A Survey on Mobile Games Usage among the Institute of Higher Learning (IHL) Students in Malaysia

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Abstract

The emerging of mobile games invites many researchers from all around the world to continue the studies related to this field. As in many countries especially Japan and Korea, mobile game is getting more attention from digital gamers as one of the most preferable type of digital games. One good reason that contributes to the success of mobile game is because of its mobility, which means gamers can play games at anytime and anywhere they wish for. In this paper, we examine the usage of mobile game compared to other type of digital game such as console or arcade game in Malaysia. We also perform a series of analysis regarding to student preferences in every situation before a paradigm shifts from console or arcade game to mobile game. A survey on user preferences among students of Institute of Higher Learning (IHL) has been done to gather useful information and relevant data to support this paper. The survey showed that an overwhelming majority (60%) of the respondents prefer to play game in mobile phone. The questionnaire survey is part of an ongoing research study titled Mobile-Based Mental Skill Game Technology for Programming Course sponsored by Ministry of Science, Technology and Innovation (MOSTI). The data that have been gathered from the survey were analyzed using Statistical Package for Social Science (SPSS), Release 13.0.0, to investigate the number and percentage of students that use mobile game.

1. Introduction

A growing body of research[1] indicates that mobile technologies can be an effective tool in catering for students in a digital age and there are signs of the motivating potential and possible learning gains of games played on mobile devices with young adult audiences. The market for mobile games is an important growth area for the games industry. There are estimated to be 1.5 billion mobile phones in the world today[2]. This is more than three times the number of personal computers (PCs), and today's most sophisticated phones have the processing power of mid-1990s PC.

The market for mobile games is an important growth area for the games industry. The market is predicted to grow rapidly with the convergence of mobile technologies and as mobile applications become less constrained by device limitation. Last generation of mobile devices presents higher definition color screen, enhanced memory and many more functionality, and making mobile gaming more appealing, considering also that development costs are lower for mobile games than for games on traditional platforms. Furthermore, most of new phones now include some games, and all but the cheapest models offer downloading additional games. There are large numbers of games available on the market to be purchased and downloaded for only a few Ringgit Malaysia (RM) each. Mobile phones companies are competing with each others in providing the latest and most sophisticated mobile phone models to users. With the increasing number of mobile phone models, the number of mobile games is also getting higher. The ultimate example is the Nokia N-Gage QD game deck, which is primarily a portable games machine but can also be used as a phone.

Therefore, with the sophistication and affordability of mobile technologies and applications, it also gives a good impact on the educational area. Mobile phone is getting popular for the role as a new learning tool which is known as the m-Learning (Mobile Learning). However in seeking to cater for the learning needs of young audiences, who in general have high relation to mobile technologies, merely trying to adapt e-learning approaches for use with mobile technologies will not be sufficient. Young adults in particular need m-learning opportunities that are not only cognitively accessible but that also engage them in affective learning. Mobile-based Mental Skill Game (mMSG) project will seek to demonstrate how a mobile game-based approach can effectively be used to this end. mMSG is a research project with the aim to improve the skill of programming course among student of IHL.

The paper is organized as follows. Section 2 discussed on survey methodology. Section 3 describes the major findings drawn from a survey of a group of IHL students. Then, section 4, concluding part, summarizes key issues of paper.

2. Survey methodology

The data for this paper come mainly from a survey conducted in Jun 2006 at University Malaya (UM). A survey was formulated to include question on the usage of mobile phone among student IHL. In this study both quantitative and qualitative data were collected. The survey has been done based on interviews with 129 students by questionnaires. They were asked questions in four major areas:

- Their preferences for playing game on mobile phone
- Their frequencies in playing game per day
- Their preferences for downloading game/s using SMS
- Their most favorite type of mobile game

Possible correlations of these aspects are discussed in Section 3.

