files) | | | | | |
| | Twitter | | Movies | | | | | |
| | Facebook | | Educational video clips | | | | | |

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| | | | | | |
|--|-----------------------|--|--------|--|--|
| | Email | | iTunes | | |
| | Youtube (video files) | | | | |

E. Circle the most appropriate answer.

Response Key: 5= Strongly agree; 4= Agree; 3= neutral; 2= Disagree; 1= Strongly disagree

| | Confidence | score | | | | | Ar. | Eng. |
|---|---------------------------------------------------------------------------------------------------------------------------------|-------|---|---|---|---|-----|------|
| 1 | I can use technology to express my ideas easily | 1 | 2 | 3 | 4 | 5 | | |
| 2 | I know how to use the phone and the computer for different purposes (e.g. phoning, getting information, or learning a language) | 1 | 2 | 3 | 4 | 5 | | |
| 3 | I know how to study with others effectively online (e.g. using What's app, a VLE, or collaborative online websites) | 1 | 2 | 3 | 4 | 5 | | |
| 4 | I know how to communicate with others effectively online (e.g. using What's app, a VLE, or collaborative online websites) | 1 | 2 | 3 | 4 | 5 | | |
| | Attitude towards use of desktop computers or laptops: | score | | | | | | |
| 1 | I find the use of computers for learning a language challenging | 1 | 2 | 3 | 4 | 5 | | |
| 2 | I find my online work on the computer facilitates the creation and maintenance of my friendships | 1 | 2 | 3 | 4 | 5 | | |
| 3 | I find computers hard for me to use | 1 | 2 | 3 | 4 | 5 | | |
| 4 | I find the use of computers makes life difficult | 1 | 2 | 3 | 4 | 5 | | |
| 5 | I find the use of computers minimizes my personal relationships | 1 | 2 | 3 | 4 | 5 | | |
| 6 | I find the use of computers helpful to learn about other cultures around the world | 1 | 2 | 3 | 4 | 5 | | |

| | | | | | | | | |
|----------|---------------------------------------------------------------------------------------------------------------|---------------|---|---|---|---|--|--|
| 7 | I find the use of computers boring | 1 | 2 | 3 | 4 | 5 | | |
| | Attitude towards use of internet-connected phones or tablets: | scores | | | | | | |
| 1 | I find the use of internet-connected phones for learning a language challenging | 1 | 2 | 3 | 4 | 5 | | |
| 2 | I find my online work on internet-connected phones facilitates the creation and maintenance of my friendships | 1 | 2 | 3 | 4 | 5 | | |
| 3 | I find the internet-connected phones hard for me to use | 1 | 2 | 3 | 4 | 5 | | |
| 4 | I find the use of internet-connected phones makes life difficult | 1 | 2 | 3 | 4 | 5 | | |
| 5 | I find the use of internet-connected phones minimizes my personal relationships | 1 | 2 | 3 | 4 | 5 | | |
| 6 | I find the use of internet-connected phones helpful to learn about other cultures around the world | 1 | 2 | 3 | 4 | 5 | | |
| 7 | I find the use of internet-connected phones boring | 1 | 2 | 3 | 4 | 5 | | |
| F | Do you own a tablet (e.g. iPad or Samsung)? | | | | | | | |
| G | How would you feel if you lost your phone, computer, or tablet? | | | | | | | |
| H | Which one is your most valuable device? | | | | | | | |

Thank you for your time and effort

Note: This survey will be followed by a 10- or 5-minute conversation about the key points of the topic (either summarize or recorded).

Appendix 13

Initial Focus group (baseline study)

Contextual factors affecting learner autonomy and use of technology:

A. Student:

1. Lack of students' technical abilities.
2. Lack of students' academic skills.
3. Lack of classroom interaction among students.
4. Students are unaware of the educational purposes of technology besides its social purposes.

B. Teacher:

1. The teacher's way of teaching is not enthusiastic.
2. The teacher's explanation is not always clear.
3. There is no feedback on progress.
4. Teachers are not aware of students' special needs.
5. Teachers have a maximum control of students' activities and learning tasks.
6. Teachers are more authoritative than the students.
7. Teachers are unaware of the educational purposes of technology besides its social purposes.
8. Teachers minimally use technology to promote EFL teaching and learning.
9. Teachers use technology only for announcement and assessment tools.

C. Teaching context:

1. The aims of each class are not always clear.
2. Huge amount of material and details to be covered.
3. Teacher-student relationship is of a formal nature.
4. Lack of interaction between the teachers and students.
5. Lack of opportunity to ask questions and meaning negotiation in the classroom.
6. Lack of collaboration.
7. Exam-oriented teaching approaches.

D. Institution context:

1. Lack of library resources.
2. Lack of technical support and maintenance.
3. Lack of ongoing support on how to use ICT in education.
4. No enough e-learning infrastructures in the university.
5. The available e-learning infrastructure is not reliable enough to carry out teaching and learning tasks online.

E. EFL context:

1. Rare opportunities to practice English outside the classroom.
2. Lack of extracurricular activities offered by the university.
3. Lack of opportunities to connect between in-class and out-class activities.

Appendix 14

Sample of qualitative data base for case studies (e.g. Nora's)

Action theme:

1. She has bought a computer with a pen and started taking notes on it because she believes that taking notes in an electronic form is helpful and easy to retrieve. She comes back to the old way of taking notes on her notebook when she finds it hard to cope in the electronic form.

"I think it become easier, but sometimes I really need to draw my own notes on it. It'll be a little difficult doing that in electronic files. But it is really helpful because anytime I want to retrieve the information, I will ...just from one click I will have all the information I have".

2. She said that can always find the information she needs on the internet which shows she does that in her learning.

"Yes I have the knowledge. Even if I don't I can always look it up on the internet".

3. She had the courage to throw a question to anyone of her colleagues in the focus group interview the use of paper notes is preferred over the electronic form.

"when do you prefer to use paper and when do you prefer to use the electronic things?"

