Analysis of Learning in Higher Education using the A^6 Metric – A Vietnamese Perspective

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Abstract

This research implanted the A^6 metric designed by Shen and Prior (2023) to measure Vietnamese University students' performance and the use of their smartphone learning experience. There was a total of 317 Vietnamese University students who participated in this survey during July to September 2024. The A^6 metric uses six independent variables of: (i) Accessibility that refers to the capacity of network infrastructure; (ii) Affordability that refers to the user's spending power for the cost of ownership of smartphones; (iii) Adoptability that refers to the user behaviour and cognitive patterns such as how to learn and use the gadgets; (iv) Adaptability that refers to the user who requires to deal with the unexpected circumstance and that which goes beyond their prior experience; (v) Acceptability that refers to user acceptance of willing to use of new technology; (vi) Appropriateness that refers to the content of embracing socio-cultural and religious values into the design model [1, 2]. The overall results indicated that the Vietnamese participants are slightly less positive (score of 65) in their responses to the questions. It is important to note that the A^6 metric has an inverse positivity scaling, in that a higher overall score denotes lower positivity (a neutral response being a score of 60). It has been postulated that to some degree this relates to the more diverse cultural drivers which exist within the Vietnamese society. In particular, the Vietnamese students appear to have a higher level of distrust in smartphone technology, suffer from high cost issues (relative to income) and relatively low internet speeds. The centralised control of the communist Vietnamese Government may have played a part in some of these issues. Future research will involve extending the research to other South-East Asian countries in order to develop a solid database of cultural happiness in terms of the A^6 metric.

1 INTRODUCTION

According to Statista (2024) and DataReportal (2024), the number of internet users in Vietnam was 78.4 million with a 79% penetration rate. Vietnam has a relatively young population, with 22% below the age of 15. Vietnam people spend a daily average screen time of six hours and 47 minutes [3, 4].

Worldwide people spend an average of almost seven hours looking at a screen daily for internet connected activities [5, 6]. The average screen time of Vietnam was three hours 30 minutes [7]. The average age of higher education students' ranges from 18-24 and can be classified as Generation-Z (born 1997-2012) who spend on average nine hours of screen time per day (see Fig.1.) [7, 8].

The authors focused on University student perspectives from Vietnam in terms of their internet penetration rates and the average of smartphone screen time by applying the A^6 metrics to measure their similarity and differences [2, 9, 10].

The goal of this research is to quantify the A^6 criteria of University student experiences regarding to the chosen higher education context. Based on related literature reviews, the researchers were keen to find out the key factors driving these phenomena. Hopefully, the A^6 metrics will reveal interesting findings for future cross-cultural research studies.

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2 LITERATURE REVIEW

With regards to mobile learning in higher education, several research perspectives have been explored. Aubusson, Schuck, and Burden (2009) examined the role of mobile learning in teachers' professional learning. They discussed that effective professional learning requires reflection and collaboration and that mobile learning is ideally suited to allow reflection-inaction and to capture the spontaneity of learning moments. They also talked about the value of collaborations between teachers and students in professional learning. They suggested that authentic artefacts and anecdotes, captured through mobile technologies, can enable the sharing, analysis and synthesis of classroom experiences by teachers and students. Such analysis and synthesis helped to encourage collaborative reflective practice and is therefore likely to improve teacher and student learning as a result [11].

Giousmpasoglou and Marinakou (2013) discussed the concept of m-learning, the current developments and challenges related to the major stakeholders (educators and students) in higher education. M-learning shall be a part of the academic curricula and provide the potential to make learning more efficient, personal and culturally acceptable for learners [12]

Ismail, Azizan, and Gunasegaran (2016) carried out a quantitative study with 551 students to see if their University students were ready to adapt to the mobility of learning in Malaysia. The results showed relatively neutral attitudes and indicated that they were moderately ready for the educational use of mobile technology.

Furthermore, some thought that the mobile phone cost which was not cheap played a role in this. However, they showed their great interest in mobile learning, but were not quite ready and uncertain about what it offers to assist their learning process. The authors recommended mobile learning is to be employed widely in the Vietnamese higher education setting [13].