The questionnaire consists of two parts. The first part investigates more on the use of mobile phone among students whereas the second part investigates student profile (demographics). Again, possible correlation will be made between major areas and question like below:

- Gender
- Age
- Degree of education
- Education sponsor

2.1 Survey method

Before questionnaires were distributed to the target respondents, a systematic checking or prior test of a questionnaires was carried out. The purpose of prior test is to ensure that the questions are clear and arranged in logical order so that the respondents are able to answer them without difficulty [3]. The modified questionnaires were then handed over to UM students.

The questionnaire used was a mix of open-ended ("how frequent do you play mobile game one day?") and closed-ended ("Do you play games on your mobile phone?") types of question with ordered response option which is easy for the respondents to answer. The SPSS software has been used for calculating the percentage of results obtained from the questionnaires.

3. Survey outcomes

In this section, we present some of the most significant findings of the study, which lead to a more substantial discussion of our observations in the subsections. The discussion is all about defining correlation between students those playing mobile game and students who not prefer playing mobile game at all.

Correlation is one of the most common and most useful statistics because it can provide an analysis that

stands on its own, and also because it underlies many other analyses. Correlations measure the linear relationship between two variables. The correlation table displays Pearson correlation coefficients, significance values and the number of cases with non-missing values (N). A correlation coefficient has a value ranging from -1 (a perfect negative relationship) to +1 (a perfect positive relationship). A value of 0 indicates no linear relationship. A correlation coefficient of 1 describes a perfect positive relationship in which every change of +1 in one variable is associated with a change of +1 in the other variable. A correlation of -1 describes a perfect negative relationship in which every change of +1 in one variable is associated with a change of -1 in the other variable. A correlation of 0 describes a situation in which a change in one variable is not associated with any particular change in the other variable.

In other words, knowing the value of one of the variables gives you no information about the value of the other.

The significance of each correlation coefficient is also displayed in the correlation table. The significance level (or p-value) is the probability obtaining results as extreme as the one observed. If the significance level is very small (less than 0.05) then the correlation is significant and the two variables are linearly related. If the significance level is relatively large (more than 0.05) then the correlation is not significant and the two variables are not linearly related.

3.1 Students preferences on playing mobile game

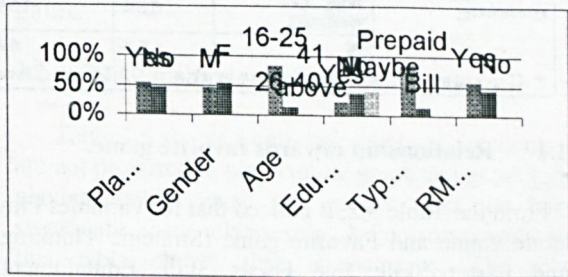Table 3.1. **General survey result**

Table 3.1 shows the percentage of students whose prefer playing mobile game. A percentage is classified into play games, gender, age, educational games, type of payment and RM0.50 cost of download. The survey shows that 54 percent are prefer to play game on mobile phone. From the histogram, it is found that 54 percent out of 129 respondents are female willingness playing mobile game whereas the rest are male which is about 59 respondents.

This survey is distributed to the target respondents with different range of ages. The students that among the age of 16-25, who are from Certification, Diploma

and Degree education background, students that among the age of 26-40 are from Masters education background and ages from 41 above is among PHD and the results shows that, the higher education level and age of students, the passionate to play game are decrease. Here we may conclude that the higher education background the students have and the older are, they are not willingly to play an educational game.

As indicated from the result, most of the respondents both male and female choose to download game using their mobile phone although most of them are using prepaid rather than bill. The result seems to correspondent to the respondent's gender. Most of respondents choose to download game via mobile phone as it is cheaper and easier to download.