4. In the focus group interview, she gave her story of buying a laptop that comes with a pen and the motivation behind that. She was printing lectures to study before she bought it but she changed her mind about this because she felt guilty for printing a huge amount of paper and to throw them later on. Now, she downloads lectures and takes notes on her laptop

"About this aspect, in the first semester, I had to print a lot of lectures I had to study. And at the end of the semester, I ended up with this pile of papers I didn't know what to do with it. I felt guilty if I throw it. So I just kept it. But this term, I bought this laptop. It comes with a pen. So I can download lectures and write my own notes. It is really comfortable and I don't have to carry a lot of papers with me".

5. In her learning, Nora learns vocabulary on her own throughout her life. Vocabulary self-study was characterised by using the strategy of linking three ways (e.g. hearing the word, trying it out, seeing it written). This strategy helps her to better learn and remember the words.

“Actually it was quite helpful. There is three different ways of to learn a new word and to memorize it. First hearing it, trying it, and see the word to memorize it. When I learn new vocabulary in my whole life on my own, self-study, I use this method” .

6. When Lama said that working in pair is as good as working in groups, Nora volunteered to ask about the reason why she thinks it is also a good idea. When Lama explained her reason that it is helpful if a partner is good at speaking and another at writing or reading, Nora volunteered to explain it in a few words and to show that she has got the idea.

“why do you think it is good?”

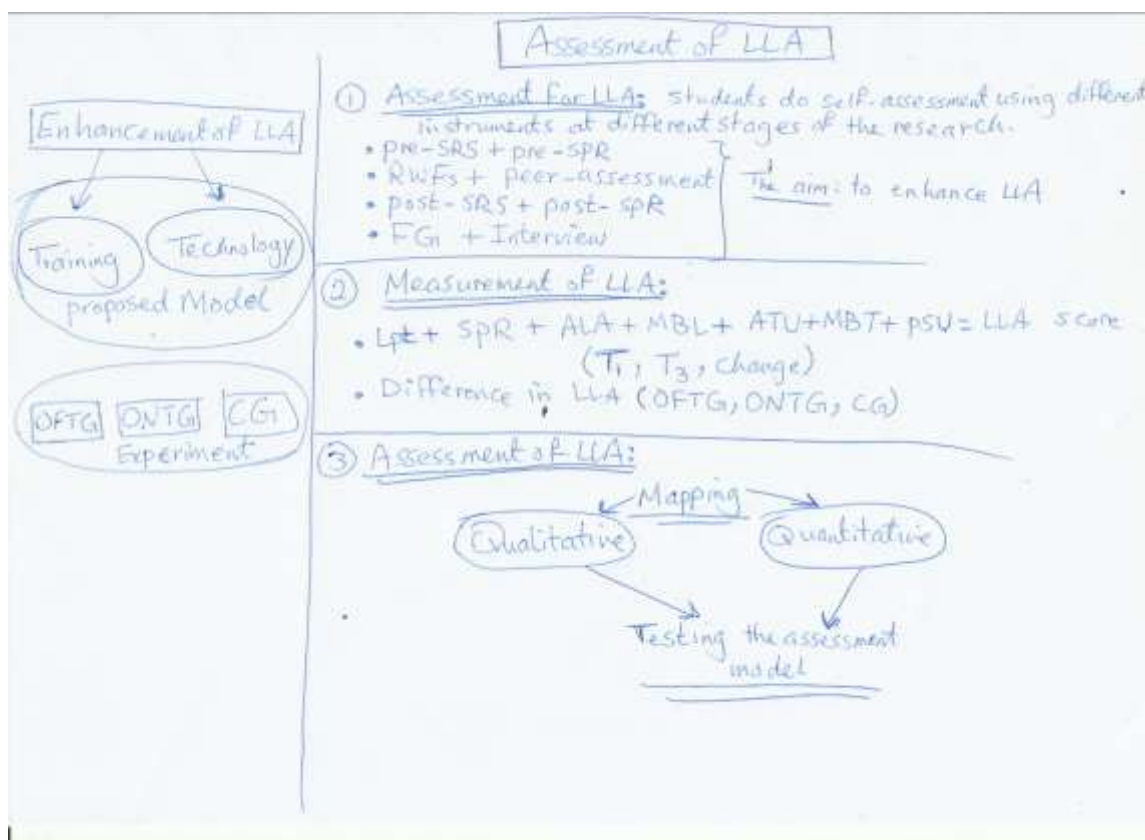
“They complete each other”.

7. Nora’s habit is to submit homework immediately to avoid forgetting it influenced by the saying the sooner, the better.

“For me, it is the sooner, the better. When I have homework, I just do it so I won’t forget. I always forget. I do it sooner and turn it in”.

Appendix 15

Figure 21: A sample of analytical memos



Appendix 16

Assessment criteria for the RWFs (regular modules)

Q1. Which language learning strategy did you find helped you to learn English most effectively? Why?

- a. students identify the most helpful strategy and explain clearly why it is helpful (High rate)
- b. students identify the most helpful strategy and go some way to explain why it is helpful (medium rate)
- c. students identify the most helpful strategy and give little or no further explanation (Low rate or nothing)

Q2. Which language learning strategy did you like the best? Why?

- a. students identify the strategy they like the best and explain clearly why they like it (High rate)
- b. students identify the strategy they like the best and go some way to explain why they like it (medium rate)
- c. students identify the strategy they like the best and give little or no further explanation (low rate or nothing)

Q3. Which task did you like the best? Why?

- a. students identify the task they like the best and explain clearly why they like it (High rate)
- b. students identify the task they like the best and go some way to explain why they like it (Medium rate)
- c. students identify the task they like the best and give little or no further explanation (Low rate or nothing)

Q4. Which language learning strategy did you like the least? Why?

- a. students identify the strategy they like the least and explain clearly why they did not like it (High rate)
- b. students identify the strategy they like the least and go some way to explain why they did not like it (Medium rate)
- c. students identify the strategy they like the least and give little or no further explanation (Low rate or nothing)

Q5. Which task did you like the least? Why?

