_____

E-Learning Readiness of Tertiary Teachers and First-year Students in Selected Higher Education Institutions (HEIs) in Eastern Visayas, Philippines

Eddie C. Manzano[1], Gaudelia A. Reyes[2]
[1]Graduate Student, Saint Louis University, Baguio City, Philippines
[1]Faculty Member, Eastern Samar State University, Guiuan, Eastern Samar, Philippines
[2]Faculty Member, Saint Louis University, Baguio City, Philippines
eddiecmanzano@gmail.com[1], gareyes@slu.edu.ph[2]

Abstract – *Due to the increasing demand for alternative learning processes, the readiness of tertiary teachers and students in selected higher education institutions (HEIs) in Eastern Visayas, Philippines were assessed along technology access, technology skills, attitude, and readiness of teachers and students towards e-learning. The study used a descriptive correlation research design using a survey questionnaire. Quantitative statistics were used to treat and analyse the data. Findings revealed that teachers and students have access to technology. As to technology skills, teachers are highly knowledgeable while students are moderately knowledgeable. Positive attitude toward online teaching and online learning was observed among teachers and students respectively. Both teachers and students are ready for e-learning implementation, but improvements are needed particularly on capability building workshops and trainings, as well as provisions of ICT infrastructures needed in establishing e-learning environment. Pearson correlation coefficient results between skills and attitudes showed a high correlation for teachers and moderate correlation for students. Thus, the findings show that the selected HEIs have a high regard for e-learning instruction and are therefore ready for its implementation particularly in science classes.*

Keywords – e-learning assessment, science education, HEIs e-learning readiness

INTRODUCTION

E-learning nowadays is significant in the field of education, particularly in the application of educational technology and the use of online, blended, and flexible learning. However, the continuous progression of technology use in schools and universities entails proper preparation for a successful application. As such, for the effective and efficient delivery of e-learning instruction, both teachers' and students' readiness and skills are expressively desirable and predominantly necessary in the higher education institutions (HEIs).

The use of e-learning in universities is more likely to be rampant than in basic education schools; university students are more responsible than elementary pupils and high school students for their learning since the use of e-learning requires self-responsibility [1]. Liaw and Huang (2007) as cited by Calli, Balcikanli, Calli, Cebeci and Seymen [2] identified a number of elements to be considered in establishing e-learning environments such as environmental characteristics, satisfaction, collaboration (learning) activities, and learners' characteristics. Meanwhile, three common objectives of having an e-learning were identified by Curran (2004) as cited by Priem, De Craemer, Calu, Pedreschi, Zimmer, Saighi, and Lilja [3] such as: widening access to educational opportunity, enhancing the quality of learning and reducing the cost of higher education in adopting e-learning strategies in universities. Calli et al. [2] mentioned that e-Learning is a new paradigm in modern educational approaches that shifts from an industrial perspective and individual behavior in the advances of technologies in the 21-st century. It is crucial not only to sustain the trend in educational parlance by using modern tools but also the search for, and implementation of the newest methods and types of learning modalities appropriate to the current trends and situation of every learner amidst situation beyond educators control to continue serving and providing high caliber instruction in their respective craft.

The dynamics of information and communication technology use in instruction remain unstoppable; various educational technologies and approaches are becoming available in the field of education. Navani and Ansari [4] said that e-learning or electronic learning refers to using ICTs to enhance and support learning in higher education. Navani and Ansari [4] expressed the emergence of e-learning as an educational tool providing teachers a new instrument in expanding learning opportunities as well as enhancing learning outcomes.

Learning and technology are two main areas that unites e-learning; where learning as a cognitive process and technology as an enabler of the learning process [5]. Aparicio, Bacao and Oliveira [5] presented three main components of e-learning systems' theoretical framework such as: people, technologies, and services. "People interact with e-learning systems. Technologies provides support to integrate content, enable communication, and provide collaboration tools. E-learning services integrate all the activities corresponding to pedagogical models and the instructional strategies" p. 301 [5].

