The Impact of Social Presence on Learners' Satisfaction in Mobile Learning

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ABSTRACT
Distributing learning completely through mobile courses is a new trend. Social presence has been identified as a significant predictor of learner satisfaction with online learning. It is a key element that improves learner satisfaction with online learning (Cobb, 2009; Reio & Crim, 2013). This study explores whether social presence is inherent in the mobile learning environment. Results revealed that social presence was a significant predictor in learners' satisfaction as were gender and number of courses learners had previously experienced.

INTRODUCTION

The last decades have shown a huge improvement in technology that impacts human life directly and changes the way people deal with information. A new wave of education has arrived with the revolution of technology, especially when people replaced their static phones and desktop computers by ones that can move with them everywhere. Mobile devices in general, and particularly smartphones with their ability to access the internet, started a new generation of e-learning -- mobile learning or m-learning. M-learning is the use of mobile devices for learning. It makes learning more flexible, encourages lifelong learning and helps learners freely acquire, at their convenience and outside education institution boarders, knowledge and skills that interest them.

Mobile devices have caught the interest of researchers to investigate their potential for providing ubiquitous and mobile learning (Looi, Sun, Wu, Seow, Chia, Wong, & Norris 2014) given that learners at the undergraduate level have a favorable attitude toward mobile devices, have implemented them into their daily lives, and expect to use them more in their learning (Joo, Kim & Kim, 2016). There are a plenty of mobile applications that facilitate social communication, most of which share the same functions. For example, that most Mobile Instance Messages (MIM) applications are free, flexible and support multimedia and other advantages has made them a favored communication tool for people. MIM allows users to send and receive messages in real-time to one or more users which increases the communication and collaboration (Ogara, Koh, Prybutol, 2014). Ogara et.al. attributed the growth of MIM numbers and users to factors such as low cost, capabilities and ability to show the presence of users.

WhatsApp was the mobile device used in this study. Bere (2012) summarized the features of WhatsApp thus: It allows exchange of different types of media such as text, videos, audio, images; it supports group chat which allows members to engage in discussion; it supports interaction across different platforms of different types of devices; and it can retrieve messages that arrive while the device is off.

In recent days, there has been a rise in use of MIM to deliver m-learning courses delivered completely through phones. However, lack of face-to-face communication in such learning environments may have a negative impact on learning. Participating in online activities diminishes learners' ability to create interpersonal relationships with each other which in turn affects user satisfaction.

Learner satisfaction is one of the important factors that must be taken into consideration to improve the learning experience. Studies have shown that learner satisfaction impacts learning outcomes such as achievement and motivation (Martirosyan, Saxon, Wanjohi, 2014). The importance of assessing learners' satisfaction becomes even more important when implementing a new system of delivering learning such as the m-learning environment.

Social presence has been identified as a significant factor that impact a learner's satisfaction with online learning in which computer-mediated communication is used. This study aimed to examine whether social presence is a significant predictor of learner satisfaction in a mobile learning environment in which the course is fully delivered through mobile devices application, especially MIM. Some studies have showed that satisfaction is

positively related to social presence in online learning (Cobb, 2011; Zhang, 2010). This relationship needs to be examined in m-learning.

The following research questions will guide this study:

1. Is there a statistically significant correlation between social presence and learner satisfaction in the mobile learning environment?
2. To what extent do social presence, age, gender, and number of mobile courses taken predict learner's satisfaction in a mobile course?
3. Is there a statistically significant difference between males and females in their satisfaction with mobile courses?

BACKGROUND

Learner's satisfaction

Learner's satisfaction can be identified as a learner's feeling about her or his interaction with teachers, peers, the course, the institutional support and the flexibility (Yukselturk & Yildirim, 2008). Satisfaction with their learning experiences is critical to the success of learners 'educational experience (Amro, 2014). Satisfied learners are more persistent and successful than their unsatisfied peers (Kuo, 2010). Learner satisfaction is also a key factor in evaluating the success of any learning program (Wiechowski & Washburn, 2014). Moreover, satisfaction is a factor associated with a high completion rate and a high level of learners' motivation (Kuo, 2010).

A number of studies have been conducted to investigate factors that influence learners' satisfaction with traditional and online learning. For example, Chang (2011) aimed to identify the factors that influence learners' satisfaction in different learning settings. He conducted a study of a sample of 916 students who studied in three different learning environments -- the traditional way of learning, online learning, and blended learning. The study found that interaction with content was the main factor in the satisfaction of all students of different learning styles. He found also that learners in the traditional method were very satisfied with interaction with teachers, and with other learners.

