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THE IMPACT OF E-LEARNING ON LEARNER KNOWLEDGE SHARING QUALITY

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ABSTRACT

E-learning is an emerging approach in universities where self- directed students and motivated learning increases the utilization and integration of knowledge sharing in e-learning. The learning virtual community is a domain where inquiries, interest or needs, are shared. Such circumstances lead to interactions that allows virtual participants to learn from each other. This study examines the impact of e-learning on learner knowledge sharing quality. To fulfill the requirement, a quantitative approach was used to measure the e-learning approach developed in Ahlia University in Bahrain, and whether it directs the students to the required knowledge sharing quality. A constructed questionnaire has been developed and a sample of 376 Ahlia University respondents generalizable over College of Business and Finance's. The study concluded that there's an impact of e-learning on learner knowledge sharing quality and this is due to the e-learning environments at Ahlia University are composed of those technologies that aid in the teaching and learning; such as Moodle, where students log-on to attain blended e-learning experiences. This study and its conclusion overcome the gap exists in which students expressed an influential role of self-directed and motivation for learning and knowledge sharing in e-learning environments.

KEYWORDS

E-Learning, Online Platforms, Knowledge Sharing Quality, Ahlia University Students

1. INTRODUCTION

In today modern education, e-learning is considered as an emerging approach that supports teaching and learning process (Khan, 2001). The use of e-learning as a teaching and learning tool is now rapidly expanding into education. Its major driving forces are: 1-The emergence of a worldwide communication network, with computer technologies leading to a revolution in education, 2-The perception of e-learning as a solution to the cost and quality problems of universities (Selim, 2007).

E-learning or (online education) has become a quotidian practice in many educational institutes as a way to deliver knowledge and information to students (Allen and Seaman, 2013) which in turn increased the learners' autonomy and independence in the learning process. Moreover, e-learning provides flexible learning materials and consistent information, with ease of use which in turn motivates universities to invest their resources in developing online practices (Wenchieh, Lan-Yin, 2010). As e-learning refers to the use of electronic devices for learning, including the delivery of content through electronic media such as internet, audio, or video (ASTD, 2001), universities are placing increased emphasis on improving the quality of their educational services (Kuo and Ye, 2009).

Nowadays, with the development of internet communication technologies, a large number of virtual communities emerged (Yao et al., 2015). They are networks wherein members may exchange information, knowledge, and resources and have repeated interaction through electronics means including online forums and platforms (Asvanund et al., 2004). Virtual communities sites provide a platform for participants to generate value, information and knowledge and to share them among members (Kuo, 2003) as knowledge is utilized through knowledge sharing (Sousa &Pinto, 2013). In this context, learners' self -control; self- directed and motivated learning, has been cited as a major determinant of e-learning (Sorgenfrei and Smolnik, 2016). The increasing use of e-learning is changing the traditional understanding of educational activities (Martinez-Caro et. al,2015).

Many previous studies have been evaluating the effectiveness of e-learning system, however, some of them focused on the technology-based components (Islas et al., 2007) and the others focused on human factor of e-learning system (Liaw, 2007). Therefore, the study contributes in examining the impact of e-learning with its determinants; Self- directed students and motivated learning by the use of online platforms on the knowledge sharing quality in higher educational institutions.