E-learning as part of the collaborative learning paradigm includes Web 2.0 technologies such as wikis, blogs, podcast, social networks, YouTube are widely used by students and are now making their way into the classroom [6]. Further, these e-learning technologies offer learners the control over content, learning sequence, their pace of learning, time and often media, which allow them to tailor their learning experience to meet their personal learning objectives [7]. However, it is not only using web-based technologies, but also a way where individuals or organizations can exchange information and gain knowledge [8].

"Cognitive research and theory suggest that e-learning and other appropriate concurrent multimedia modalities may enhance learning", p. 301 [9].

In context, this provides the learners an avenue to showcase their knowledge and skills as they build or construct their knowledge in support of the constructivist approach of learning, which much help in the development of 21st-century skills to become analytical thinkers. A long with this premise, it is important to establish the readiness, skills, and attitudes of both students and teachers towards e-learning so that the implementation of such becomes efficient and effective to support the learning of students and as a pedagogical tool for teachers in delivering science instruction.

However, for teachers and students to be ready, professional development, capability building, and investment in infrastructure are necessary, as Navani and Ansari [4] posited that higher educational institutions should venture on support to advance e-learning readiness of the teachers.

Generally, the accounts speak about the readiness of not only the institution but also the willingness of both teachers and students towards e-learning instruction. Therefore, the technological knowledge of teachers, as well as the skills and readiness of students, are essential factors to be considered in the implementation of e-learning. However, the constructs of TPACK would enable teachers to prepare appropriate technologies, approaches, methods, and pedagogies necessary, fitted and suited to specific contents of science areas. E-learning skills and readiness through technology access and technology skills correspond to the core component of the TPACK framework through the technological knowledge (TK) structure.

The use of e-learning in the educative process enables teachers to prepare lessons and students to become technologically competent in the use of ICT related resources and instructional materials, which eventually trained them to become catalysts of change in the field of science education through the use of 21st-century ICT skills. Moreover, the use of e-learning enables students to study at their own pace, particularly in times where learners need not be physically present in the four corners of the classroom. As such, learners were given the freedom to learn on their own as they develop significant learning competencies beyond the conventional learning process. Further, the use of e-learning in instruction provides every teacher the avenue to explore various resources and strategies to promote quality learning.

The use of the internet and other platforms supplements the teacher and the learner in instruction. The employment of different types of technologies in teaching would help increase and strengthen learner's performance in which the rise of computer hardware and software gave a significant role and change in the education sector.

Collectively, with the objective and advantages of having e-learning in universities, readiness, and skills of both teachers and students, as well as their attitude towards learning and teaching in the online setting, is highly considerable. Thus, this study deals with the readiness and skills of teachers and students towards e-learning as a parcel in incorporating information and communication technology in instruction.

From this, the results of this study provide baseline data in crafting provisions related to e-learning instruction, particularly in Science courses and related

areas, as one aim of contributing significantly to the sustenance and realization of ICT literacy in the field of Science Education. It further adds to the integration of instructional materials in science instruction in situations needing no face-to-face or physical interaction in the classroom.

OBJECTIVES OF THE STUDY

This study explored the skills, readiness, and attitude of teachers and students towards e-learning in selected higher education institutions (HEIs) in Eastern Visayas for the academic year 2018-2019.

Specifically, this study determined teachers' and students' technology access; determine teacher's technology skills and attitude towards online teaching; determine student's technology skills and attitude on becoming a successful online learner; and lastly, determine the significant correlation of teachers and students' technology skills and attitudes towards online teaching and as an online learner.

METHODS

This study utilized a quantitative approach, specifically descriptive correlational design, to determine teachers' and students' e-learning access, skills, attitude, and readiness of tertiary teachers and students in selected higher education institutions (HEIs) in Eastern Visayas. This study was voluntarily participated in by 9 science teachers in the selected HEIs who were currently teaching science during the conduct of the study and 217 first-year students enrolled in the Bachelor of Secondary Education major in Science during the academic year 2018 – 2019. Total or complete enumeration sampling technique was utilized in choosing the respondents. Respondents were identified using an informed consent to determine voluntary participation from the respondents.