Sönmez, Göçmez, Uygun, & Ataizi (2018) reviewed related papers of mobile learning, and argued educational environments shall not be limited to schools. They analyzed 11 research articles published during that time in eight prominent peer-reviewed research journals between 2013 and 2017.

The perceptions of learners in terms of mobile technology, and acceptance of m-learning were proved to be the most popular topics [14]. Ossiannilsson (2021) discussed some challenges in a post pandemic society for universities, the crucial implementation of the culture of open educational resources (OER), and issues of ethical sustainability, social justice and human rights to ensure the quality of accessible learning possibilities for all [15].

3 EXPERIMENTAL

In this study a comparison is made between the implementation of the A^6 Metric that contains six categories including Accessibility (A^1), Affordability (A^2), Adoptability (A^3), Adaptability (A^4), Acceptability (A^5), and Appropriateness (A^6) from Shen and Prior (2023) [1] and the University students' experience in mobile learning between Vietnam and Taiwan.

The authors implemented a two-part questionnaire to discover University students' feedback on smartphone learning and use. A total of 317 Vietnamese students responded. In terms of gender, the groups were fairly well balanced, with the Vietnamese study group having 180 male students (57%) and 130 female students (41%), with 7 students (2%) who preferred not to identify. The average age of this Vietnamese students was 25.4 (see Figure 1).

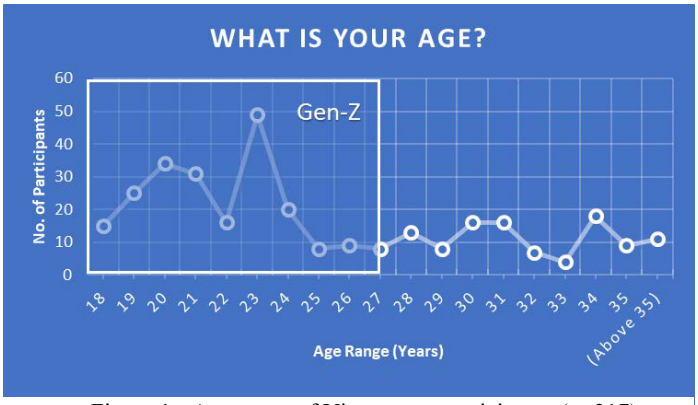

Figure 1 - Age range of Vietnamese participants (n=317).

4 RESULTS AND DISCUSSION

The A^6 metric with six ratings, are each graded using a five-point Likert scale, with a score of three being neutral (note that metrics A^1 and A^2 have four questions each (max score = 20; min score = 4) and the others have three questions each (max score = 15; min score = 3))[10].

The maximum overall score is therefore 100, with a mean of 60 and a minimum score of 20. A higher score relates to negativity and a low score relates to positivity [2].

In terms of Accessibility (A^1) which represents the personal broadband speed, including the local government's upload and download speeds, and private Telecoms deals, the Vietnamese group scored 13.1 out of 20 points (see Figure 2), while the Taiwanese group scored 13.3 out of 20 points, which suggested that these two groups were broadly neutral (score of 12) overall, regarding the accessibility in mobile learning.

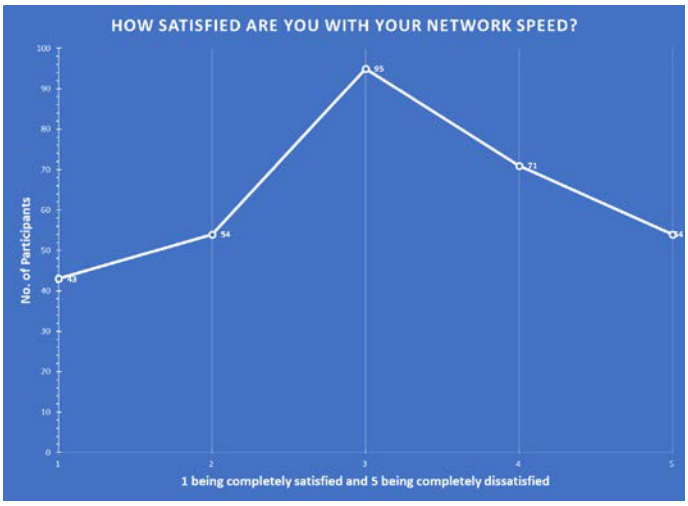

Figure 2 - Satisfaction of the Vietnamese participants' in terms of network speed (n=317).

