Computer Mediated Communication Tools Utilization and Application for Instruction by Teacher Education Faculty in State Universities and Colleges

Asia Pacific Journal of Multidisciplinary Research
Vol. 8 No.4, 91-99
November 2020
P-ISSN 2350-7756
E-ISSN 2350-8442
www.apjmr.com
ASEAN Citation Index

Samson M. Lausa (PhD), Mary Ann T. Arceño (PhD)
Northern Negros State College of Science & Technology
migsam041205@yahoo.com.ph

Date Received: May 30, 2020; Date Revised: November 5, 2020

Abstract –*Faculty's use of computer mediated communication tools, social media and learning management system in instruction provide opportunities for students to access useful information and to interact with learning groups preparing them to the world of work. The study was conducted to explore the utilization and application of computer- mediated tools, social media and learning management system for varied instructional purposes considering the socio-demographic characteristics of participants. Descriptive-correlational research employing researchers' made survey instrument validated by four experts as good and Cronbach Alpha of relatively high internal consistency administered to 111 Teacher Education Program faculty of Five State Universities and Colleges in Negros Island. Findings showed moderate extent in the utilization of computer- mediated tools, social media and application of varied instructional purposes through computer-mediated tools while slight extent in the utilization of learning management system. On the other hand, no significant difference exists on the extent of utilization of computer- mediated tools, social media and learning management system when participants are grouped according to age, sex, years in teaching and academic rank. With this result and the implication, ICT contributes to education and educational development. SUCs may provide more relevant trainings on the utilization of computer mediated tools, social media and learning management system in teaching-learning process to maximize students' acquisition of knowledge and application of skills.*

Keywords *–social media, learning management system, computer-mediated communication tools, ICT, computer-mediated platforms*

INTRODUCTION

Computer-mediated communication (CMC) is a powerful tool that has changed people's life, work and learning. It helps to communicate with people around the world in the form of writing emails or posting responses to discussion board online or virtual conversations held in chat rooms. The development of computer technology has created new opportunities for teaching and learning that traditional classrooms do not have. CMC involves interaction between humans using computers to connect to one another. Studies showed that the use of social media and other online platforms has prepared students in entering the workforce by helping them develop their online collaboration skills [1]. Despite these benefits that CMC offers in the delivery of educational services, there are challenges that teachers faced. Among these are; the limited, if not absent desired ICT competencies teachers must have, the appropriate mechanisms of determining the type of CMC tools teachers must use is not put in place, the absence of ICT training program for faculty, and the limited allocation for ICT infrastructures.

Advances in technology have created new channels for faculty-student interaction. Faculty members are becoming increasingly reliant on ICT and web-based technology as resource for communication and supplement to course instruction. A study of technology in higher education in 2000 showed that 60% of college courses utilized emails, as compared to 20.1% in 1995. A similar increase occurred in faculty use of the world-wide-web. This same study also revealed that 43% of college instructors utilized web resources as component of their syllabus, as compared to 11% in 1995 [2]. According to Richard Riley, U.S. Secretary of Education [3], "Our efforts to improve education will rise or fall on the quality of our teaching force, and higher education has the defining role in preparing the next generation of

teachers". Indeed, present faculty of Teacher Education has the significant role in preparing future teachers.

Warschauer [4] pointed out that the participation in CMC is more balanced than in the face-to-face interaction which is dominated by some students. Barrs [5] examined the effect of CMC on learners' interaction to maximize target language interaction outside the classroom. The results indicated that CMC environment can offer students a convenient and useful platform on which to continue to communicate while outside of their classes.

CMC creates new opportunities for learners to interact with each other and helps create an environment that is learner-centered and learner-friendly. Wang [6] found that video conferencing-supported negotiation of meaning may facilitate second language acquisition at a distance and has its own distinct features. Young [7] found that CMC makes learning English more socially interactive and reduce students' affective filters. The use of CMC over the Internet appeared to motivate students and reduce their anxiety over language production. Kitade [8] explored the extent of CMC utilization and application for L2 learning. The results indicated that CMC provided potential benefits for learning: facilitating comprehensible and contextualized interactions, learners' self-correction, and collaborative learning environment. Yang's, et al. study in 2005 pointed a result that CMC involving native speaking students was superior to face-to-face interaction with nonnative peers in two regards: significantly improved fluency for the experimental group, and, to a lesser degree, improved accuracy [9]. This study demonstrated that CMC offers superior chances for interaction and academic improvements to learners.

Several studies [10]-[13] noted that gender, age, years employed at university, and classification of professors affects the utilization and application of computer-mediated communication, specifically that which occurs between students and faculty. These studies produce some significant findings about demographic characteristics that may influence on CMC tools as preference in the teaching-learning process.

In this light, this study was conducted to measure the utilization of computer mediated communication tools and computer applications for instruction by the Teacher Education Faculty in the State Universities and Colleges of Negros Island. This study is based on the understanding of learning through technology and the interaction within an electronic medium. Hence, the study anchored to the Theory on Constructivism and Connectivism.