A descriptive survey questionnaire was adopted and modified to fit the present objective posed in this study [10]. A 10-point Likert scale was used in the revised questionnaire. The reliability test was conducted in selected universities, and by using the Cronbach alpha coefficient, the teachers' questionnaire got 0.94 while students' questionnaire has a computed value of 0.90; therefore, a stable reliability coefficient. On the other hand, Aiken's V was used to determine content validity with a computed value of 0.96 which indicates high content validity.

Respondents were given a brief background of the study through an informed consent form and asked to answer the survey questionnaires. Descriptive statistics were used, such as percentages and means. Pearson product-moment correlation was used to determine the relationships of variables.

To determine the level of technology skills, and respondents' attitude the following scale was used:

Mean Range	Levels of Technology Skills	Attitude Scale
8.20 – 10.0	Highly Knowledgeable	Always
6.40 – 8.19	Moderately Knowledgeable	Very Often
4.60 – 6.39	Slightly Knowledgeable	Often
2.80 – 4.59	Least Knowledgeable	Sometimes
1.00 – 2.79	Not Knowledgeable	Never

Furthermore, to determine the overall respondents' attitude, the scale: "always," "very often," and "often" are interpreted as having a positive attitude while the scale: "sometimes" and "never" is interpreted as a negative attitude.

The readiness level was determined using the assessment model of the e-LRS by Aydin and Tasci 11] following the scale:

Mean Range	Interpretation [11] (Readiness)
8.20 – 10.0	Ready to go ahead
6.40 – 8.19	Ready but needs a few improvements
4.60 – 6.39	Not ready, needs some work
2.80 – 4.59	Not ready, needs a lot of work
1.00 – 2.79	

RESULTS AND DISCUSSION

The analyses and interpretation of the findings are presented in accordance with the objectives posed in this study.

Table 1. Respondents Access to Technology

Indicators	Teachers	Students
Computer Access	88.75%	43%
Internet Connectivity	82.5%	70.5%
Tools	71.5%	28.5%

Table 1 presents the percentages of teachers' and students' responses in terms of technology access. The majority of science teachers have access to computers, with 88.75 percent responses. While almost half of the students have access to a dependable computer (43%). On internet connectivity, both teachers and students have access to an internet connection with 82.5 and 70. 5 percent, respectively. However, only 71.5 among the teachers have access to technology tools, while a

102

P-ISSN 2350-7756 | E-ISSN 2350-8442 | ASEAN Citation Index
Asia Pacific Journal of Multidisciplinary Research, Vol. 8, No. 4, November 2020

minimal number of students have access to technology tools.

Such findings suggest that technology access nowadays is both a necessity of teachers and students. These imply the certainty of technology in delivering expediency towards instruction as inevitable. Nowadays, technological resources are readily available to support educational needs. Access to such resources is an indication of optimism in the conduct of e-learning instruction modalities. Behera [12] chronicled that teachers and students need to gain access to technology to improve learning outcomes. Byungura, Hansson, Muparasi, and Ruhinda [13] narrated that a substantial number of first-year students had limited or no access to digital tools.

Table 2. Teachers and Students Technology Skills

Indicators	Teachers		Students	
	Mean	**Interpretation**	**Mean**	**Interpretation**
Computer Skills	8.93	HK	7.92	MK
Internet Skills	8.95	HK	7.38	MK
Literacy Software Application	8.18	HK	7.27	MK
Overall Mean	**8.69**	**HK**	**7.52**	**MK**

Legend: HK – highly knowledgeable, MK- moderately knowledgeable

As shown in Table 2, teachers have high technical skills knowledge with an overall mean score of 8.69. In terms of the sub-variables computer skills and internet skills, a homogeneity of teachers' responses is having a mean of 8.93 and 8.95 interpreted as "highly knowledgeable" on technology skills, respectively. However, regarding literacy software application, a moderate knowledge of this skill was perceived by teachers with an obtained mean of 8.18.

