

# Gender-related model for mobile-based learning

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**Abstract.** The study investigates gender influence on mobile-based learning. This case study of university students in Jakarta involved 235 students (128 male, 97 female). Results of this qualitative study showed 96% preference for mobile-based learning. A further 94% showed the needs for collaboration and authenticity for 92%. Hofstede's cultural dimensions were used to identify the gender aspects of MALL. Preference for Masculinity (65%) was showed rather than Femininity (35%), even among the female respondents (70% of the population). Professions and professionalism received strongest preference (70%) while Individuality and Collectivism had equal preferences among students. Both female and male respondents requested Indulgence (84%) for mobile-based learning with more male respondents opted for Indulgence. The study provided a model for this gender sensitive mobile-based learning. Implications of implementing mobile-based learning as an ideal alternative for well-accommodated education are also discussed.

## 1. Introduction

Mobile-based learning has become more popular as to provide an answer for learner-oriented education is in the heart of Higher Education. Previous research indicated the vastly growing need for the technology to support the new, more sustainable and fair society of learning [1,3,6,7,8,9,10,11,15]. The previous research was supportive of the idea that technology could provide case-based and solution-oriented learning experience necessary for a developed and more adaptable community of learning. In this line of discussion, the mentioning of Mobile-Assisted Language Learning (MALL) as one mode for mobile-based learning becomes one of the key instruments in empowering more expanding and modern society. Research on the use of MALL has shown different benefits on learners' autonomy and self-development [2,4]. Research also recorded the general idea towards more fruitful learning was to maximize the utilization of technology for the improvement of learning [11,4].

### *1.1. Relevant factors to a sustainable mobile-based learning (MALL)*

Previous studies have shown the positive attitudes toward the use of technology, and more specifically mobile devices, in learning [6,10]. Their findings show that across cultures, mobile devices will be a potential educational tool as well as the identity marker in learners' educational path. It is clear from the research that mobile device becomes ideal to fill-in various educational needs of the learners. Factors contributing to the development of technology in higher education may include access, organization vision as well as the attitudes toward technology in general. In this retrospect, the topic of culture and organization become a massive importance in sustaining the idea of sustainable, well-accommodated education in modern world. A very extensive study of culture by Hofstede, Hofstede and Minkov in 2010 reveals vital results on the study of organizational behaviour. The study



comprised data of socio-cultural dimensions of workers from different nationalities in IBM. Although this study had received various critiques [8,9] as being too narrow in context and biased for considering cultures as nations, the contribution of this study is still worth noting as factors related in typical organizations of people. The colloquial term socio-cultural dimensions or social dimensions become the trademark of Hofstede's study and are very versatile contributors for many social studies. The framework used for this research is from Olga Viberg and Åke Grönlund's [9,10] cross-cultural analysis, adopting Kearney et al.'s framework in their study on mobile-based learning in Australia. Meanwhile, aspects of gender and other cultural dimensions were investigated using Hofstede's [8] six-dimensional framework in explaining cultural factors for Indonesian students.

## 1.2. *Social dimensions and gender-related issues in technology-based learning organization*

### *Social dimensions*

in education technology research is very important for fair model of educational technology [2,3,4,7,13,14,15]. In language education specifically, *social dimensions* have become more comprehensive due to Kearney's [6] investigation on *social dimensions* in mobile-based higher education. Kearney's [6] key elements on ideal mobile-based learning to personalization, authenticity, and collaboration. Authenticity focuses on "learner choice, agency, self-regulation, and customization" (p.175). Authenticity is fundamental for the development of MALL. Authenticity is about "learner-perceived relations between the practices they are carrying out and the use values of these practices" (p. 176). Previous study by Viberg and Grönlund [9,10] reveals the importance of this investigation of *social dimensions*, namely collaboration as one dimension in the advancement of technology for learning. Viberg and Grönlund [9,10] underlines the importance of collaboration while using technology and they write, "collaboration involves students' attitudes toward the importance for mobile learners to communicate multi-modally with peers, teachers, and other experts" (p.176). Viberg and Grönlund [9,10] adds more notion about social implementations in mobile-based learning by underlining the importance of collaboration or information exchange through the use of mobile technologies for language learners (p. 176). Viberg and Grönlund [9,10], Kearney [6] and other keen researchers [2,3,4,13,14] underline the necessary effort to induce *social dimensions* into any technology in learning, especially in higher education.