- a. students identify the task they like the least and explain clearly why they did not like it (High rate)

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- b. students identify the task they like the least and go some way to explain why they did not like it (Medium rate)
- c. students identify the task they like the least and give little or no further explanation (Low rate or nothing)

Q6. What will you do after the class today?

- a. students explain clearly what they will do after the class and plans are directly related to their classroom learning (e.g. apply learning, search for information, ...etc) (High rate)
- b. students go some way to explain what they will do after the class but their plans are indirectly related to their classroom learning (e.g. do something related to learning such doing HW and getting the book, go to the next class, or study for exam) (Medium rate)
- c. students give little or no indication of what they plan to do after the class and does not relate it to their classroom learning (Low rate or nothing)

Appendix 17

Assessment criteria for the RWFs (optional modules)

Q1. How helpful was the language learning strategy (LLS) you have learned today to learn English most effectively? Why?

- a. students determine the benefit of the LLS and a rigorous reason is being given to why it was helpful. (high rate)
- b. students determine the benefit of the LLS and a shallow or unclear reason is being given to why it was helpful. (Medium rate)
- c. students determine the benefit of the LLS and no reason is being given for why it is helpful. (low rate or nothing)

Q2. How difficult was the task? Why?

- a. students determine the difficulty of the task and a rigorous reason is being given to why it was not/difficult. (high rate)
- b. students determine the difficulty of the task and a shallow or unclear reason is being given to why it was not/difficult. (Medium rate)
- c. students determine the difficulty of the task and no reason is being given to why it was not/difficult. (Low rate or nothing)

Q3. What will you do after doing the task today?

- a. students explain clearly what they will do after doing the task and their plans are directly related to their language learning (e.g. apply learning, search for information, ...etc). (High rate)
- b. students go some way to explain what they will do after doing the task and their plans are indirectly related to their language learning (e.g. do something related to learning such as doing HW and getting the book, go to the next class, or study for exam). (Medium rate)
- c. student give little or no indication of what they plan to do after the class and they do not relate it to their language learning (Low rate or nothing)

Appendix 18: The grid of integrated data

| Constructs-aspects | Nora | Lama | Samia | Maha | Notes |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Task types & organization (action, engagement, attitude, MBL) | <p>-She had taken positive <u>actions</u> with regard of the material and the tasks as she was doing all of the tasks even those assigned to be done during the break. She looked at the extra free online resources (puzzles) uploaded to them in the students' support section on the VLE. She insists on finding the information needed for the tasks even with difficult ones.</p> <p>-She was <u>engaged</u> with the material that she was waiting for the restricted content of the online course to be disclosed, unlike the unchanged way of material presentation when textbooks are used for teaching). Being positive about her ability to apply the skills given in the material and about the variety of tasks unlike the boring types they used to shows her engagement. She was engaged with the rest of the material after feeling bored with Module 1 (all grammar). Her suggestion to give this material (different task types, strategies, opportunities for socialization and for language use, unlike the routine</p> | <p>-positive <u>actions</u> were seen when Lama was doing all tasks presented in the strategy course & did not miss anyone</p> <p>-She was not able to trace her <u>engagement</u> in doing the tasks because she was doing them offline, but she suggested to change the time of the strategy course either before or after the classes because sometimes they have to take exams in their classes & they cannot feel engaged in the strategy course when they are concerned about the exams. Also the focus of module 1 in the strategy course to be solely on grammar was a bit boring. However, this feeling did not make her feel discouraged to continue with the course & she stayed positive about it</p> | <p>-Negative actions were found in Samia performance of the tasks outside the classroom. She did not do all of the tasks</p> <p>-The late submission of tasks and reflective writing forms along with the tasks not being submitted may indicate lack of engagement with the material. She was not interested to put any plan for her language L may indicate that she was not engaged with the L material. Saying that the kinds of tasks affected the time she spent on L English & that she would spend less time if the task was difficult & she was able to get the idea from the task shows that she can easily become demotivated to continue using the L material. Having module 1 focused on grammar motivated her to continue L using this L material because she likes L about</p> | <p>-No mention of any action being taken related to the material and the tasks.</p> <p>-Evidence of lack of engagement were found. Medium negative effect for having module1 all focused on grammar but this did not make her feel that the course will be boring. The time spent on L English was not affected by the kinds & organization of the tasks included in the material. She did not like the tasks asking to listen and write what is heard. The type & organization of tasks did not affect her motivation to use English with others. suggesting to have students move around in the class while L shows that being split into small group for group tasks was not enough for her and she wanted more movement.</p> | |

Appendix 19

Table 30: Summary of scores for the case studies

| St (Case) | Measured concept | T1=Phase 1 | T2=Phase 2 | T3=Phase 3 | Change in concept |
|-----------------|---------------------|-----------------------|--------------------------------|--------------------------|-----------------------------------------------------|
| Nora Online | LLA (high) | 72.19 (D2) | | 73.57 (D2) | 1.38=0 level |
| | PSU | 65 | | 60 | 5 |
| | LPT | 65 | | 70 | 5 |
| | LPR-L | 4 | | 4 | |
| | LPT-R | 4 | | 4 | |
| | LPT-S | 4 | | 6 | |
| | LPT-W | 4 | | 3 | |
| | LCG=x | 28.5 | | 48 | |
| | Tech use | 35 | | 38 | 3 |
| | Reflectivity | High, followed by low | High | High, followed by medium | Increase within the rating level |
| Samia Online | LLA (low) | 52.59 (C2) | | 77.44 (D2) | 24.86=2 levels up |
| | PSU | 50 | | 75 | 25 |
| | LPT | 70 | | 75 | 5 |
| | LPR-L | 3 | | 5 | |
| | LPT-R | 3 | | 5 | |
| | LPT-S | 4 | | 6 | |
| | LPT-W | 3 | | 4 | |
| | LCG=x | 27 | | 48 | |
| | Tech use | 47 | | 56 | 9 |
| | Reflectivity | Medium | High=low; Average Medium | Medium | Slight increase in phase 2 but generally same level |
| Lama Offline | LLA (high) | 74.03 (D2) | | 86.16 (E1) | 12.13=1 level up |
| | PSU | 70 | | 85 | 15 |