This shows that most of the teacher respondents have enormous skills towards technology necessary and as a measure of readiness towards e-learning instruction. Hence, the result of these analyses can infer that teachers believed how important technology in education and other school-related endeavors. Ozturk, Ozturk, and Rasit [14] chronicled that the readiness towards technical skills related to e-learning is due to the acquired skills connected to computers and the internet usually use for communication purposes, interaction and working in daily life. It is vital to determine the skills needed to facilitate e-learning to ensure that e-lecturer has the requisite skills to deliver online learning as necessary to students they teach [15]. However, despite the result of this study, where teachers have high knowledge of technology skills, Kiilu, Nyerere, and Ogeta [16] reported that majority of the respondents are unskilled and lack strategies related to the use of e-learning, thus hardly prepared for e-learning.

Furthermore, students have a moderate knowledge of technology skills in e-learning with an overall mean of 7.52. Concerning computer skills, internet skills, and literacy software application, a consistent interpretation of "moderate knowledge" is manifested by the students regarding technology skills towards e-learning.

Results imply that students are moderately knowledgeable regarding technology skills. With moderate skills necessary for every learner to be ready in e-learning instruction complemented with the support of teachers as well as the university, it is possible that the majority, if not all, of the students, will eventually be highly technical to maneuver e-learning technology skills. However, moderate knowledge still shows a positive attitude towards e-learning, thus, students are ready to implement e-learning. Nonetheless, there is a need for a few improvements. Improvements to address such moderate skill, workshops, and training are to be provided by the university to equip every learner's knowledge about e-learning manipulation.

Ouma, Awour and Kyambo [17] shared that students are deficient regarding technical experience and computer literacy. Rasouli, Rahbania, and Attaran [18] asserted possible reasons for students' low-level skills on computers and the internet due to the inadequacy of information technology courses, lack of electronic courses, limited facilities, and computer and internet usage and even lack of academic staff knowledge and skills on e-learning. Furthermore, Tuntirojanawong [19] recommended that students must also have expertise in some essential computer maintenance and appropriate technologies necessary in an e-learning instruction. These previous studies relate to the present findings in which technology skills are needed for every student or learner for e-learning instruction to become successful and eventually help every individual to enhance learning endeavors.

Science teachers' and students' technology skills are an essential tool in the move of implementing e-learning instruction in science courses. Blending the high and moderate skills and the readiness attitude of both respondents' teachers and students momentously support the establishment of e-learning instruction in the field of education, particularly in delivering science instruction. Readiness and skills of teachers and students towards e-learning are highly evident based on the analyses of the

results. Both teachers' and students' computer literacy and attitude are essential measures of e-learning [17].

Table 3. Mean Scores of Teachers Attitude towards Online Teaching

Indicators	Mean	Scale	Interpretation
Teaching Styles/strategies	7.99	Very Often	Positive Attitude; Ready but needs a few improvements
Abilities	7.79	Very Often	
Motivation	8.03	Very Often	
Time Management	7.22	Very Often	
Overall Mean	**7.76**	**Very Often**	

As presented in Table 3, teachers have a positive attitude towards online teaching having a grand mean of 7.76 and interpreted that teachers are ready but need few improvements in terms of e-learning readiness.

The findings of this study show that science teachers often have a positive attitude towards online teaching, which implies that the use of specific teaching styles or strategies in e-learning instruction is a factor to be considered when planning to be ready in e-learning instruction as well as their abilities. On the other hand, teachers show how they are motivated toward teaching online. Teachers are driven by the flexibility it will give to them and a convenient way of teaching and in honing learners' skills. Furthermore, time-management needs improvement and increased interest, as this is another essential factor to consider in e-learning instruction. They still face difficulties concerning schedules as far as online teaching is concerned. Proper time management in lesson preparation is a challenge when planning to establish e-learning instruction.