In terms of Affordability (A^2) which represents the consumer spending power on his smartphones, the country's GDP, economical/social aspects, network penetration rates, and smartphone subscriptions etc., the Vietnamese group scored 12.6 out of 20 points (see Figure 3), while Taiwanese group scored 8.5 out of 20 points (neutral score 12). This indicated that the Taiwanese participants tended to be positive in terms of their affordability perspective, whereas the Vietnamese group were slightly negative.

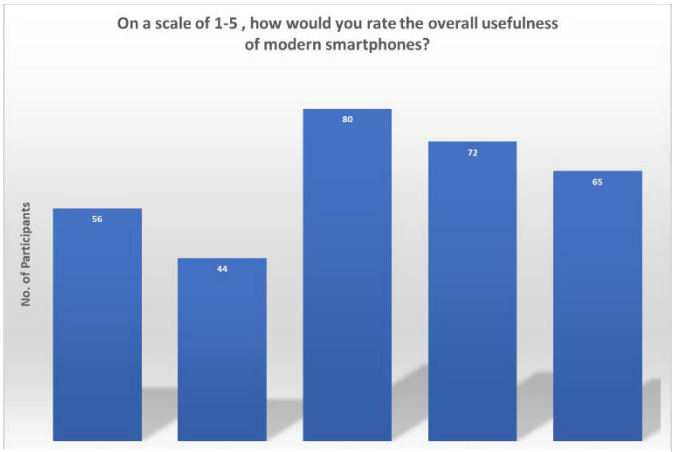

Figure 3 - The overall usefulness of smartphones from Vietnamese participants perspective (n=317).

In terms of Adoptability (A^3) which represented the personal user behaviour to be willing to learn and try the new platforms, and dedicate to be a constant user, social media influences, peer pressure, cross-cultural elements, etc., the Vietnamese group scored 10.0 out of 15 points (see Figure 4), while the Taiwanese group scored 7.7 out of 15 points (neutral score 9). This suggested that the Taiwanese participants were slightly more positive about their higher adoptability than their Vietnamese counterparts.

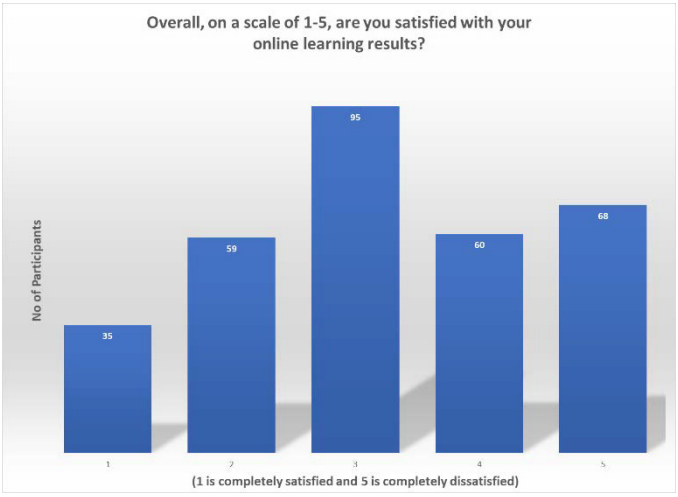

Figure 5 - Satisfaction of the Vietnamese participants' own learning performance.

In terms of Adaptability (A^4) which represents the personal ability to trade with the unexpected circumstances that go beyond their prior experience, such as the individualistic learning curve with a new technology, learning behaviour and attitude, and performance expectancy, the Vietnamese group scored 9.8 out of 15 points, while Taiwanese group scored 8.2 out of 15 points (neutral score 9). This suggested that the Taiwanese participants had slightly higher adaptability compared to their Vietnamese counterparts.