Qureshi (2004) identified factors affecting learners' satisfaction with courses, which are: Demographic characteristics (age, job, and learner status), previous experience and learning styles' of learners. Seaberry (2008) found that the factors that contribute to learner satisfaction with e-courses are immediate feedback, learner interaction and collaboration, interaction with the teacher, and interaction with content. McFarland and Hamilton (2005) found several factors contributing to learner satisfaction in e-learning represented by student engagement, past experience, other learners, technical skill of the learner and the effectiveness of discussion boards in helping learners understand the material. In her study on the effect of feedback on student satisfaction, Gallien and Oomen (2005) found that feedback from the teacher influences learner satisfaction, and individual feedback from the teacher to learners contributes to student satisfaction than group feedback does. What can be concluded is that perceiving the social presence of an instructor and other learners through interaction, feedback, and other ways of communication is critical in developing satisfaction.

Social Presence

There is no clear, unanimous definition for social presence. However, it "refers to an individual's perception of the quantity and quality of interpersonal communication in an online learning environment" (Reio & Crim, 2013, p.21). It can be further defined as "the degree to which a person is perceived as a 'real person' in mediated communication" (Gunawardena, 1995, p.151) and it "is an individual matter, linked to the teaching style, content delivery, and established patterns of instructor-student feedback" (Stone & Chapman, 2006, p.1). Tu and McIsaac (2002) described social presence as "the degree of feeling, perception, and reaction of being connected by CMC to another intellectual entity through a text-based encounter" (p. 140).

Social presence theory was developed to study the social-psychological elements of communication and the claim that the perceived social presence varies in the degree depending on the medium used which in turn influences interactions among individuals (Short, Williams & Christie, 1976). Social presence is an important element that impacts the learning outcome. It has been known as the main element that improves learner satisfaction, contribution, online teamwork, learning, and future registration in online learning (Reio & Crim, 2013).

Social presence in the learning environment is important because it gives learners the feeling of existing with the instructors and other learners which encourages learners to share information with others and learn better (Reio & Crim, 2013).There is increasing literature demonstrating the significance of social presence in online learning

(Cobb, 2009). Learners' perceptions of social presence can predict perceived learning; learners who perceived a high social presence received high scores for perceived learning (Richardson & Swan, 2003). Social presence also has an impact on learners' enjoyment and the quality of the learning experience (Mansour, El-Said, & Bennett, 2010).

Literature about online learning shows that social presence has been linked to instructor-learner interaction, learner –learner interaction, learners' participation, and immediacy behaviors (Stone & Chapman, 2006; Blignaut & Trollip, 2003). In online learning, the instructor's presence is intimately connected to discussion, communication, and the interaction between instructor and student (Woods & Ebersole, 2003). Blignaut and Trollip (2003) believe that the perception of an instructor's contribution includes two components: "the facilitation strategies an online instructor uses (the substance of the feedback); and how often individual learners receive feedback on their intellectual contributions (the number of messages they get from the instructor)" (p. 1).

The relationship between social presence and interaction is a positive two-way relationship. Social presence improves interaction and interaction increases a feeling of social presence. In distance learning settings the teacher's immediacy behaviors more importantly affect learners' perceptions of social presence and thus their satisfaction (Bozkaya & Aydin, 2008) because the absence of immediacy in the learning setting decrees learners' feeling of isolation. (Bozkaya & Aydin, 2008). Instructors' immediacy enhances the students' perception of social presence in both learning environments and face-to-face learning environment (Bozkaya, 2008). Gender as a variable played a role in the variations among participants in regard to their perception of social presence (Richardson & Swan, 2003).

METHODOLOGY

Instrument and Data Collection

A self-designed online survey was used to measure the learners' perception of social presence and their satisfaction as well as to collect demographic information about participants. The first sections included questions regarding learners' feelings of belonging to a community and dealing with real people. This section included five Likert-type items developed to assess learners' perceptions of social presence. The second section of the survey included questions meant to gather data regarding learners' satisfaction with the learning experience through the mobile environment. The third section included questions about age, gender, and the number of mobile courses the participants had experienced before the particular one focuses on in this study. To ensure validity, the survey was reviewed by three faculty members in the field and then piloted with 20 participants and finally was modified based on the results.