In a study between Science teachers and art teachers, it was posited that "the attitude of college Teachers in Science stream towards E-learning is more favorable than that of college Teachers in Arts stream"[12]. This finding relates to the results of this study in which science teachers have a positive attitude towards e-learning in science instruction, having a great advantage. Likewise, the impression is similar to the idea that e-learning support increases student-centered learning as a two-way discussion rather than one-way [20]. In the same way, e-learning provides flexibility in teaching methodologies, content management, interaction, and even assessment of learners [18]. These shows flexibility in e-learning instruction regarding pedagogy. As chronicled by Ellet and Naiman (2003) cited in Eslaminejad et al. [20] e-learning environment has the full potential of interactive methodologies in which instructors can adapt courses into online models. Livingstone [21] said that teaching faculty is prepared to upgrade their teaching methods and embrace e-learning. Consequently, a positive attitude towards e-learning enables teachers to explore the other side of technology resources and tools on what it can offer, aside from the primary ICT resources.

However, the need for a thorough assessment of the e-learning environment is somehow necessary to ensure successful implementation. Other than this, the positive attitude towards the readiness of teachers to e-learning is apparent. So, the faculty of science is ready concerning the use and implementation of e-learning instruction in their respective science courses; however, few improvements are significant, particularly on capability building workshops and trainings as well as provision of infrastructure and soft wares necessary for establishing e-learning environment.

Table 4. Mean Scores of Students' Attitude towards being a Successful Online Learner

Indicators	Mean	Scale	Interpretation
Study Habits	7.03	Very Often	Positive Attitude; Ready but needs a few improvements
Abilities	7.65	Very Often	
Motivation	6.80	Very Often	
Time Management	6.85	Very Often	
Overall Mean	**7.08**	**Very Often**	

It can be gleaned from Table 4 that students have a positive attitude as an online learner with an overall mean of 7.08. The overall mean score shows that students are ready to use e-learning, although there is a need for a few improvements of e-learning resources.

This finding implies that when engaging in e-learning readiness, time management is significant since e-learning instruction requires up to date submission of required documents, activities, and requirements. The findings of this study show that students very often have a positive attitude towards being a successful online learner. Most concepts on online learning were given by teachers to students through written instruction. Hence, excellent understanding and comprehension are vital as well as the writing skills of every learner.

The result of students' attitudes of being positive and ready to become a successful online learner is similar to the findings in which the perspective of students, particularly in online English courses, is relatively positive [22]. On the other hand, use of e-learning can

motivate students' attitudes towards engaging in e-learning; therefore, enhancing e-learning must be geared towards changing students [23]. "It is essential for students to be highly motivated and have a positive attitude when attending online courses. Motivation will increase the student's success [19]". Further, another study on student readiness for e-learning was found to have a moderate level of preparedness [24]. The survey of Unisel's students revealed that students did meet the necessary characteristics to become a successful e-learning student [24]. Eventually, university students' readiness for e-learning also shows a positive state of readiness [25]. However, students prefer traditional learning styles compared to e-learning according to Tawil et al. [26].

Science students possess an optimistic understanding of being an online learner. Therefore, engaging in online activity, self-discipline towards learning activity is needed. Hence, the positive attitude towards e-learning is a good indicator that universities can offer e-learning instruction. This view is based on the assessment of science students of the participating universities. Despite a low computed mean, students still believe in the significance and possible implementation of online classes, as reflected in their readiness as an online learner.