In terms of Acceptability (A^5) which represents the personal acceptance of using new devices, such as the willingness and eagerness of each individual to approach and engage with their digital tools, both groups had similar scores, the Vietnamese group scored 10.1 out of 15 points, while Taiwanese group had 9.9 out of 15 points (neutral score 9). This indicated that both groups had a slightly negative attitude towards embracing up-to-date learning technology (see Figure 4).

Figure 4 - Word Cloud of respondent's feedback on mobile phone user issues and negative aspects (www.wordart.com).

This could in part be due to an understanding and acceptance of the negative aspects of using a smartphone for learning, including both hand and eye strain particularly amongst the younger generation (see Figure 5)[16]. It has been reported that one in three children now have short sightedness (myopia) this has risen three-fold since the COVID pandemic in 2020 [17].

In terms of Appropriateness (A^6) which represents the content of culturally oriented design model, such as culturally delicate matters, religious and social taboos, facilitating conditions and risks of online learning, etc., both groups had a different opinion.

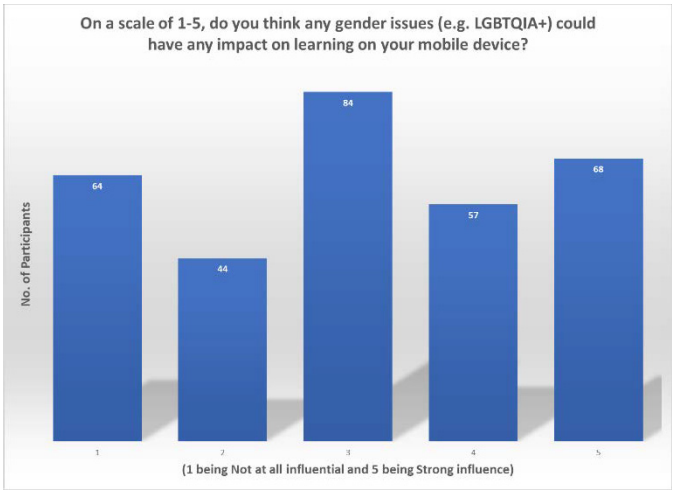

Figure 6 - Vietnamese participants' attitude towards the impact of gender issues.

The Vietnamese group scored 9.3 out of 15 points (see Figure 6), whist the Taiwanese group scored 6.9 out of 15 points (neutral score 9). This indicated that the Taiwanese group regarded cultural related issues as not that significant compared to the Vietnamese group. It could be said that the Taiwanese group originates from a more homogenous society, whereas the Vietnamese group have a much more diversified cultural background consisting of a multitude of ethnic groups as already mentioned.

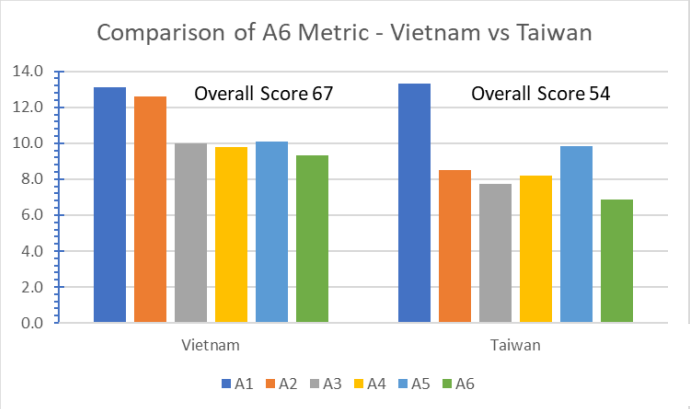

Figure 8 – Overall A^1 to A^6 metric comparison of the Vietnamese and Taiwanese Study Groups.