Constructivism is where learners adjust their mental model to accommodate new experience and teachers have to be trained in the use of technology to support students learning [14]. Connectivism asserts that knowledge and learning knowledge are distributive i.e. they are not located in any given place, but instead consists of networks of connections formed from experience and interactions between individuals, societies, organizations and the technologies that link them. Knowledge resides within networks, without any individual necessarily possessing it, and it can be stored in a variety of digital formats [15]. Figure 1 illustrates the framework of the study.

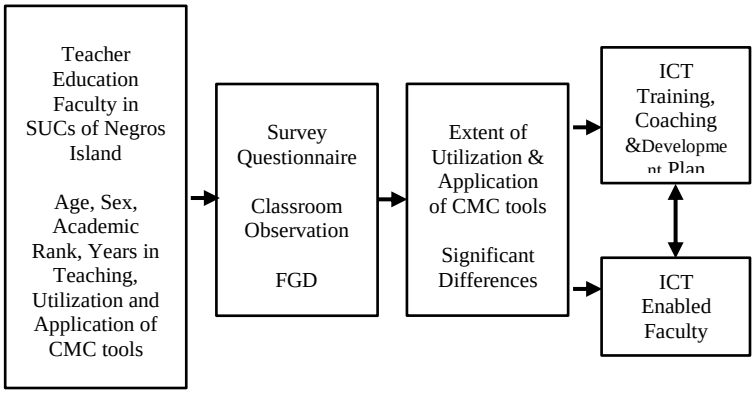

Figure 1. Conceptual Framework of the Study

OBJECTIVES OF THE STUDY

The main objective of the study is to determine the extent of faculty's utilization and application of ICT tools. Specifically, it seeks to measure faculty's utilization and application of computer mediated tools, social media, and learning management system in instruction as a whole and when grouped according to age, sex, academic rank and number of years in teaching. Likewise, to find out if there is a significant difference in the extent of the faculty's utilization and application of computer mediated tools, social media, and learning management system when grouped according to aforementioned profiles.

HYPOTHESIS

There is no significant difference on the extent of faculty's utilization and application of computer-mediated tools, social media and learning management system in instruction when grouped according to age, sex, number of years in teaching and academic rank.

MATERIALS AND METHODS

Research Design

Descriptive-correlational research was used to determine the extent and significant differences of faculty's utilization and application of computer-mediated tools, social media, and learning management system for instructional purposes considering socio demographic factors.

Participants of the Study

Participants of the study are the 111 Teacher Education Program faculty of Five State Universities and Colleges (SUCs) in Negros Island. The selection of participants was based on the premise that all faculty complementing the Teacher Education Program were considered and those handling classes after 5pm are part-time teachers with loads of six units or six hours below were excluded.

Instrument

The researchers used survey questionnaire derived from the related literature collected where validators' suggestions are integrated. The survey questionnaire has four parts that corresponds to the objectives of the study. The first part asks for the faculty's socio-demographic profile while the second part includes the extent of use of computer mediated communication tools. Likewise, extent of use of social media sites and learning management system forms the third part while the fourth part highlights the application of computer-mediated tools in instruction. Four expert validators rated the research instrument very good and Cronbach Alpha of 0.897 shows that the items have relatively high internal consistency.

Data Gathering Procedure

The researchers have undertaken steps in conducting the data gathering. Approval from the SUC's Presidents was sought to allow the researchers to conduct the study in the college/university. After the approval from the President, the researchers coordinated to the Deans/Program Heads of Teacher Education Program for the distribution of the questionnaire to the Teacher Education faculty respondents. The ethical principles adhered to in the study include informed consent, confidentiality and anonymity. Consent was personally asked by the researchers from the participants to take part on the survey where written informed consent form was used attached to the survey questionnaire. The researchers reiterated and explained to the participants the purpose of the study and the data collection process. Likewise, they were informed that their participation is voluntary and that participating or withdrawing from the study while it is in progress will not do any harm to them and to the study. Thus, upon signing the consent form the survey was conducted and accomplished survey instrument was personally collected by the researchers immediately after the participants answered the questionnaire. The anonymity and confidentiality of the participants and their responses were also preserved by not revealing their names and identity in the analysis and reporting of findings of the study as well as in the publication and dissemination of results in conferences.

Statistical Treatment

The researchers used frequency and percentage distribution to determine the profile of the participants in terms of age, sex, academic rank and number of years in teaching. Mean was used to determine the extent of faculty's utilization and application of; computer mediated tools, social media, and learning management system in instruction. Further, t-test of independent mean was used to determine the significant difference in the extent of the faculty's utilization and application of computer mediated tools, social media, and learning management system in terms of sex, while ANOVA was used when grouped according to age, academic rank and number of years in teaching.

RESULTS AND DISCUSSION

The profile of participants is important to the study because these may affect their responses that serve as basis for the formulation of appropriate intervention.