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| | | | | | |
|-----------------|--------------|----------------|----------------|-----------|-------------------|
| | LPT | 70 | | 70 | 0 |
| | LPR-L | 6 | | 6 | |
| | LPT-R | 5 | | 6 | |
| | LPT-S | 6 | | 6 | |
| | LPT-W | 6 | | 6 | |
| | LCG=x | 23 | | 46 | |
| | Tech use | 56 | | 72 | 16 |
| | Reflectivity | Medium | High | | Medium average |
| Maha Offline | LLA (low) | 60.28 (C2) | | 72.9 (D2) | 12.63=2 levels up |
| | PSU | 50 | | 75 | 25 |
| | LPT | 55 | | 64 | 9 |
| | LPR-L | 4 | | 5 | |
| | LPT-R | 3 | | 4 | |
| | LPT-S | 4 | | 3 | |
| | LPT-W | 3 | | 4 | |
| | LCG=x | 29.5 | | 47 | |
| | Tech use | 31 | | 25 | -6 |
| | Reflectivity | Medium average | Low or nothing | | Low or nothing |

Appendix 20

Findings of qualitative content analysis of the reflective writing forms

| Nora/ Research code= 21 (highest autonomous student in online group) | | | |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------|
| Phases | Phase 1 | Phase 2 | Phase 3 |
| | High (13) | High (7) | High (12) |
| | Low or nothing (8) | Low or nothing (1) | Low or nothing (1) |
| | Medium (3) | Medium (1) | Medium (5) |
| Overall progress | Majority in high followed by low and few medium | Majority high | Majority high, followed by medium & few low |
| Notes | Started high but more low or nothing than medium. Phase 2 had majority high. Ended with majority high but more medium than low. Increase started from (2) | | |

Table 31: Assessment of Nora's reflective capacity

| Samia/ Research code= 12 (lowest autonomous student in online group) | | | |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|
| Phases | Phase 1 | Phase 2 | Phase 3 |
| | Medium (13) | High (4) | Medium (12) |
| | Low or nothing (6) | Low or nothing (4) | Low or nothing (4) |
| | High (5) | Medium (1) | High (2) |
| Overall progress | Majority medium & a few low & high rated responses | Majority high, followed by low & few medium=medium average | Majority medium, followed by low & a few high responses |
| Notes | Level after the course is generally the same as it was the beginning of the course. The level has improved a bit in phase 2 probably because she had sufficient time during the break or she wanted to stay in contact with the material. | | |

Table 32: Assessment of Samia's reflective capacity

| Lama/ Research code= 47 (highest autonomous student in offline group) | | | |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------|
| Phases | Phase 1 | Phase 2 | Phase 3 |
| | Low or nothing (9) | High (7) | Low or nothing (7) |
| | High (0) | Low or nothing (2) | Medium (5) |
| | Medium (11) | Medium (0) | High (6) |
| Overall progress | Majority medium, followed by low or nothing & no high responses | Majority high with a few low or nothing & no medium responses | Similar numbers in low, high and medium= medium average |
| Notes | <p>Started the course with mostly medium level but ended with similar numbers of responses which made it difficult to determine her level at that point.</p> <p>However, in phase 2, the level was generally high which may indicate that she had more time to reflect well during the break than in phase 1 or phase3. It may mean that time problem was worse in phase 3 which caused her level to decrease. This result can be supported by her talk about the work load during exams and the decreasing ability to manage time at the end of the semester.</p> | | |

Table 33: Assessment of Lama's reflective capacity

| Maha/ Research code= 43 (lowest autonomous student in offline group) | | | |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Phases | Phase 1 | Phase 2 | Phase 3 |
| | Low or nothing (9) | Low or nothing (7) | Low or nothing (11) |
| | High (8) | High (2) | Medium (4) |
| | Medium (7) | Medium (0) | High (3) |
| Overall progress | Started with similar amount of responses in each rating category but the largest was low or nothing=medium average | The majority of response were rated as low or nothing with few high and no medium response | Majority low or nothing and similar amount of responses in medium and high |
| Notes | <p>She started with an undetermined level of reflectivity and ended with mostly low or nothing level. Deterioration in reflectivity started in Phase 2, and this phase seems to be the worst in reflectivity rating unlike the other three case studies (Nora, Lama, & Maha) who could focus more on the material and reflectivity during the break.</p> | | |

Table 34: Assessment of Maha's reflective capacity

Appendix 21

Step 3 of the testing process for the measurement scale

| Samia/ Research code= 12 (lowest autonomous ONTG) | | | | |
|---------------------------------------------------|-------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Self-rated LLA component | Scores at T1 & T3 | Score changes | Qualitative responses at T3 (evidence) | Judgement on the changes happening in scores |
| MBT | 53 to 75 | 22 points | Mixed responses with many negative. Many positive responses reported but not valid as responses to other themes and observation findings counter them. | There should be no increase |
| MBL | 50 to 80 | 30 points | Negative about it | There should be no increase |
| ATU | 50 to 57 | 7 points | Negative about it | There should be no increase |
| ALA | 50 100 | 50 points | Negative about it | There should be no increase |
| PSU | 50 to 75 | 25 points | Positive but not many action about LLS use were reported | Increase is acceptable but (25p) is over-rated compared to the reported actions |
| SPR | 45 to 80 | 35 points | Progress in the four language skills was reported twice (e.g. talking about skills; talking about effect of technology on skills). | Increase is acceptable but (35p) is over-rated compared to the (5p) increase in LPT |

