THE MODERATING ROLE OF M-LEARNING ACTIVITIES IN THE RELATIONSHIP BETWEEN STUDENTS' SOCIAL CAPITAL AND KNOWLEDGE SHARING

Marya Ali Al-Ansari, Allam Hamdan, Anjum Razzaque, Sameh Reyad and Abdalmuttaleb Al-Sartawi
Ahlia University, Manama, Bahrain

ABSTRACT

Purpose: Current education system is transforming from e-learning to m-learning. The benefit of m-learning is particularly important when it comes to motivating one to self-direct his/her learnings online. Though past research has assessed what role social capital theory plays on knowledge sharing quality, in virtual environment, scant research has assessed the moderation of positive emotions an m-learning support tools, particularly for (1) higher education sector students as well as (2) developing countries. However, the success of such a statement has not been properly documented in the past research. As the result, the aim of this study is to empirically assess the role of Social Capital Theory on Knowledge sharing, when moderated by m-learning.
Research Design: This study is a deductive research approach that initiated with a literature review. Upon identifying a gap in research, research questions were designed. Based on the research questions a conceptual model was proposed and hence this model proposed three hypotheses. This conceptual model was tested using multi-correlation analysis using SPSS, after data was collected from 334 participants, a sample size above the required threshold, to generalize over the population of higher education undergraduate business students of a private university from the Kingdom of Bahrain.
Findings: The results of the empirical findings supported all hypotheses, indicating that m-learning moderate between the role of social capital theory and knowledge sharing quality, when students indulge in e-learning activities using platforms like Moodle. Also, there are implications to theory and practice portrayed in this paper.

KEYWORDS

Social Capital Theory, Knowledge Sharing Quality, Positive Emotions, m-Learning, Higher Education

1. INTRODUCTION

Mobility devices has invaded our world nowadays and we can see that most of the children in school are using mobile telephones. When looking at the devices that we can use to access the World Wide Web we will notice that most of the devices can be used to access the Web and there was a very big change in devices the last few years (Prema, 2012,173a). Furthermore, M-learning has brought many benefits to education because it makes resources easily accessible for the students and gives them the ability to self-study; m-learning also gives the student the advantage of exchanging information while they are not in the university (Abu-Al-Aish, 2012). To encourage better learning and training activities, the use of online resources has been blended successfully with education. It can save operational costs including costs for accommodation, travel and booking of physical classrooms that require every one of the representatives to go to physically (Chang, 2016). This research aims to study how factors such as M-learning affect social capital theory and knowledge sharing. The objectives of this research are to examine: (1) is it important that students use m-learning; (2) Is m-learning affecting knowledge sharing; (3) Is m-learning affecting social capital theory. This study used quantitative method whereby a questionnaire was spread amongst university students across Bahrain such as, Ahlia University, Royal University for Women, AMA University and University of Bahrain. Literature review on the relationship between the variables used in this research is presented in the next part. part 3 and 4 consists of the research methodology and the data analysis including hypotheses. The findings, discussion and conclusion will be presented in part 5.

2. LITERATURE REVIEW

These days, technology is becoming a vital part of our life and it demands professionals, educators, and learners to change their way of thinking and how they use technology for the re-design or re-engineering of education and training system (Basak, 2018). Seeking into (Kothamasu, 2010) argued that five basic parameters are used in m-learning, namely, portable, social interaction, sensitive to the context, connectivity, and customized. In the case of portable, it is easy to carry such as PDA along with users everywhere, including a restroom and this can help learners to get information very quick and rapid. Looking at it in social interaction way, it helps to interact with friends to send messages. Furthermore, it also helps in exchanging data with other people which is also considered as knowledge. In the case of sensitive to the context, it helps in collecting (real data and tested data) something rare to the time environment and current location. In the case of connectivity, it helps to get a strong network where a learner can connect to mobile phones, data collection devices, and to a common network. Finally, in the case of customized, it is very unique because it can help learners to customize learning information. A study was conducted by Sobri and Fatimah (2012) in Malaysian students' on the awareness and requirements of mobile learning services in higher education and the results of the study revealed that students have enough knowledge and awareness to incorporate m-learning in their education environment. Another study conducted by Mao (2014) at the southwest university on 300 undergraduate learners and the study revealed that 76% of the learners were satisfied to use m-learning. In addition, 84% of the respondents also indicated that they will use m-learning as a future learning. Furthermore, the study also revealed that the majority of the learners was immensely benefited from the m-learning because it helped them to solve problems very quickly that they were encountered in the learning. In a study by Lee (2014) stated that it may be advisable for teachers to develop students' learning processes in the face-to-face context without technology before engaging them in technology-supported learning. Consisted of three phases: the development of the survey, the finalization of the survey, and the investigation of the relationship between students' perceptions of CL and SDL without technology and those with technology. Few studies have investigated student and academic perceptions of m-learning and learning. Perceptions are important because they influence students' and teachers' approaches to learning and teaching, which in turn affect learning outcomes Further, they can be used to identify the range of people's experience, as well as their subjective experience of the m-learning (Rowe, 2013). M-learning is one of the ways that enterprises to improve the processes of information flow for knowledge sharing, improvement and achievement. Its web-based system nature removes the users or learners time restrictions or geographic limitations. Moreover, availability and flexibility are often presented advantages when comparing with traditional face-to-face. However, too many projects have high failure costs or user's difficult adoption. Furthermore, M-learning overcomes the limitations of time and space of traditional teaching; it allows learners to learn independently (Navimipour, 2015).