A total of seventy-three learners participated in the study. A mobile survey was sent to all participants (200 male and 400 female) in three mobile courses, through a mobile application. After the data was collected Cronbach's Alpha was calculated for the social presence scale and the learner's satisfaction scale. Cronbach's Alpha were .8 and .9 respectively which indicates a good level of reliability. Table 1 shows Cronbach's Alpha for the two scales.

Table 1: Reliability Analysis of the Instrument (N= 73)

Scale	Item Numbers	Cronbach's Alpha
Social Presence	7	.810
Learner's Satisfaction	6	.905

Data Analysis Procedures

A correlational analysis was used to examine the association between students' perceptions of social presence and their satisfaction. Multiple regression analysis was used to determine if students' perception of social presence, gender, age, and experience in mobile learning are significant predictors of learner's satisfaction in mobile courses. The Mann-Whitney test was used to detect any significant difference between males and females in their satisfaction. A Statistical Package for the Social Science (SPSS), version 24, was used to analyze data.

RESULTS

Demographic data are presented in Table 2 and show the distribution of the participants according to the independent variables. Descriptive statistics including frequencies, percentages, means and standard deviations for items were calculated and presented in tables 3 and 4 to give understanding of the sample.

Table 2: Descriptive Statistics: Participants' Distribution Based on the Independent Variables

Variables	Levels	Numbers and Percentages
Gender	Female	55 (75%)
	Male	18 (25%)
Age	From 18 to 25	22 (30%)
	From 25 to 35	25 (34%)
	More than 35	26 (36%)
Number of previous mobile courses	This is the first one	38 (52%)
	Between 1 to 3	19 (26%)
	More than 3	16 (22%)

To answer the first question, Is there a statistically significant correlation between social presence and learner's satisfaction in the mobile learning environment? Correlation Analysis was conducted. The Pearson Correlation value (Table 5) suggests that the correlation between social presence and learner's satisfaction was statistically significant, $r = 63$, $p < .01$ (two-tailed). This means that participants who perceived a high level of social presence were highly satisfied with the mobile course.

Table 3: Descriptive Statistics: Participants' Distribution Based on Their Responses to the Social Presence Scale Items

	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
1	Whenever I need help in the course's materials, I email the instructor	53 72%	14 19%	4 6%	1 1%	1 1%	4.6	0.9
2	The use of WhatsApp to deliver this course provided a chance for social interaction	20 27%	21 29%	16 22%	10 14%	6 8%	3.5	1.3
3	During this course, I had the chance to get to know other participants	14 19%	16 22%	22 30%	8 11%	13 18%	3.1	1.3
4	The instructor did not take long to respond to me when I needed him	46 63%	16 21%	8 11%	1 1%	3 4%	4.4	1.0
5	It was easy to communicate with other students	20 27%	17 24%	22 30%	6 8%	8 11%	3.5	1.3
6	The instructor was always available during this course	49 67%	11 15%	8 11%	3 4%	2 3%	4.4	1.0
7	In this course, I had the feeling of belonging to a community	30 41%	17 23%	15 21%	2 3%	9 12%	3.8	1.3

Table 4: Descriptive Statistics: Participants' Distribution Based on Their responses to the Satisfaction's Scale Items

	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	SD
1	This course met my expectations	24 33%	18 25%	20 27%	6 8%	5 7%	3.7	1.2
2	I am satisfied with the technology used in this course	36 49%	21 29%	10 14%	4 6%	2 2%	4.1	1.0
3	I enjoyed participating in this course	35 48%	20 27%	11 15%	5 7%	2 3%	4.1	1.1
4	The instructor of this course was helpful	26 36%	28 38%	15 21%	2 2%	2 3%	4.0	0.9
5	I would recommend this course to other students	45 62%	12 16%	9 12%	4 6%	3 4%	4.3	1.1

6	Overall, I am satisfied with this course	43 59%	17 23%	7 10%	4 6%	2 2%	4.3	1.0

Table 5: Correlation between Social Presence and Learner's Satisfaction

		Social Presence	Satisfaction
Social Presence	Pearson Correlation	1	.629**
	Sig. (2-tailed)		.000
	N	73	73
Satisfaction	Pearson Correlation	.629**	1
	Sig. (2-tailed)	.000	
	N	73	73