Table 35: Step 3 of the testing process for the measurement scale (Samia)

| Nora/ Research code= 21 (highest autonomous ONTG) | | | | |
|---------------------------------------------------|-------------------|---------------|----------------------------------------|-----------------------------------------------------------------|
| Self-rated LLA component | Scores at T1 & T3 | Score changes | Qualitative responses at T3 (evidence) | Judgement on the changes happening in scores |
| MBT | 63 to 75 | 13 points | Super positive about it | Increase is acceptable |
| MBL | 85 to 65 | -20 points | Positive and pragmatic about it | Decrease is completely unacceptable |
| ATU | 68 to 75 | 7 points | Super positive about it | Increase is acceptable and it could be more than (7p). |
| ALA | 100 to 100 | 0 points | Positive about it | Increase is expected from the responses about technology use in |

| | | | | |
|------------|----------|-----------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | the training |
| PSU | 65 to 60 | -5 points | Positive responses but unchanged use was reported. | Decrease is completely unacceptable as the increase in awareness implies an increase in use. Reduction of use is unbelievable because her belief about strategies is positive, she reported using them, and observation shows that she is strategic and pragmatic in her learning. An increase is expected to happen either the same as that made by the high autonomy OFTG if not greater because they were engaged in the training in a similar way. |
| SPR | 60 to 65 | 5 points | An increase was reported in writing and language proficiency in general | Increase should be greater because very positive increase in writing was reported but was under-rated in the SPR form |

Table 36: Step 3 of the testing process for the measurement scale (Nora)

| Lama/ Research code= 47 (highest autonomous OFTG) | | | | |
|---------------------------------------------------|------------------|---------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Self-rated LLA component | Scores (T1 & T3) | Score changes | Qualitative responses at T3 (evidence) | Judgement on the changes happening in scores |
| MBT | 63 to 78 | 16 points | Super positive about its impact | Increase is acceptable as she voluntarily used technology, but 14p increase is a lot for her use and it should not be greater than the |

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|------------|-----------|-----------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | (7p) increase of the high autonomy ONTG. |
| MBL | 85 to 95 | 10 points | Positive but not completely | Increase is expected from her positive responses and hard work in the interactive training, but she still needs the teacher for teaching the basics to reassure her progress (confidence). She referred to technology impact on LLA. Not given technology led to the lack of support she needs for LLA. It is not expected to exceed the change made by the high autonomy ONTG. |
| ATU | 61 to 75 | 14 points | positive but not as strong as the attitude of the high autonomy ONTG | Increase is acceptable because she voluntarily used technology for tasks performance, but 14p increase is a lot and it should not be greater than the (7p) increase of the high autonomy ONTG. |
| ALA | 75 to 100 | 25 points | Positive but not completely | Increase is expected from her positive responses and hard work in the interactive training. It is not expected to exceed the change made by the high autonomy ONTG. |
| PSU | 70 to 85 | 15 points | Positive responses and increased use was reported. | A (15p) increase in her use is acceptable |

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|------------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | showing her great uptake of the given pedagogy, but this increase is expected to be either the same as that made by the high autonomy ONTG if not less because they were engaged in the training in a similar way. |
| SPR | 95 to 100 | 5 points | A low capacity was reported in writing and language proficiency in general. Also a limited speaking ability was reported. | Increase is not acceptable because no any improvement in these skills was reported. She over-rated the four skills at T1 and T3 in SPR form because she reported weaknesses in the qualitative data. |

Table 37: Step 3 of the testing process for the measurement scale (Lama)

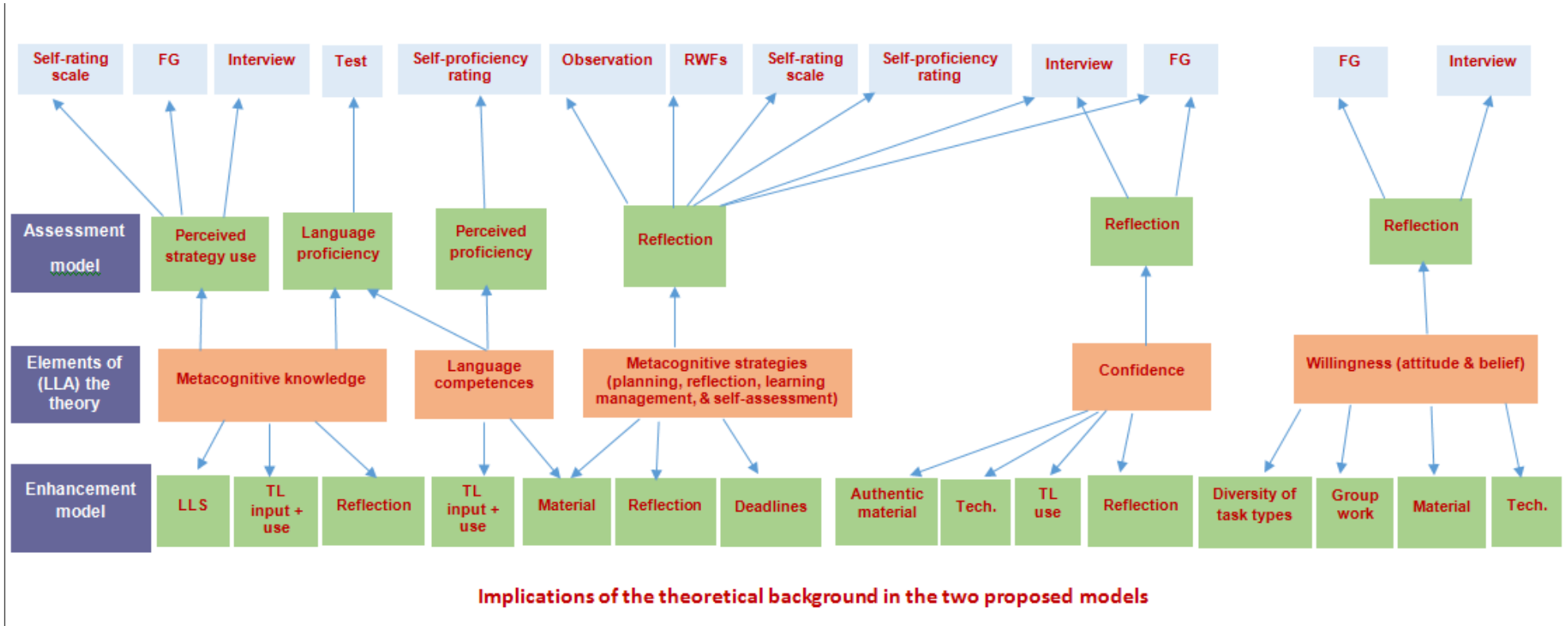
| Maha/ Research code= 43 (lowest autonomous OFTG) | | | | |
|---------------------------------------------------------|-----------------------------|----------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Self-rated LLA component | Scores (T1 & T3) | Score changes | Qualitative responses at T3 (evidence) | Judgement on the changes happening in scores |
| MBT | 65 to 66 | 9 points | Positive impact | Increase is acceptable as she voluntarily used technology and this could have changed her belief, but a (9p) increase is similar to the change made by Nora and Lama when she did not use technology as the delivery mode. |
| MBL | 100 to 85 | -15 points | Positive but not completely | Decrease is acceptable from her low engagement with many features of |