There are six dimensions in *social dimensions* by Hofstede [8]. Gender related issues branch out from one social dimension, which is Femininity and Masculinity [8]. Meanwhile, Hofstede [8] noted 6 dimensions in learning culture, including gender aspect of it. This study considers Hofstede's [8] six cultural dimensions as an alternative definition for culture [8]. Hofstede [8] defines culture as the "collective programming of the mind that distinguishes the members of one group or category from others" (p.231) [8]. This definition gives way to the scope of this particular research. This case study uses gender as marker for the different perceptions and attitudes given by respondents in questionnaires. It is never meant to be the explanation of shared behaviour or the labelling of a certain student population. Interestingly, in their study, Indonesia's masculinity index is lower than Malaysia and Singapore. Meanwhile, Indonesia is ranked to have highest uncertainty level in South East Asia region, leaving creativity and anxiety very closely intertwined. Finally, Indonesia was reported to rank the lowest in its Individualism. Three dimensions in Hofstede's [8] six-dimensional model were chosen to explore learners' dimensions of culture because power distance, uncertainty avoidance and long-short orientation were not applicable for the respondents of this case study. These three dimensions were Individualism v.s. Collectivism, Masculinity v.s. Femininity and Indulgence v.s. Restraint. Individualism v.s. Collectivism would reveal the independence level of the respondents as SPEARA users. Masculinity v.s. Femininity would reveal the gender aspects of mobile-based learning culture. This dimension would also indicate necessity for any MALL-based application of English education. Lastly, indulgence v.s. restraint would reveal the potential of SPEARA in assisting English learning and would also show how SPEARA could be further developed. Other dimensions were excluded from this study because Power Distance, Uncertainty Avoidance and Long Term Orientation were not appropriate learners' needs for English. These dimensions were more appropriate, according

Geert Hofstede's [8] initial intention to study the culture of companies or working institutions or organizations.

## 2. Method

This study used a qualitative approach, using both questionnaire and semi-structured interview as means to collect data. There were 30 items in the questionnaire, consisted of three sections: personal information, Kearney's [6,7] MALL elements and Hofstede's [8] cultural dimensions. In personal information section, information expected were of age and gender, in Hofstede's [8] cultural section, responses were expected from questions on Individualism v.s. Collectivism, Masculinity v.s. Femininity and Indulgence v.s. Restraint. The section to gain responses for SPEARA as model for MALL was adapted for Kearney's [9] socio-cultural model, comprising the three distinctive characteristics of personalization, authenticity and collaboration aspects of SPEARA users. Users as respondents to this study were asked to select one option per item in 4-Likert scale. The semi-structured interview was guided with several questions, which are: "What is your opinion of SPEARA?" and "What difficulty you find in using SPEARA?" The questionnaire was distributed in printed form. Data was collected during the six week of the Odd Semester 2016/2017, or between the 1st and 8th of November 2016. Respondents for this study were 235 students of different majors from 3 universities across Jakarta. There were 97 female students and 128 male students participating in this study.

### 2.1. Research aims and questions

This study aims to explore the attitudes of students toward the use of mobile device in learning, in which SPEARA is the MALL product, and to know several cultural dimensions that influence the choices of the students. This study was then conducted to answer two these questions: "What are the attitudes toward SPEARA?" and "What are the cultural dimensions of learners?"

### 2.2. Case Study: SPEARA

This study used SPEARA as the case study. SPEARA stands for Specific English as Academic Research Assistant. This mobile-app could be obtained freely from <https://play.google.com/store/apps/details?id=com.speara.speara>. This mobile-app functions as word-search app as well as providing authentic samples of how the word is used in sentence from academic journal articles. It is written in the description of the app that SPEARA "aimed at helping students learn and use English, especially in their academic majors" (<https://play.google.com/store/apps/details?id=com.speara.speara>). For this study the respondents were asked to install SPEARA and used it for a couple of weeks. The students were then asked to fill-in the questionnaire. The same students were invited for a semi-structured interview session and some questions were used to elicit further information.