2. LITERATURE REVIEW

Since decade, with the advent of information and communication Technologies (ICT), learning environments (e.g., web 2.0 e-learning tools: Moodle, email, instant messaging, wiki blogs, social networks, video conferencing) and changing practices, there is an increasing tendency for student-centered and virtual community-based learning (Yilmaz, 2016; Kunthi, Wahyuni, Al-Hafidz, & Sensuse, 2018). In this scenario, the learning virtual community is a domain where inquiries, interest or needs, are shared. Such circumstances lead to interactions that allows virtual participants to learn from each other. A learning community environment is responsible for fostering its own learning and managing of knowledge to develop competencies. Here, such communities, allow the transfer of knowledge between learners; enabling participating learners in such communities to learn from each another, as well as, foster new knowledge creation within the social capital of resources of such a learning community. Here interactions help learning, problem-solving, new knowledge creation and motivation for learning during the moderation of ICT, when one thinks of virtual learning communities. In such situations, knowledge societies are part of knowledge dependent operations-based knowledge economies that transition into strategies and policies-matured learning environments. Every society holds a diverse group of people's skills and experiences, where knowledge is a commodity in the form of the social capital of the society's resources, that when subsidized empowers the knowledge economy of a society. Unfortunately, there are no strategies or policies assisting a society to become knowledge intensive economies. Knowledge increases as a society globalizes. Knowledge assets become goods, which increase with time, and get utilized, unlike tangible goods`. A knowledge society is constructed upon four pillars being infrastructure, governance, human capital and culture (Karolak & Razzaque, 2013; (Moylan & Razzaque, NYIT Education Survey, 2014) (Moylan & Razzaque, 2014)). There has been a reported a growth in virtual classrooms for academic teaching and learning, and for workplace training. While 70% of the teaching and learning is classroom based, such teaching and learning is a blend between e-learning using online learning platforms and traditional in-class teaching and learning, with an increase adaption of cell phone for m-learning. When learners enroll in an online course, interactions occur via text, audio and video messages across time and space. Hence, e-learning is a blend of asynchronous and synchronous communications where synchronous live teaching and learning in chat rooms with continuous conversation but asynchronous learning is across breaks in interaction within virtual discussions (Baehr, 2012). With tools like instant messaging, e-mails, forums, blog, social platforms and virtual conferencing; virtual learning has become an alternative channel to support learning in and outside classrooms. Hence, social media is especially applied as virtual learning environments to engage learning through interactions in social environment as learners participate. Through the construction of new knowledge in the minds of these learners, learn can also occur through observations of discussions on a discussed issue, which his being shared within a community of learners. This indicates that using the virtual environment, even social platforms like Facebook, could prove useful in ensure knowledge exchange and diffusion within no time, as well as an environment that harvests cooperation and interaction between learners. In such learning environments knowledge is shared as the main motion, which encourages community participants to share more knowledge, increasing motivation to learn and participate through their behavior of knowledge sharing, as well as, frequently share knowledge. Knowledge sharing is also the main challenge encountered within the learning process in online learning environments (Yilmaz, 2016). Knowledge enrichens and becomes deeper during knowledge sharing while e-learning in groupware, chat-room, and forums. Knowledge sharing in e-learning is vital for enriching the social capital of knowledge; or else e-learning will discontinue. Social media platforms like Facebook, WhatsApp or Line are vital and popular tools for virtual learning interactions, far better than plan e-learning environments like Moodle. The application of social media as virtual communities reinforces the ease in the use and acceptance is virtual learning platform to interact and, therefore, learn (Kunthi, Wahyuni, Al-Hafidz, & Sensuse, 2018). E-learning is also a buzz word within the commercial sector of the globe. "Learning organization" is a term that arouses conceptualization reflecting a

structure where, knowledge is utilized through knowledge sharing, acquisition and diffusion, a participating behavior to improve competition. Such a process to build learning organization is fundament as an underpinning infrastructure to formulate an organizational memory. With the development of the ICT that promotes virtual conditions to increase organizational memory; e-learning tool forms the stepping stone for a fundamental environment for systems interoperations and knowledge communications. The adoption of the E-learning as a knowledge communication tool is so to allow organizations to access others' experiences from which they could develop unique knowledge. Such available knowledge allows organizations to learn in competitive environments thus, to pursue sustainability from learning and innovation (Sousa & Pinto, 2013). Blended e-learning is mixing online and traditional teachings and learning modes; a combination of both, or by the use of variances in media types, technologies, and communication modes. Hence, developing effective virtual teaching and learning environments requires a complex understanding of how technology is integrated with users such that learner participants can interact to share knowledge in order to learn. Such challenges are further complex for the instructors who have limited experience in teaching methods, in addition to virtual teaching and learning experiences. Such e-learning environment requires higher digital literacy from the instructor and learning point of view. E-learning environments that are mediated by ICT help learners create a social learning environment where knowledge gets shared for cooperative learning, and online the sharing of knowledge formulates an appropriate learning culture, whether in a traditional classroom or an e-learning mode of teaching and learning; where learners should take a more active role in knowledge exchange, particularly in online training (Baehr, 2012; Caspersen, Frølich, & Muller, 2017; Honey & Mumford, 1992).

3. SAMPLE DESIGN AND DEMOGRAPHIC ANALYSIS

This study initiated with a critique of a literature review to understand gaps in research focused on e-learning. After this phase was the pinpointing of the research question and research objectives followed by the formulation of a conceptual framework, and the relative hypothesis. To test the hypothesis; data were collected from 376 Ahlia University respondents generalizable over College of Business and Finance's 700 students (i.e. close to approximate) population. Collected data were analyzed using descriptive and advanced descriptive analysis followed by correlation analysis and explained in the data analysis section. This a deductive research approach seeks confirmation on its hypothesis and its cross-sectional data collection on 376 responses were based on completely filled online survey forms. The survey instrument was adapted from two sources: learning readiness and learner knowledge sharing quality. The needs for assessing this study's hypothesis is literature driven; s past scholars have not assessed this role in the higher education sector; hence a novel assessment of this study.