| | | | | |
|------------|-----------|-----------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | the interactive training, e.g. medical content, task types, and their organizations. She still needs the teacher for making the change and for reassurance of her progress (confidence). She referred to technology impact on LLA and the fact that she was not given technology may have led to the lack of support she needs for LLA and accordingly the reduction in her belief about LLA. |
| ATU | 61 to 61 | 0 points | Positive and suggesting competence at technology use | Unchanged rating is proved by her reported positive attitude and it indicates that there was nothing to cause a change in her attitude as she voluntarily used technology for her learning when she was not given technology in the training. This superficial technology use cannot lead to a change in her attitude. |
| ALA | 50 to 100 | 50 points | Positive but not completely | Increase is not acceptable from her report on the need for the teacher for reassurance and from her low engagement with the features of the training, e.g. medical content, |

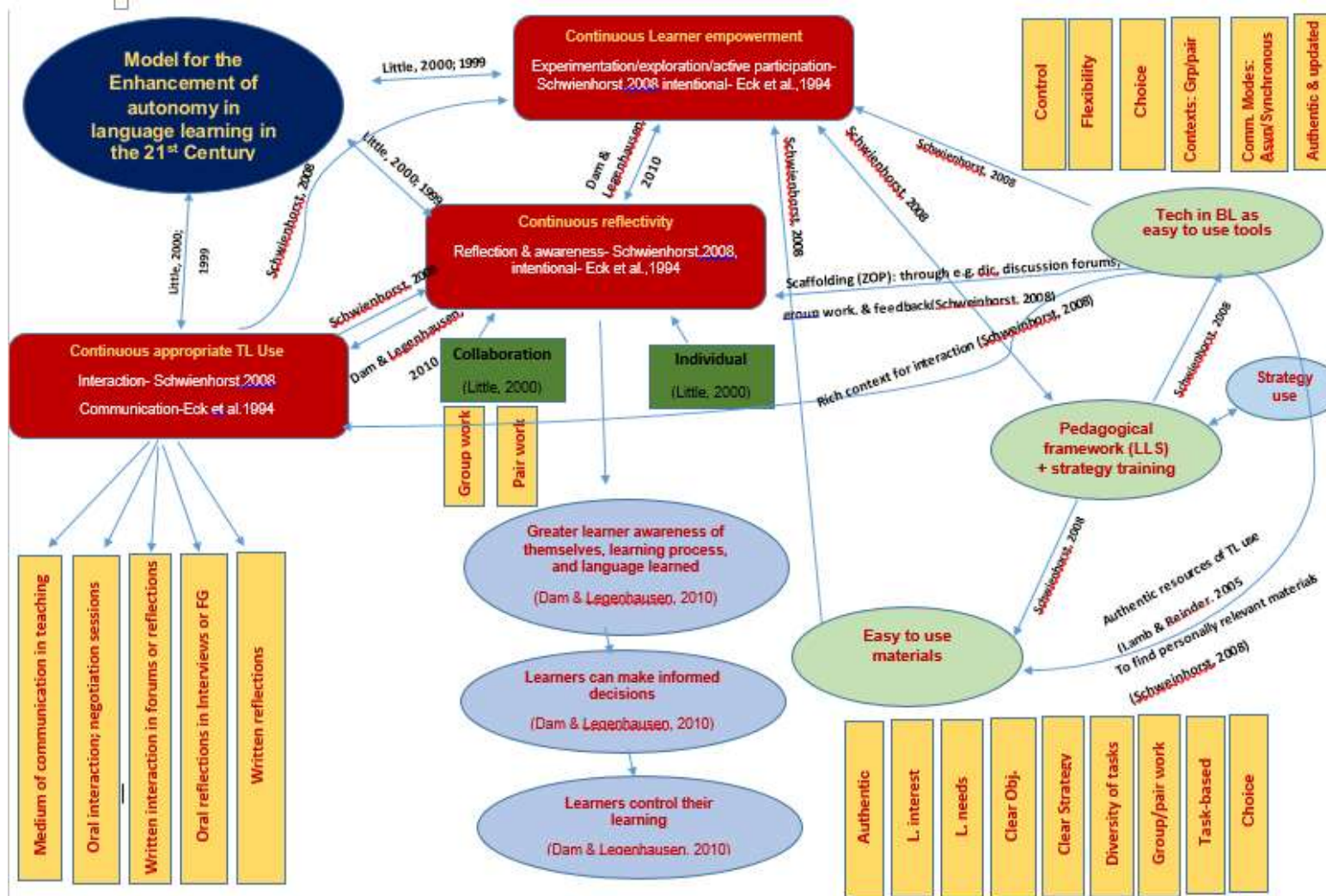
| | | | | |
|------------|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | task types, and their organization. It is not expected to exceed the change made by Nora and Lama (0 and 25 points). |
| PSU | 50 to 75 | 25 points | Positive responses and increased LLS use was reported. | Increase is acceptable but a (25p) increase in her LLS use is not acceptable as her qualitative data did not give examples or details about this use. She also showed low engagement with the training which would result in low uptake of the pedagogy. This increase is greater than that made by Nora and Lama. My observation revealed that the hugely increased PSU was conflicting with her low engagement with the training. |
| SPR | 50 to 60 | 10 points | A low speaking and writing skills along with no improvement was reported in any of the four language skills in her qualitative data. | Increase is not acceptable. She increased the rating of the skills of writing, reading, and listening and decreased speaking in the SPR form. This increase was not reflected in the qualitative data. Weaknesses were even reported in the qualitative data. |