## 3. Results and Discussion

The results will be discussed in 2 sections, namely: students' perception on mobile-learning (SPEARA) and students' gender and other cultural dimension in mobile-learning

### 3.1. Students' Perception on mobile learning (SPEARA)

The result showed positive preference (96%) with students opted for Agree to Strongly Agree. In revealing Kearney's [9] elements of MALL, further results showed 96% students were either Agree or Strongly Agree that MALL (SPEARA in this case) harnessed the quality of Personalization. Students also Agree or Strongly Agree that MALL (SPEARA) covered the element of Authenticity as many as 91% of the whole population. Details of this result were shown from the 10 statements provided to describe the characteristics as presented in Kearney's [9] elements of MALL. Details of the results were presented in the form of highest option (Mode) of the students' answers:

**Table 1.** Kearney's social dimensions

	All (M)
Personalization	3,2,3,3
Authenticity	3,3,2,3
Collaboration	3,3

There seemed to be no difference in respondents' opinion. For all 10 statements, the Mode for the answers was "agree", meaning that most of the population supported the statements given in the questionnaire.

### 3.2. Gender perspective and other cultural dimensions in mobile-based learning

Aspects of gender and other cultural dimensions were revealed by asking questions related to students' interaction with SPEARA. It was revealed that students perceived technology as having more masculine qualities and therefore projected their masculine expectations regardless of students' gender. Details of the responses can be seen in the following figure:

**Table 2.** Masculinity v.s. Femininity

Answers	S15	S16	S17	S18	S19
Mode	3	2	2	3	3

Overall students Agree to Strongly Agree that "It is more important for men to have a professional career", with 65% answered within this range of Agree and Strongly Agree toward the statement. Among the total population there were 46% of female students opted for Agree or Strongly Agree. This number showed all female students in this study Agreed/Strongly Agreed with the statement. Overall, students preferred Masculinity than Femininity as their cultural dimension.

Other dimensions of investigation were Individualism v.s. Collectivism, Masculinity v.s. Femininity, and Indulgence v.s. Restraint, with the details presented as below:

**Table 3.** Responses to Individualism v.s. Collectivism

Answers	S11	S12	S13	S14
Mode	3	3	2	3

In this dimension, 55% respondents chose to give preference toward Individualism and 45% towards Collectivism, with details on each of the Statement (S) shown in more details. Statement number 11: "It is more important for a lecturer to encourage a sense of duty in learners (i.e. I will feel more comfortable when lecturer tells me what to do regularly)"; 164 respondents chose Agree. Statement number 12: "It is then less important for lecturer to ask students for individual initiatives (i.e. I like it when lecturer takes all the initiatives)"; 148 respondents said Agree. Statement number 13: "Individual rewards are not as important as group welfare"; responded with Disagree by 124 students, while statement number 14: "Group success is more important than individual success" received 102 Agree responses. Students' preference was shown for Individualism, as responses for statement number 13. The result showed respondents' or students' desire to get individual acknowledgements above group/communal acknowledgements. Interestingly, this preference was balanced by the need of belonging, indicating there was still the need to use SPEARA while having other learners to discuss about the newly found knowledge (word definition or word context). It is indicated from this result that SPEARA as the model for MALL is expected to provide opportunity for individual acknowledgement and sense of inclusion.

**Table4.** Indulgence v.s. Restraint

Answers	S20	S21	S22	S23	S24
<b>Mode</b>	3	3	2	3	3

For this dimension, all students preferred “happiness” (20), “free choice” (21), “more indulgence” (22), “leisure” (23) and “choice” (24), with the strongest response given to the “choice” or “opportunity”. Statement number 22 “I feel that what I do have no real effect on my life” were responded by 84% students with 65% amongst them were female students. Overall, students preferred to have indulgence as to resemble their cultural dimension.

#### 4. Conclusion

This study has shown preference toward mobile-based learning through SPEARA as the case study of MALL. Positive responses showed that SPEARA would be potential to be further implemented in teaching and learning English in Higher Education level. Gender preference showed inclination to male characteristic, showing more development could be carried out in developing mobile-based learning. It is implied that more sustainable society of learning could benefit from gender and culturally oriented study for modern and adaptable education.

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