Table 1. Demographic distribution

Sample Characteristics		Frequency	Percent
Gender	Male	212	56%
	Female	164	44%
	Total	**376**	**100%**
Age	12 - 17 years old	16	4%
	18 - 24 years old	312	83%
	25 - 34 years old	48	13%
	Total	**376**	**100%**
Student Status	GCC student	250	66%
	Non-GCC student	126	34%
	Total	**376**	**100%**

Table (1) indicates that in terms of gender, the respondents who participated in the survey were mostly Males with 56%, while the females represent 44%. In terms of age, most of the respondents (83%) were between ages of 18 & 24, 13% of the respondents were between the ages of 25 & 34, while 4% of the respondents were between the ages of 12 & 17. Regarding the status it can be seen that in terms of nationality, majority of the respondents (250) were those the GCC students representing 66%, while Non-GCC student (126) represent 34%.

4. FINDINGS AND DISCUSSION

4.1 Descriptive Analysis

Table (2) shows the mean of all respondents' opinions about learner knowledge sharing quality. The highest mean of learner knowledge sharing quality was 3.915 related to "The knowledge shared between instructor and students in Moodle is easy to understand" with general percent 78%, followed by" The knowledge shared between instructor and students in Moodle is relevant" with mean equals to (3.883). On the other hand the analysis also determined that "The knowledge shared between instructor and students in Moodle is timely" had the lowest mean which was 3.617 with general percent 72%.

Table 2. Learner knowledge sharing quality

Learner Knowledge sharing quality	The Answers%							
	Strongly disagree	Disagree	Neither	Agree	Strongly agree	Mean	SD	General Percent
The knowledge shared between instructor and students in Moodle is easy to understand.	9.574	1.064	4.255	58.511	26.596	3.915	1.099	78%
The knowledge shared between instructor and students in Moodle is relevant.	5.319	6.383	6.383	58.511	23.404	3.883	1.010	78%
The knowledge shared between instructor and students in Moodle is easy to understand.	7.447	3.191	11.702	54.255	23.404	3.830	1.060	77%
The knowledge shared between instructor and students in Moodle is accurate.	7.447	3.191	17.021	50.000	22.340	3.766	1.068	75%
The knowledge shared between instructor and students in Moodle is complete.	6.383	4.255	17.021	46.809	25.532	3.809	1.066	76%
The knowledge shared between instructor and students in Moodle is reliable.	6.383	6.383	7.447	54.255	25.532	3.862	1.069	77%
The knowledge shared between instructor and students in Moodle is timely.	9.574	5.319	15.957	52.128	17.021	3.617	1.123	72%

Table (3) shows the mean of all respondents' opinions about Self-Directed Learning, the highest mean of Self-Directed Learning was 3.85 related to "I have higher expectations for my learning performance" with general percent 77%, followed by" *I carry out my own study plan*" with mean equals to 3.75. On the other hand, the analysis also determined that "*I manage time well*" had the lowest mean which was 3.54 with general percent 71%.

Table 3. Self-Directed Learning

Self-Directed Learning	The Answers%							
	Strongly disagree	Disagree	Neither	Agree	Strongly agree	Mean	SD	General Percent
I carry out my own study plan.	8.3	7.5	17.4	34.4	32.4	3.75	1.22	75%
I seek assistance when facing learning problems.	7.5	14.2	14.2	40.3	23.7	3.58	1.207	72%
I manage time well.	10.7	9.1	20.2	35.6	24.5	3.54	1.252	71%
I set up my learning goals	7.9	7.1	17.8	42.3	24.9	3.69	1.155	74%
I have higher expectations for my learning performance.	5.5	7.5	15.8	39.1	32	3.85	1.122	77%

Table (4) shows the mean of all respondents' opinions about Motivated Learning, the highest mean of Motivate Learning was 3.78 related to "*Have motivation to learn*" & "*improve from my mistakes*" with general percent 76%, followed by "*I am open to new ideas*" with mean equals to 3.77. On the other hand, the analysis also determined that "*I like to share my ideas with others*" had the lowest mean which was 3.68 with general percent 74%.