Table 37: Step 3 of the testing process for the measurement scale (Maha)

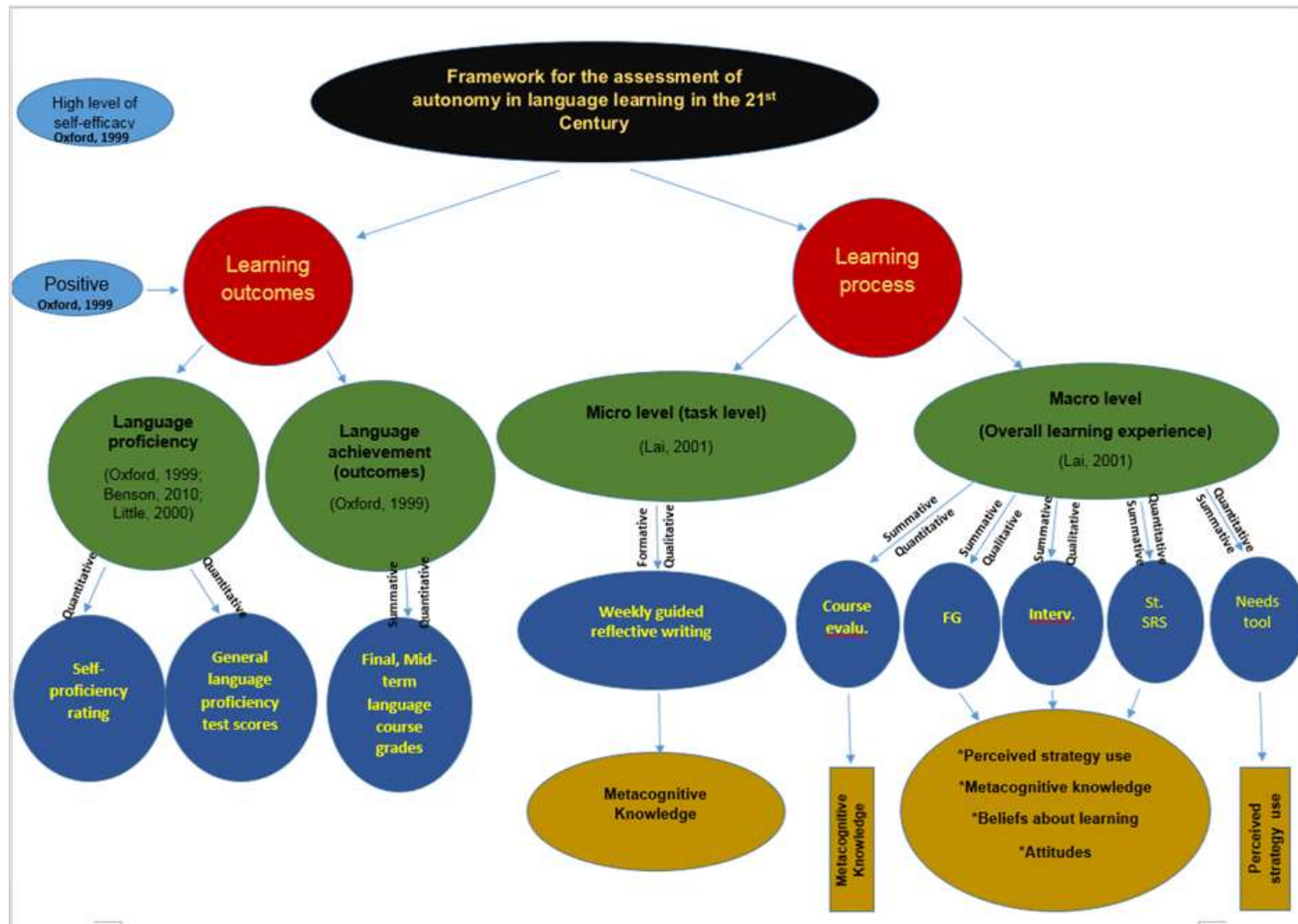
Appendix 22: The link between the two models and theory