Using m-learning, learning setting is changing frequently because of the mobility of learners, learning technology, and learning content. According to Chen and Kotz (2000), there are four categories of mobile context, namely, computing context, user context, physical context, and the time context. The context of computing mainly focuses about the internet connection, communication bandwidth, and the used resources. Meanwhile, the context of the user focuses about the learner profile and his. Looking through the physical context it focuses about noise, lighting, traffic conditions, the temperature of the learner's physical location. Finally, in the case of time context, it is all about the specific time of learning. Similarly, Zhao and Zhu (2010) and Li and Qiu (2011) have stated that there are three factors that should be held under consideration when you deal with the m-learning systems and having considered, those three factors can provide the desired level of quality. Prior those three factors are, learner's style, mobile, mobile device or applications, Basak et al. 203 and the learning content. Furthermore, the advanced hardware of mobile devices such as camera, accelerometer, and different software such as Apps provides more capability to manipulate, organize, and to generate the formation for teaching and learning (Chen et al., 2008; Keskin and Metcalf, 2011). Knowledge sharing in m-learning play important role to keep the flow of knowledge and make the knowledge richer and deeper, if knowledge sharing in m-learning discontinued the knowledge will stuck and couldn't optimally distribute to learner community (Kunthi, 2018). A study by (Ziad Hunaiti, 2012) indicates that the majority of students own smart phones, a few students have tablet PCs or PDAs and the remaining students have ordinary mobile phones. Students do access the internet via their mobile devices inside and outside the campus regularly and their thoughts about the price of accessing the internet suggest that they did not think that the price was too expensive for accessing these types of services.

3. SAMPLING AND DATA COLLECTION

This research targets undergraduate university students in Bahrain. The questionnaire was distributed amongst university institutions all around Bahrain such as, Ahlia University, Royal University for Women, AMA University and University of Bahrain. Thus, the questionnaire was answered by students whom are knowledgeable of the use of m-learning during their course of study. 312 students took part in this study with Males computing to 166 which is 53.2% and Females compute to 146 which is 46.8%.

4. DATA ANALYSIS

4.1 Descriptive Analysis

Tables 1 show the five-point Likert Scale in detail, mean and standard deviation of social capital theory.

Table 1. The mean and standard deviation of Social Capital Theory

Social Capital Theory	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	Mean	Standard Deviation
1-I maintain close relationships with some members in my online communities	139 44.6%	123 39.4%	38 12.2%	10 3.2%	2 0.6%	4.24 84.8%	0.835
2-I spend a lot of time interacting with some members on a personal level in my online communities	112 35.9%	137 43.9%	47 15.1%	12 3.8%	4 1.3%	4.09 81.8%	0.879
3-I know some members in my online communities	119 38.1%	132 42.3%	48 15.4%	10 3.2%	3 1%	4.13 82.6%	0.857
4-I have frequent communication with some members in my online communities	101 32.4%	141 45.2%	48 15.4%	16 5.1%	6 1.9%	4.01 80.2%	0.927
5-Members in my online communities will not take advantage of others even when the opportunity arises	107 34.3%	124 39.7%	64 20.5%	13 4.2%	4 1.3%	4.02 80.4%	0.912
6-Members in my online communities would not knowingly do anything to disrupt the conversation	104 33.3%	127 40.7%	62 19.9%	11 3.5%	8 2.6%	3.99 79.8%	0.925
7-Members in my online communities behave in a consistent manner	103 33%	122 39.1%	71 22.8%	9 2.9%	7 2.2%	3.98 79.6%	0.937