Table 4. Motivate Learning

Motivate Learning	The Answers%							
	Strongly disagree	Disagree	Neither	Agree	Strongly agree	Mean	SD	General Percent
I am open to new ideas.	6.7	8.7	17.8	34.8	32	3.77	1.184	75%
Have motivation to learn.	6.3	8.7	15.8	39.1	30	3.78	1.154	76%
improve from my mistakes.	6.3	9.5	11.9	44.7	27.7	3.78	1.14	76%
I like to share my ideas with others.	7.1	9.9	16.2	41.1	25.7	3.68	1.166	74%

4.2 Path Analysis

The researchers made advanced analysis to study the relation between gender and knowledge sharing, also the overall sample was divided male and female according to the median after that the researchers calculated the mean for gender and tested the differences according to the parametric test (T test), in addition they studied the correlation between gender and knowledge sharing according to the parametric test (Pearson). For the relation between gender and knowledge sharing (table 5), the study revealed that male had sharing knowledge more than female in most of the variables because the mean of male was higher than female also the differences between both but statistically not significant, in addition there was a negative relation in most of the variables and statistically not significant between gender and knowledge sharing according to Pearson test.

Table 5. Path analysis for the relationship between gender and knowledge sharing

Learner Knowledge sharing quality		Mean	Std. Deviation	Correlation		Paired Samples Test	
				p	Sig.	t-test	Sig.
The knowledge shared between instructor and students in Moodle is easy to understand.	Male	3.980	1.159	-0.069	0.184	1.330	0.185
	Female	3.830	0.988				
The knowledge shared between instructor and students in Moodle is relevant	Male	3.980	1.024	-0.111	0.032	2.106	0.037
	Female	3.760	0.960				
The knowledge shared between instructor and students in Moodle is easy to understand.	Male	3.790	1.105	0.060	0.243	-0.976	0.330
	Female	3.900	0.986				
The knowledge shared between instructor and students in Moodle is accurate.	Male	3.800	1.081	-0.028	0.585	0.589	0.556
	Female	3.730	1.040				
The knowledge shared between instructor and students in Moodle is complete.	Male	3.810	1.111	-0.003	0.954	0.051	0.959
	Female	3.800	0.996				
The knowledge shared between instructor and students in Moodle is reliable.	Male	3.870	1.120	-0.007	0.898	0.161	0.873
	Female	3.850	0.980				
The knowledge shared between instructor and students in Moodle is timely.	Male	3.590	1.242	0.013	0.795	-0.353	0.725
	Female	3.630	0.959				

5. CONCLUSION

The aim of this study was to assess the role of learner's self-directed and motivated learning on the quality of their shared knowledge behavior, while they conduct teaching and learning with their instructors, and particularly their peers during e-learning. Considering that this study occurs with the target population of Ahlia University students, from the College of Business and Finance's 700 enrolled undergrad students; the empirical findings are not surprising to the authors of this study. It is important to take note here that e-learning environments at Ahlia University are composed of those technologies that aid in the teaching and learning; such as Moodle, where students log-on to attain blended e-learning experiences, smart board technologies, used during face-to-face traditional classroom teachings; but not limited to only such ICTs. This is since students also indulge in in-class participations while using their cell-phones in order to participate to instructors' teaching inquiries; like for instance when an instructor may ask students to check the definition of a term, since the best learning is from self-inquiring. Students at Ahlia University prefer using Google to do such searches, in order to participate to learn. However, other forms of ICTs are also used for e-learning but those technologies are more in association with social media (such as WhatsApp for out-of-class student-instructor communications, etc.) and m-commerce, or m-learning (Moodle thru cell-phones, etc.). It is no wonder why students expressed an influential role of self-directed and motivation for learning and knowledge sharing in e-learning environments, since such students are tech-savvy, as this is an observed phenomenon by the authors of this student, not only for the students of Ahlia University, or the citizens of Bahrain but in general for those who reside in the Gulf Corporation Council (GCC) region.

The empirical evidences in this study shed new knowledge on how further research is inevitably evident to further understand the key issues that pertain to e-learning in this part of the developing world. However, it does without saying that this study has few limitations. First, an online survey was hosted on Google Forms and it was cross-sectional data collection; whereas future research could assess this study's model with further details when assessing this instrument longitudinally. Second, the timeline given to conduct this research project was only one semester, while other issues remain under the pending list, e.g., using such a phenomenon using social media or thru m-learning means, should, and will be, assessed in future research. Also, considering that internet action is a trendy, but more importantly a serious research subject of concern, should also be assessed from the prism of e-learning, considering that students constantly are online, with lack of empirical evidence actually informing parents, to what extend such platforms are used for sharing knowledge versus wasting time establishing friendship ties.

Furthermore, this study has implications to theory and practice. From the point of view of theory, the model is viable for improving curriculum design, such that students' learning readiness and knowledge sharing should spear head a stronger drive for Ahlia University to use e-learning more comprehensively, though still with caution. Practically speaking, findings of this study set a benchmark for assuring quality in teaching and learning; with the emphasis on future research to also example to what extent students are motivated to share knowledge, so that such knowledge drives their imagination, creativity, hence innovation.