Table 3.2. **Correlation between playing mobile game and favorite game**

		Play Mobile Game (yes)	Statrgic Thinking	Hand Faster Skill	Eye Focus Skill	Edutainment	Strategy/War gaming
Play Mobile Game (yes)	Pearson Correlation	1	.023	.137	.156	.070	.050
	Sig. (2-tailed)		.850	.266	.203	.568	.686
	N	129	68	68	68	68	68
Strategic Thinking	Pearson Correlation	.023	1	.253(*)	.066	-.096	-.091
	Sig. (2-tailed)	.850		.038	.594	.435	.459
	N	68	68	68	68	68	68
Hand Faster Skill	Pearson Correlation	.137	-.253(*)	1	-.004	-.096	.289(*)
	Sig. (2-tailed)	.266	.038		.973	.435	.017
	N	68	68	68	68	68	68
Eye Focus Skill	Pearson Correlation	.156	.066	-.004	1	.009	-.036
	Sig. (2-tailed)	.203	.594	.973		.944	.768
	N	68	68	68	68	68	68
Edutainment	Pearson Correlation	.070	-.096	-.096	.009	1	-.156
	Sig. (2-tailed)	.568	.435	.435	.944		.205
	N	68	68	68	68	68	68
Strategy/War gaming	Pearson Correlation	.050	-.091	.289(*)	-.036	-.156	1
	Sig. (2-tailed)	.686	.459	.017	.768	.205	
	N	68	68	68	68	68	68

* Correlation is significant at the 0.05 level (2-tailed).

3.1.1 Relationship towards favorite game.

From the Table 3.2, it noticed that for variables Play Mobile Game and Favorite game (Strategic Thinking, Hand Faster Skill, Eye Focus Skill, Edutainment, Strategy/War gaming), the number of respondent, N, differs. This is because only 68 of the respondents are playing mobile game. For example, a Pearson correlation coefficient shows that it is a positive relation between students who prefer playing game and the favorite type of game which is Hand Faster Skill. This correlation coefficient is .137. This tells us that the more student playing mobile games, the more Hand Faster Skill game chosen. The correlation is statistically not significant (p > 0.05) and not linearly related. Other correlations between student who preferred playing game and favorite type games are positively associated. Also observed was that there is a

statistically significant (p < 0.05) negative correlation coefficient (-.253) for the association between Hand Faster Skill and Strategic Thinking of type of game, indicating that the linear relationship between these two variables is 5 in which the values one variable decrease as the other increase.

3.1.2 Relationship towards gender.

This output gives us two correlations matrix in the above dialog box (Table 3.3). Note that there are four cells in the above matrix, but there is only one correlation coefficients of interest: the correlation between playing mobile game and gender, and the correlation between gender and playing mobile game. The reason only two of the four correlations are of interest is because the diagonal consists of correlations of each variable with itself, always resulting in a value

of 1.00 because each variable has a perfect positive linear relationship with itself, and the values on each side of the diagonal replicate the values on the opposite side of the diagonal. For example, the correlation coefficient shows, there is a positive correlation (.009) between playing mobile game and gender, indicates that students who prefer to play mobile game depends on the amount of students either male or female. The significant level is relatively large (.922) means that the correlation is not significant and the variables are not linearly related.

3.1.3 Relationship towards downloading game using SMS.

Table 3.4 shows the positive correlation coefficient between students who prefer to play game is .013. The correlation is not significant and not really linearly related to each other (p>0.05). There are 72 respondents out of 129 choose to download game via SMS (Short Message Service). The correlation indicates that the more student playing games, the higher rating of game will be downloaded.

Table 3.3. **Correlations between Playing Mobile Game and Gender**

		Play Mobile Game (yes)	Gender
Play Mobile Game (yes)	Pearson Correlation	1	.009
	Sig. (2-tailed)		.922
	N	129	129
Gender	Pearson Correlation	.009	1
	Sig. (2-tailed)	.922	
	N	129	129

Table 3.4. **Correlation between Playing Mobile Game and Download Game Using SMS**

		Play Mobile Game (yes)	Download game using SMS
Play Mobile Game (yes)	Pearson Correlation	1	.013
	Sig. (2-tailed)		.914
	N	129	72

Download game using SMS	Pearson Correlation	.013	1
	Sig. (2-tailed)	.914	
	N	72	72

3.1.4 Relationship towards study's sponsorship.

From the Table 3.5, it is noticed that the correlation coefficient (-.156) indicates a negative correlation between students who prefer to play mobile game and the person/company who were sponsored their study. This means, those students who preferred to play mobile game have less sponsorship. The correlation is statically not significant (p>0.05) and it is not linearly related to each other.