** Correlation is significant at the 0.01 level (2-tailed).

To answer the second questions and assess whether social presence, age, gender, number of previously taken mobile courses were significant predictors of learner's satisfaction in a mobile courses, a multiple regression was performed using learner's satisfaction as the dependent variable. The assumption of multiple regression was tested and there was no violation. The overall regression to predict leaner's satisfaction from social presence, age, gender, and pervious course experience was, R = .70, R^2 = .49, and adjusted R^2 =.46. This result means that 50% of the variance in learner's satisfaction can be predicted by these independent variables. Results also showed that gender, social presence and number of mobile courses learners had experienced were significant predictors of satisfaction at $p < 0.05$.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.702[a]	.493	.463	.65078

a. Predictors: (Constant), social presence, number of courses, gender, age

Table 7: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.983	4	6.996	16.518	.000[b]
	Residual	28.799	68	.424		
	Total	56.782	72			

a. Dependent Variable: Satisfaction
b. Predictors: (Constant), _social presence, number of courses, gender, age

Table 8: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.604	.486		1.245	.218
	Age	-.105	.102	-.096	-1.027	.308
	Number of courses	.220	.102	.201	2.165	.034
	Gender	.408	.189	.199	2.161	.034
	Social presence	.669	.101	.602	6.639	.000

a. Dependent Variable: Satisfaction

To answer the third question, Is there a statistically significant difference between males and females in their satisfaction with mobile courses, a Mann-Whitney Test was conducted. The result showed a statistically significant difference between males and females in their satisfaction with mobile courses. U= 288, $p < 0.01$(two-tailed). Tables 9 and 10 present the results.

Table 9: Mann-Whitney Ranks

	Gender	N	Mean Rank	Sum of Ranks
Satisfaction	Male	18	25.50	459.00
	Female	55	40.76	2242.00
	Total	73		

Table 10: Mann-Whitney Test Statistics[a]

	Satisfaction
Mann-Whitney U	288.000
Wilcoxon W	459.000
Z	-2.664
Asymp. Sig. (2-tailed)	.008

a. Grouping Variable: gender

DISCUSSISON

The study investigated the impact of social presence on learner's satisfaction with mobile learning courses that are fully delivered through mobile devices application as it has been found to be a significant factor in computer-mediated communication learning. The study was guided by three questions. First was to examine whether there is a statistically significant correlation between social presence and learner's satisfaction with a mobile learning environment. The results found a statistically significant correlation between these two variables. The correlation was moderate and positive, $r = 6.3$, $p < 0.01$, indicating that participants who perceived a high level of social presence were highly satisfied with the mobile course that they were taking. This result is in consensus with results found by Cobb (2011) and Zhang (2010). This result should lead mobile instructional designers and educators who teach through mobile courses to take good care of their presence in the learning environment. This will increase the level of satisfaction of learners which in turn will impact their achievement and motivation (Martirosyan et al, 2014).

The second question of the study aimed to examine whether other factors, beside social presence, would impact the learner's satisfaction in a mobile course and be significant predictors of it. The predictors were social presence, age, gender, and number of previously taken mobile courses. Results found that the overall regression to predict leaner's satisfaction from these variables was significant, $R = .70$, $R^2 = .49$, and adjusted $R^2 = .46$. This means that these predictors can explain 50% of the variance of learner's satisfaction. Results also showed that gender, social presence and number of previous mobile courses were significant predictors of learner's satisfaction at $p < 0.05$. This result is in consensus with other studies that found previous experience affected learners' satisfaction in online learning (Qureshi, 2004; McFarland & Hamilton, 2005) This result should lead mobile instructional designers and educators who teach through mobile courses to give extra care to learners who have less experience in mobile learning to increase their satisfaction. Gender was another significant variable in predicting satisfaction. This can be attributed to what Richardson and Swan (2003) found, that gender as a variable played a role in the variations among participants in regard to their perception of social presence. On the other hand, results disagreed with Qureshi's (2004) finding that age impacts the learner's satisfaction with online learning, which could be because mobile devices are comfortable tools for all ages.

As the second question showed that gender was a significant predictor of learner's satisfaction, the third question was meant to give more explanation about the difference between males and females in their satisfaction with the mobile courses. Results found that females were more highly satisfied with mobile courses than were males. That means the male expectations of mobile courses are higher than those of females which should lead mobile instructional designers to consider gender variables when designing mobile learning.

CONCLUSION

This study aimed to explore factors affecting learners' satisfaction in mobile learning. The main factor of interest was the social presence which has been shown to be an important predictor of learners' satisfaction with online learning. Results revealed that social presence was a significant predictor in learners' satisfaction as were gender and number of courses learners had previously experienced. The results of this study should lead instructional designers and educators interested in delivering mobile learning to consider the social presence, gender, and learners' previous experience.

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