8-Members in my online communities are truthful in dealing with one another	102 32.7%	142 45.5%	51 16.3%	14 4.5%	3 1%	4.04 80.8%	0.870
9-I know that other members in my online communities will help me, so it's only fair to help other members	111 35.6%	134 42.9%	54 17.3%	10 3.2%	3 1%	4.09 81.8%	0.859
10-I believe that members in my online communities would help me if I need it	106 34%	136 43.6%	49 15.7%	17 5.4%	4 1.3%	4.04 80.8%	0.912
11-I feel a sense of belonging towards the members of my online communities	118 37.8%	126 40.4%	46 14.7%	17 5.4%	5 1.6%	4.07 81.4%	0.941
12-I have the feeling of togetherness or closeness with members of my online communities	101 32.4%	136 43.6%	54 17.3%	16 5.1%	5 1.6%	4.00 80%	0.921
13-I have a strong positive feeling towards members of my online communities	100 32.1%	147 47.1%	52 16.7%	9 2.9%	4 1.3%	4.06 81.2%	0.847
14-I am proud to be a member of my online communities	101 32.4%	145 46.5%	45 14.4%	19 6.1%	2 0.6%	4.04 80.8%	0.878
15-Members in my online communities will always keep the promise they make to one another	89 28.5%	148 47.4%	56 17.9%	18 5.8%	1 0.3%	3.98 79.6%	0.852
16-Members in my online communities would not knowingly do anything to disrupt the conversation	89 28.5%	149 47.8%	54 17.3%	17 5.4%	3 1%	3.97 79.4%	0.874
17-Members in my online communities behave in a consistent manner	97 31.1%	135 43.3%	52 16.7%	24 7.7%	4 1.3%	3.95 79%	0.949
18-Members in my online communities are truthful in dealing with one another	99 31.7%	141 45.2%	54 17.3%	15 4.8%	3 1%	4.02 80.4%	0.878

19-Members in my online communities use common terms or jargons	99 31.7%	134 42.9%	60 19.2%	15 4.8%	4 1.3%	3.99 79.8%	0.905
20-Members in my online communities use understandable communication pattern during the discussion	111 35.6%	135 43.3%	46 14.7%	14 4.5%	6 1.9%	4.06 81.2%	0.925
21-Members in my online communities use understandable narrative forms of post messages or articles	109 34.9%	136 43.6%	52 16.7%	11 3.5%	4 1.3%	4.07 81.4%	0.877
22-Members in my online communities share the vision of helping others solve their professional problems	96 30.8%	145 46.5%	53 17%	16 5.1%	2 0.6%	4.02 80.4%	0.862
23-Members in my online communities share the same goal of learning from each other	107 34.3%	146 46.8%	44 14.1%	12 3.8%	3 1%	4.10 82%	0.847
24-Members in my online communities share the same value that helping others is pleasant	106 34%	140 44.9%	45 14.4%	14 4.5%	7 2.2%	4.04 80.8%	0.931

4.2 Hypothesis Testing

4.2.1 Correlation Analysis

Table 2 shows the variables would be statistically correlated to each other if significant levels fall beneath 0.05. There is a significant positive correlation between social capital theory and knowledge sharing, $r^2= 0.291$, $p < 0.05$. Moreover, there is a positive correlation between social capital theory and knowledge sharing that is moderated by m-learning, $r^2= 0.373$, $p < 0.05$. As depicted in the table, the moderation of gender significantly impacts the relation between SCT and KSQ, such that presenting gender (male) the R^2 was 29.1% and increased to 32.2%; particularly when male gender was introduced as a moderator. This is not the case of females since R^2 dropped from 29.1% to 25.6% and therefore the gender as a whole (male and female): R^2 dropping from 29.1% to 2.5%. Hence, this evidences the support for hypothesis 4 such that males moderate to facilitate the banking of social capital to improve sharing of knowledge behaviour while e-learning.

4.2.2 Regression Analysis

Multiple regression testing was done to test the hypothesis as shown in Table 2. Hypothesis 1, 2 and 4 are significantly accepted and hypothesis 3 and 5 are rejected. There is a positive relationship between social capital theory and knowledge sharing, $B= 0.540$, $p < 0.05$. Also, as there is a positive relationship between social capital theory and knowledge sharing, adding m-learning as a moderating variable enhanced the relation, which shows they all have a strong effect on each other, $B=0.611$, $p < 0.05$. However, adding gender as a moderator decreases all values significantly from $B= 0.540$ it dropped to $B= 0.159$, $p < 0.05$. To investigate

further as to why gender has a negative impact on the relationship, each gender got separated and interpreted to discover the root of the issue. When male gender was introduced as moderator it showed positive relationship to SCT and KSQ as the Beta increased to B= 0.568, $p < 0.05$. On the other hand, when the female gender was introduced as a moderator it showed a negative relationship to SCT and KSQ, B= 0.506, $p < 0.05$. Which shows the issue resides with the findings of the female gender.