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REFERENCES

Allen, I. E., Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. *Babson Survey Research group and Quahog Research group,* LLC. Massachusettes, USA

American Society of Training and Development(ASTD), (2001). A vision of e-learning for America's workforce: *Report of the commission on technology and adult learning*, ED455432, Alexandria, VA.

Asvanund, A., Clay, K., Khrishnan, R.,Smith, M.D.(2004). An empirical analysis of network externalitiesin peer-to-peer music sharing networks. *Information Systems Ressearch,* Vol. 15, 155-174.

Baehr, C. (2012). Incorporating User Appropriation, Media Richness, and Collaborative Knowledge Sharing into Blended E-Learning Training. IEEE Transactions on Professional Commnuications, 55(2), 175-184.

Caspersen, J., Frølich, N., & Muller, J. (2017). Higher education learning outcomes – Ambiguity and change in higher education. *European Journal of Education*, 52(1), 8-19.

Chen-Yen, Y., Chin-Chung, T., Yen-Chiang, F. (2015). Understanding social capital, Team learning, members e-loyalty and knowledge sharing in virtual communities, *Total Quality Management*, Vol. 26 No.6, 619-631.

Clark, R. C. Mayer, R. E. (2011). E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning. san Francisco, CA: Jossey-Bass.

De Rouin, R. E., Fritsche, B., Salas, E. (2005). E-learning in organizations. Journal of Management, Vol. 31. No. 6, 920-940.

Honey, P., & Mumford, A. (1992). The Manual of Learning Styles. London: Peter Honey.

Islas, E., Perez, M., Rodriguez, G., Parades, I., Avila, I., Mendoza, M.(2007).E-learning tools evaluation and roadmap development for an electrical utility, *Journal of Theoritical and Applied Electronic Commerce Research*, Vol. 2, No.1, 63-75.

Karolak, M., & Razzaque, A. (2013). Virtual Communities: New Perspectives on Collaboration. *Studia Sociologica* UP, 5(1), 29-40.

Kunthi, R., Wahyuni, R., Al-Hafidz, M. U., & Sensuse, D. I. (2018). Exploring antecedent factors toward knowledge sharing intention in E-learning. 2018 IEEE Symposium on Computer Applications & Industrial Electronics (ISCAIE) (pp. 108-113). Penang, Malaysia: IEEE Xplore.

Kuo, Y., Ye, K. (2009). The causal relationship between service quality, corporate image and adults' learning satisfaction and loyalty: A study of preofessional training programmes in a Taiwanese vocational institute. *Total quality Management and Business Excellence*, Vol. 20, No.7, 749-762.

Kuo,Y. F. (2003).A study on service quality of virtual community websites, *Total Quality Management and Business Excellence*, Vol. 14, No.4, 461-473.

Liaw, S. S., Huang, H. M., Chen, G. D. (2007). Surveying instructor and learner attitudes toward e-learning, *Computer Education*, Vol. 49, No.4, 1066-1080.

Martinez-Caro, E., Cegarra-Navarro,J., Cepeda- Carrion,G.(2015). An application of the performance-evaluation model for e-learning quality in higher education. *Total Quality Management,* Vol. 26, No. 6, 632-647.

Moylan, C., & Razzaque, A. (2014). NYIT Education Survey. Retrieved June 28, 2017, from NYIT Education Survey: https://docs.google.com/forms/d/e/1FAIpQLSfpyS4KcpwsQJYvPKkwIoYY1Jk4ZUSTwUgLV5oGh2rlwEelBg/viewform

Moylan, C., & Razzaque, A. (2014). The Importance of students' National Culture on their Innovative Capacity: A Literature Review. IERG 9th International Conference 2014 - July 2 - 4, 2014. Vancouver, British Columbia, Canada: OGPR - Office of Graduate Programs and Research.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers and Education*, Vol. 49, 396-413.

Sorgenfrei, C., Smolnik,S. (2016). The Effectiveness of E-Learning Systems: A Review of the Empirical Literature on Learner Control, *Decision Sciences Journal of Innovative Education*, Vol. 14, No. 2, 154-184.

Sousa, J. L., & Pinto, A. S. (2013). The integration of Information Systems Shared Services Center with E-Learning for Sharing Knowledge Capabilities. *Procedia Technology*, 9, 480 – 488.

Yilmaz, R. (2016). Knowledge sharing behaviors in e-learning community: Exploring the role of academic self-efficacy and sense of community. *Computers in Human Behavior*, 63, 373-382