Table 5. Correlation between technology skills and attitudes of respondents towards online teaching and learning

Variables correlated	Teachers		Students	
	Correlation coefficient	p-value	Correlation coefficient	p-value
Teachers Technology Skills and Attitudes towards Online Teaching	0.859**	0.003		
Students Technology Skills and Attitude towards Online learner (Student)			0.490**	0.000

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

Using a Pearson correlation coefficient, the result revealed that the two variables yielded significant correlations at 0.01 level. The relationship between teachers' technology skills and attitude towards online teaching is highly correlated (r = 0.859), and this correlation coefficient is highly significant. It means that their skills in technology are a vital indicator that contributes to their attitude toward online teaching in e-learning instruction. On the other hand, students'

technology skills and attitude towards being a successful online learner is moderately correlated (r = 0.490). Moreover, this correlation coefficient is still significant at the 0.01 level.

This finding could be attributed to the personal background and technology experience of both teachers and students. They even have the chance to develop more skills and positively open themselves to changes in the conventional mode of learning, particularly in science courses. "E-learning is widely accepted, and it can be rich and as valuable as the classroom teaching [12]".

CONCLUSION AND RECOMMENDATION

Access, skills, and readiness towards educational technology tools and resources are significantly equal variables and indicators for successful e-learning instruction. Findings show an opportunity for e-learning instruction in science classes among the selected HEIs surveyed. Teachers and students have access to computers and internet connections. Teachers have high knowledge; however, students have moderate knowledge, but through constant training will eventually improve. Moreover, teachers' and students' positive attitude towards online teaching and becoming online learners is evident. Furthermore, both teachers and students are ready for e-learning implementation. Other than this, it is a good indicator of respondents' high regard for e-learning, particularly in the field of science.

Based on the findings, the use of e-learning instruction in science is highly possible. However, provisions of technology resources such as computer hardware and software, including internet connections for every school supported by an integrated ICT framework. Professional development and capability building workshops for technology literacy programs, particularly on the use of e-learning and other related e-learning resources is further recommended as a useful input towards the realization of e-learning implementation.

REFERENCES

[1] Schworm, S., & Gruber, H. (2012). e-Learning in universities: Supporting help-seeking processes by instructional prompts. *British Journal of Educational Technology*, 43 (2), 272-281

[2] Calli, L., Balcikanli, C., Calli, F., Cebeci, H. I., & Seymen, O. F. (2013). Identifying factors that contribute to the satisfaction of students in e-learning. *Turkish Online Journal of Distance Education*, 14 (1), 85-101

[3] Priem, F., De Craemer, R., Calu, J., Pedreschi, F., Zimmer, T., Saighi, S., & Lilja, J. (2011). E-learning in science and technology via a common learning platform

in a lifelong learning project. *European Journal of Open, Distance and E-Learning*, *14*(1).

[4]   Navani, Y & Ansari, M. A. (2016). A study of e-learning readiness of university. *International Journal of Current Research*. 8, 35752- 35756

[5]   Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-Learning Theoretical Framework. *Educational Technology & Society*, 19 (1), 292–307.

[6]   Galy, E., Downey, C., & Johnson, J. (2011). The effect of using e-learning tools in online and campus-based classrooms on student performance. *Journal of Information Technology Education: Research*, *10*(1), 209-230.

[7]   Jethro, O. O., Grace, A. M., & Thomas, A. K. (2012). E-learning and its effects on teaching and learning in a global age. *International Journal of Academic Research in Business and Social Sciences*, *2*(1), 203.

[8]   Nleya, P. (2009). Relative levels of eLearning readiness, applications and trainee requirements in Botswana's Private Sector. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, *35*(1).

[9]   Coopasami, M., Knight, S., &´ Pete, M. (2017). e-Learning readiness amongst nursing students at the Durban University of Technology. *health sa gesondheid*, *22*(1), 300-306.

[10] Mercado, C. (2008). Readiness assessment tool for an e-learning environment implementation. Special Issue of the International Journal of the Computer, the Internet and Management, 16, 18-1.

[11] Aydın, C. H., & Tasci, D. (2005). Measuring readiness for e-learning: Reflections from an emerging country. *Journal of Educational Technology & Society*, *8*(4), 244-257.