Table 2. Regression analysis

Model	Relationship between variables	F	t	R^2	B
M1	Social Capital theory => Knowledge Sharing	127.431 Sig 0.00	11.289 Sig 0.00	29.1%	0.540
M2	M-Learning * Social Capital theory => Knowledge Sharing	184.545 Sig 0.00	13.585 Sig 0.00	37.3%	0.611
M3	Gender * Social Capital theory => Knowledge Sharing	8.060 Sig 0.005[b]	2.839 Sig 0.005[b]	2.5%	0.159
M4	Male Gender * Social Capital theory => Knowledge Sharing	77.936 Sig 0.00	8.828 Sig 0.00	32.2%	0.568
M5	Female Gender * Social Capital theory => Knowledge Sharing	49.564 Sig 0.00	7.040 Sig 0.00	25.6%	0.506

Hypothesis 1: *There is a positive relationship between social capital theory and knowledge sharing.*
Hypothesis 2: *There is a positive relationship between social capital theory and knowledge sharing with the use of m-learning.*
Hypothesis 3: *There is a positive relationship between social capital theory and knowledge sharing whilst moderated by both genders.*
Hypothesis 4: *There is a positive relationship between social capital theory and knowledge sharing whilst moderated by only the male gender.*
Hypothesis 5: *There is a positive relationship between social capital theory and knowledge sharing whilst moderated by only the female gender.*

5. CONCLUSION

This research is a study of the acceptance of m-learning services in university institutes such as Ahlia University, AMA University and University of Bahrain. One correlation of quality construct can be observed in this paper and they are Social Capital Theory and Knowledge Sharing. Four other moderating variables can be observed that were tested to see the effect on Social Capital Theory and Knowledge Sharing are m-learning, gender as a whole and female and male construct apart. This paper will focus on the effect of m-learning on Social Capital Theory and Knowledge Sharing. Firstly, there is a positive relationship between Social Capital Theory and Knowledge Sharing, as evident in the data analysis, B= 0.540, $p < 0.05$. Which means that Social capital is becoming a valuable mechanism by which universities can share knowledge. For this reason, it is suggested that universities increase confidence, networks and standards among lectures to facilitate the sharing of knowledge. Through such a strong relationship, the process knowledge sharing could be accelerated (Harjanti, 2017). This outline underlines the importance of the contextual standpoint in information and knowledge sharing. The dimensions of social capital signify in particular the roles of structures and relations that are indorsed differently depending on the context (Widen, Gunilla, 2011). The second quality of construct is the effect of m-learning on Social Capital Theory and Knowledge Sharing. Which also showed a positive relationship between them. As shown by Pearson (2016), almost 78% of lecturers admit having digital education in their classroom has shown benefits for their students, which encouraged them to incorporate e-learning into their daily classes. The third quality of construct is the effect of both genders on Social Capital Theory and Knowledge Sharing. This construct showed a negative relationship. The Beta for Social Capital Theory and Knowledge Sharing was B= 0.540 which dropped to B=0.159 when both genders were introduced. To further investigate as to why it happened, the genders were separated into constructs of their own. Either both genders will show negative relationship between the first construct or one of them. When the male gender

was tested it showed a positive relationship between it and Social Capital Theory and Knowledge Sharing, B=0.568, $p < 0.05$. On the other hand, when the female gender was tested it showed a negative relationship between it and Social Capital Theory and Knowledge Sharing, B= 0.506, $p < 0.05$. Which concludes that the main issue resides with the female gender's findings. Which could indicate that the women are not as accepting of Social Capital Theory and Knowledge Sharing as men are.

This research is a study of the acceptance of m-learning services in university institutes. As a result of the data analysis, three hypotheses (H1,H2 and H4) are accepted and (H3 and H5) are rejected. The findings of this research support the relationship of Social Capital Theory and Knowledge Sharing, and it showed how knowledge sharing relates to academic performance. Similarly, m-learning showed positive relationship between Social Capital Theory and Knowledge Sharing, which shows incorporating m-learning into university classroom would show a positive reaction. On the other hand, when gender was introduced to test the effect on Social Capital Theory and Knowledge Sharing, it showed a negative relationship. When further tested it showed that men accept Social Capital Theory and Knowledge Sharing, and women do not.

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