Table 3.5. **Correlation between Playing Mobile Game and Study's Sponsored**

		Play Mobile Game (yes)	Study Sponsor
Play Mobile Game (yes)	Pearson Correlation	1	-.156
	Sig. (2-tailed)		.077
	N	129	129
Study Sponsor	Pearson Correlation	-.156	1
	Sig. (2-tailed)	.077	
	N	129	129

3.2 Student without preferences to play mobile game

3.2.1 Relationship towards gender.

Table 3.6 shows a correlation between students who are not preferred to play mobile game and gender. Non-playing mobile game and gender does not have a significant linear relationship. A Pearson correlation in this table shows that is negative. The Person Correlation Coefficient -.009 as indicated by the significant level of .992.Therefore, the amount of students either male or female decrease, shows the less students playing mobile game.

3.2.2 Relationship towards Age.

Table 3.7 gives us a correlation between students who are not preferred to play mobile game and age. A Pearson correlation coefficient shows that it is a positive relation between students who is not preferred playing game and their age. This correlation coefficient is .130. However, the significance level is relatively large (.143) therefore the correlation is not significant

and the two variables are not linearly related. This tells us that the older the students are, the passionate in playing game decreased.

Table 3.6. **Correlation between Student who is not Preferred Playing Mobile Game and Gender**

		Play Mobile Game (no)	Gender
Play Mobile Game (no)	Pearson Correlation	1	-.009
	Sig. (2-tailed)		.922
	N	129	129
Gender	Pearson Correlation	-.009	1
	Sig. (2-tailed)	.922	
	N	129	129

Table 3.7. **Correlation between Student who is not Preferred Playing Mobile Game and Age**

		Play game (no)	Age
Play game (no)	Pearson Correlation	1	.130
	Sig. (2-tailed)		.143
	N	129	129
Age	Pearson Correlation	.130	1
	Sig. (2-tailed)	.143	
	N	129	129

3.2.3 Relationship towards degree of education.

Table 3.8 shows a correlation matrix for the three correlations requested in the above dialog box. A Pearson correlation coefficient shows a negative relationship between students who is not preferred playing game and their age. This correlation coefficient is -.093. However the significance level is relatively large (.296) then the correlation is not significant and the two variables are not linearly related. This tells us those students who have a higher background of education are unwilling to playing game. In other word, the high degree of education, their willingness to play game is decrease.

4. Conclusion

In this paper, a survey on mobile games usage among the IHL students was conducted. The rationale for conducting this survey was based on the rapidly growing of mobile phone usage especially among IHL students. The survey shows that 54 % out of 129 students are willing to play game on mobile phone. The discussion is all about defining correlation between students those playing mobile game with others relationship and students who do not prefer playing mobile game at all with others relationship. There are a few relationships that have been revealed in this survey.

The relationship towards favorite games shows that the more student playing mobile games, the more Hand Faster Skill game is chosen. The other relationship indicates that the more gender preferences on playing mobile games, the more games will be downloaded via SMS but the relationship between study's sponsorship will decrease. In fact, mobile game seems likely to replace most of other game platforms such as console and arcade. The paradigm shifts from conventional game platforms to handheld would be depending on the portability of the platform and time consuming. Students prefer to play mobile game on a bus, car, train or it could be in lecture rooms while waiting for lecture to begin. This survey shows that the interest of playing mobile game is decreased when these three scenarios occur: (1) the amount of students either male or female in gender aspect is decreased (2) the age of the player is increased (3) the level of the player's education is increased.

Future studies should be taken into students' preferences consideration across mobile learning. For examples, the type of learning should be converted into mobile platform and also the effect of mobile learning for students. Of course, this needs to be supported by further evidence.

Acknowledgment

References

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