[12] Behera, S. K. (2012). An Investigation into The Attitude of College Teachers Towards E-¬ Learning in Purulia District of West Bengal, India. *Turkish Online Journal of Distance Education*, 13(3), 152-160

[13] Byungura, J. C., Hansson, H., Muparasi, M., & Ruhinda, B. (2018). Familiarity with Technology among First-Year Students in Rwandan Tertiary ~Education. *Electronic Journal of e-Learning*, 16(1), 30-45

[14] Ozturk, D. S., Ozturk, F., & Rasit, O. Z. E. N. (2018). The Relationship between Prospective Teachers' Readiness and Satisfactions About Internet-Based Distance Education. *Turkish Online Journal of Distance Education*, 19(1), 147-162

[15] Masino, M. (2013). The Use of Information and Communications Technology in Teaching and E-Learning in the Caribbean. *Journal of Instructional Pedagogies*, 12. Retrieved from https://files.eric.ed.gov/fulltext/EJ1097115.pdf, November 13, 2019

[16] Kiilu, R. M., Nyerere, J. K., and Ogeta, N. (2018). Teacher trainee's competency and institutional level of

preparedness for adoption of e-learning in selected teacher training coleges in Kenya. *African Educational Research Journal*, 6(2): 73-79. DOI: 10.30918/AERJ.62.18.016

[17] Ouma, G. O., Awuor, F. M., & Kyambo, B. (2013). E-Learning Readiness in Public Secondary Schools in Kenya. *European Journal of Open, Distance and E-learning*, 16(2), 97-110

[18] Rasouli, A., Rahbania, Z., & Attaran, M. (2016). Students' Readiness for E-Learning Application in Higher Education. *Malaysian Online Journal of Educational Technology*, 4(3), 51-64

[19] Tuntirojanawong, S. (2013). Students' Readiness for E-Learning: A Case Study of Sukhothai Thammathirat Open University, Thailand. *Journal of Learning in Higher Education*, 9(1), 59-66

[20] Eslaminejad, T., Masood, M., & Ngah, N. A. (2010). Assessment of instructors' readiness for implementing e-learning in continuing medical education in Iran. *Medical teacher*, *32*(10), e407-e412

[21] Livingstone, K. (2015). Teaching faculty's perception about implementing elearning practices at the University of Guyana. *International Journal of Education and Development using ICT*, 11(2).

[22] Cinkara, E., & Bagceci, B. (2013). Learners' Attitudes Towards Online Language Learning; And Corresponding Success Rates. *Turkish Online Journal of Distance Education*, 14(2), 118-130.

[23] Seyal, A. H., & Rahman, M. N. A. (2015). Understanding Learning Styles, Attitudes and Intentions in Using e-Learning System: Evidence from Brunei. *World Journal of Education*, 5(3), 61-72. http://dx.doi.org/10.5430/wje.v5n3p61

[24] Rahim, N. M., Yusoff, S. H. M., & Latif, S. A. (2014). Assessing students' readiness towards e-learning. *In AIP Conference Proceedings* (Vol. 1605, No. 1, pp. 750-755). AIP.https://aip.scitation.org/doi/pdf/10.1063/1.4887684, November 13, 2019

[25] Caliskan, S., Tugun, V. & Uzunboylu, H. (2017). University students' readiness for E-Learning. *ENSAYOS, Revista de la Facultad de Educación de Albacete*, 32(2).

[26] Tawil, N. M., Ismail, N. A., Asshaari, I., Othman, H., Zaharim, A., & Bahaludin, H. (2013). Preference Learning Style in Engineering Mathematics: Students' Perception of E-Learning. *International Education Studies*, 6(6), 61-65. doi:10.5539/ies.v6n6p61

106

P-ISSN 2350-7756 | E-ISSN 2350-8442 | ASEAN Citation Index
Asia Pacific Journal of Multidisciplinary Research, Vol. 8, No. 4, November 2020