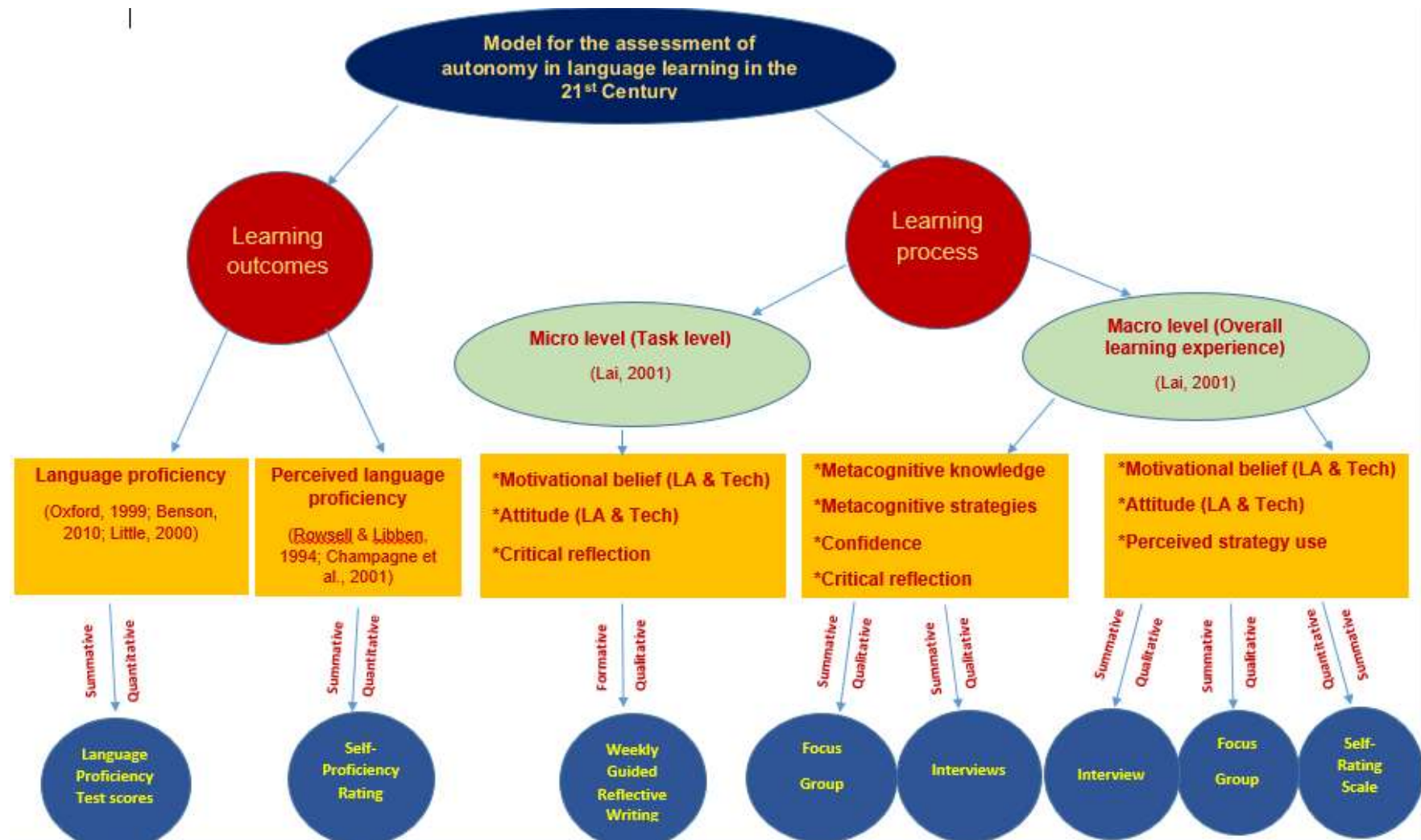
Appendix 23: The proposed model for the enhancement of LLA in the 21st century



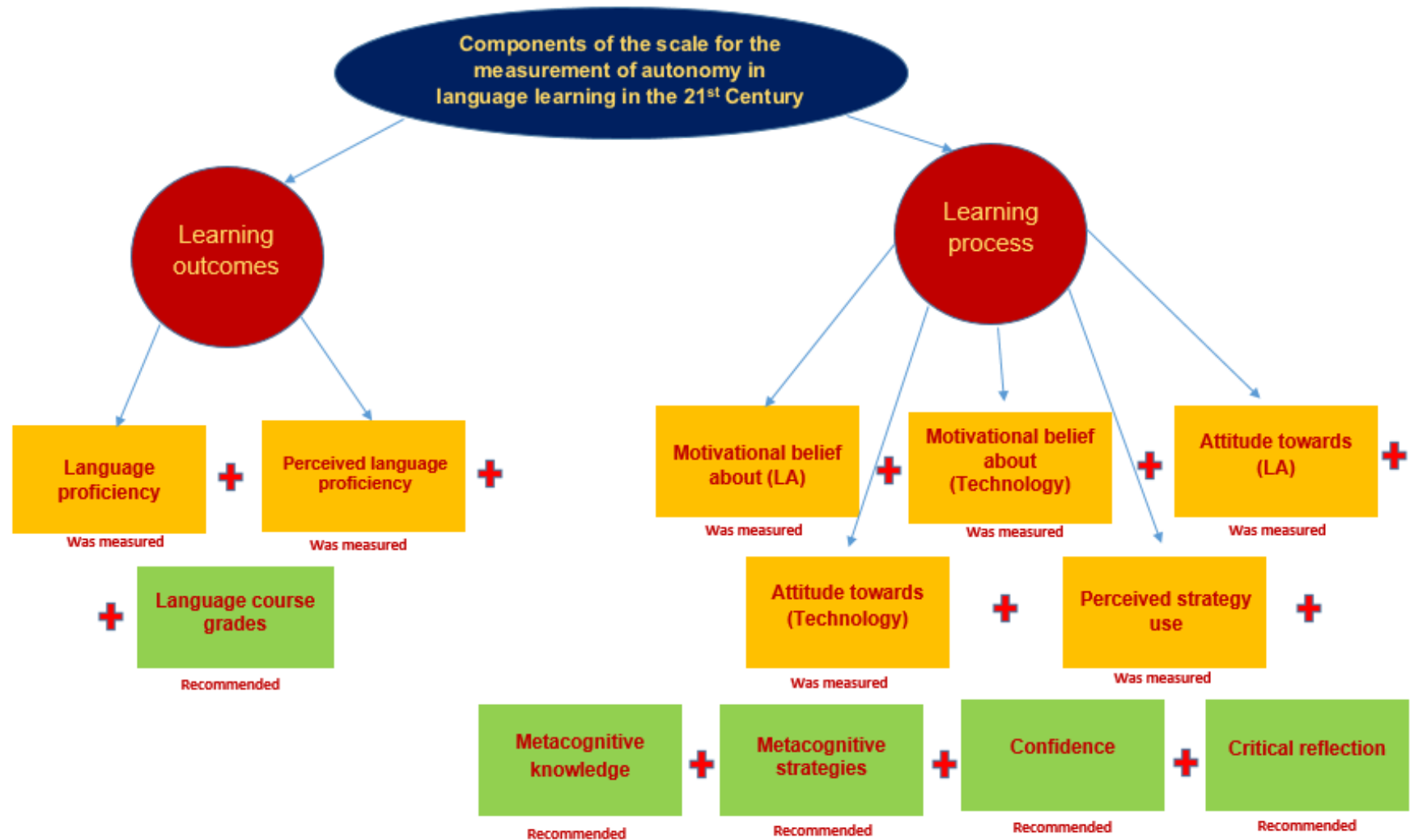
Appendix 24: The assessment model drawn from the literature (first version)



Appendix 25: The final version of the LLA assessment model (modified version)



Appendix 26: The scale for the measurement of LLA



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