The majority of the participants from both countries had the same results for Accessibility (A^1) and Acceptability (A^5) as shown in Figure 7. With regards to Affordability (A^2), the gap of disagreement between Taiwanese and Vietnamese students was larger compared to Appropriateness (A^6), Adoptability (A^3), and Adaptability (A^4), respectively (see Figure 7). This could be explained by the economic difference between these two countries. According to Global Finance Magazine (2024), Taiwan was ranked 14th with its US$ 76,858 GDP-Adult Per Capita Income (PPP), whist Vietnam was ranked 109th with its US$ 15,470 GDP-Adult Per Capita Income (PPP)[18, 19].

It is interesting to note that the rest of the three categories of differences i.e. Appropriateness (A^6), Adoptability (A^3), and Adaptability (A^4), is correlated to ethnic groups, social status and cultural issues.

According to Hofstede's cultural dimension, Vietnam had a score of 70 in Power Distance that referred to the attitude of the culture towards inequality in society. Taiwan had a score of 58 on this dimension compared to Vietnam, which suggests that Taiwanese society has a less hierarchical order [20-22].

Furthermore, Vietnam had a low preference of Uncertainty Avoidance with a score of 30, which refers to people who think that there should be no strict rules and live more flexible. In contrast, Taiwan had a high preference for avoiding uncertainty with a score of 69, which was more than double the Vietnamese's score. Taiwan had a high Uncertainty Avoidance showing that individuals could cope with anxiety by minimizing uncertainty.

Moreover, Vietnamese are defined as a Short-Term Orientation culture with a score of 47, which suggests that people are focused on the present or past and think these are more important than the future. However, Taiwan was a Long-Term Orientation culture with a score of 87. Societies show how flexible a national culture is with regards to change (see Figure 8).

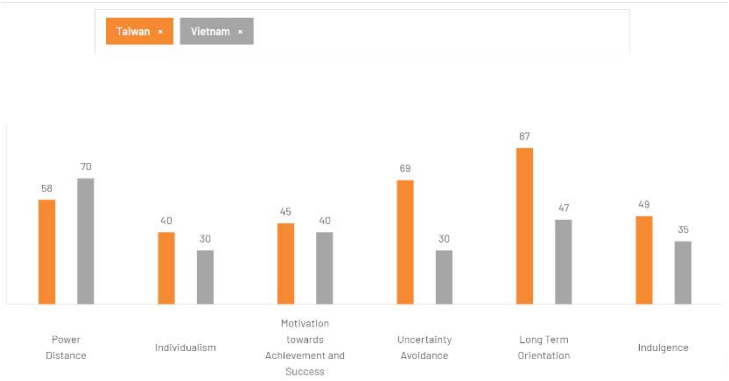

Figure 7 – Hofstede's Analysis of Taiwan and Vietnam (The Culture Group, 2024).

5 CONCLUSION

Both Vietnam and Taiwan are fast-moving well-developed countries. Vietnam, in-particular is a diverse multi-cultural society, with 54 ethnic groups, the largest of which is the Kinh people (85%) [23]. Almost ¾ of the population do not practice any organised religion. Therefore, the impact of cultural differences in Vietnam could have a great effect on University students' mobile learning styles and performance in higher education.

From the above-mentioned results, the overall A^6 scores from both groups were: Vietnamese participants = 67 (slightly negative), and Taiwanese participants = 54 (slightly positive). This result indicated that the A^6 Metric including Accessibility, Affordability, Adoptability, Adaptability, Acceptability, and Appropriateness has a great potential to further explore for smartphone learning (see Figure 7).

Several limitations of the study should be addressed by future A^6 metric research, including the increase of the number of Vietnamese and Taiwanese University student participants. Further studies in different South-East Asian countries would be required to confirm and enhance this investigation. This study was only focused on the students and not include the teachers' adoption. Further research should emphasise on a comparison between these two countries to see and find how teachers think about the movement. It would be also interesting to compare how teachers think about integrating smartphone learning and teaching in higher education environment. The implementation of smartphone learning and teaching would require more overall thoughtful considerations since it concerns with academic curriculum and pedagogy, institutional policies, teachers' capability, internal and external funding supports.

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