Table 1. Profile of the Participants

Profile		Frequency	%age
Age	29 below	27	24%
	30-39	23	21%
	40-49	33	30%
	50-59	23	21%
	60 above	5	4%
Sex	Female	69	62%
	Male	42	38%
Academic Rank	Instructor	74	67%
	Asst. Prof.	18	16%
	Asso. Prof.	16	14%
	Professor	3	3%
Teaching Experience	Less than 3	18	16%
	3-9 yrs.	33	30%
	10-20 yrs.	27	24%
	Over 20 yrs.	33	30%
Total		111	

The results as illustrated on Table 1 showed that 30% of the participants are from ages 40-49, while a sum of 25% for those ages 50 and above, 62% are female, 30% are teaching from 3-9 years and for over 20 years while 67% are at the rank of Instructors. The result implies that majority of the faculty teaching in the education program are at the age/academic rank were CMC tools integration in teaching learning can be effectively learned and applied.

Utilizing different types of software or learning applications and platforms in instructional design promotes different types of synergy, collaboration and learning outcomes among students. Some researchers suggest that verbal interactions between students when using simulation software facilitate higher-order thinking by promoting peer interaction for problem solving [16]. Flowers and Zhang [17] found that utilizing computer mediated communication tools resulted in significant gains in writing and thinking skills. Several studies also cited that generally an ICT enhanced teaching-learning process results positively in the achievement of learners as they exhibits mastery of lesson content. Table 2 presents the extent of the participants' utilization of computer-mediated communication tools in instruction based on the aforementioned variables.

Table 2. Extent of Faculty's Utilization of Computer-Mediated Communication Tools in Instruction

Profile		Use of Computer Mediated Communication Tools in Instruction	Verbal Interpretation
Age	29 below	3.09	Moderate
	30-39	2.99	Moderate
	40-49	2.81	Moderate
	50-59	2.61	Moderate
	60 above	2.42	Slight Extent
Sex	Female	2.71	Moderate
	Male	3.08	Moderate
Academic Rank	Instructor	2.92	Moderate
	Asst. Prof.	2.59	Slight Extent
	Asso. Prof.	2.85	Moderate
	Professor	3.00	Moderate
Teaching Experience	Less than 3	2.65	Moderate
	3-9 yrs.	3.08	Moderate
	10-20 yrs.	2.95	Moderate
	Over 20 yrs.	2.70	Moderate
Grand Mean		2.86	Moderate

Table 2 showed that generally, the participants is moderately utilizing computer mediated communication tools in instruction while those aging 60 and above and within the rank of assistant professor are using CMC tools slightly. Results provided evidence as supported during interviews that those faculty nearing the retirement age are not opting to be part of ICT teaching-learning related trainings conducted by the SUCs.

Communication is an important part of human activities. One of the core values of information systems (IS) is the utilization of technologies to facilitate communication in the workplace [18]. Accordingly, various computer-mediated communication (CMC) technologies have been proposed and design to enhance performance through improvements in communication. Under the larger umbrella of CMC technologies, social networking tools are designed to facilitate interlocutors' communication to strengthen their social relationships. Typical tools used in the workplace include instant messenger, e-mail, knowledge sharing forums and company blogs. These CMC and social tools have recently become increasingly recognized as important for the workplace. Social networking tools have gained momentum in practice. However, academic research has rarely investigated the impact of these technologies on the quality of social networks and interaction. Table 3 presents the participants utilization of social media in instruction.

Table 3. Extent of Faculty's Utilization of Social Media in Instruction

Profile		Use of Social Media Sites	Verbal Interpretation
Age	29 below	2.40	Slight Extent
	30-39	2.55	Slight Extent
	40-49	2.34	Slight Extent
	50-59	2.28	Slight Extent
	60 above	1.69	Very Slight Extent
Sex	Female	2.31	Slight Extent
	Male	2.46	Slight Extent
Academic Rank	Instructor	2.41	Slight Extent
	Asst. Prof.	2.13	Slight Extent
	Asso. Prof.	2.36	Slight Extent
	Professor	2.63	Moderate
Teaching Experience	Less than 3	2.03	Slight Extent
	3-9 yrs.	2.56	Slight Extent
	10-20 yrs.	2.42	Slight Extent
	Over 20 yrs.	2.30	Slight Extent
Grand Mean		2.37	Slight Extent

Table 3 revealed that the participants' utilization of social media is generally at slight extent. Likewise, a very slight extent for those aging 60 and above while slight extent for those aging 59 and below. Male and female have the same slight extent of utilization. Professors are moderately utilizing social media sites while others have slight extent. Finally, all participants have slight extent of utilization regardless of the number of years in teaching. Result implies that despite the promising effect of social media in learning only few are seeing its contribution towards achievement of learners. Interview with participants revealed that the absence of SUC's ICT training plan provided them difficulties of integrating the tools in the learning process.

Stickler and Hampel [19] piloted a study on the use of Moodle-based virtual learning environment and a range of new online tools, which lend the participants to different types of language learning activities. The study showed that an online language course can combine different approaches to learning and teaching, such as using language communicatively and focusing on format and language practice. Table 4 presents the extent of utilization on learning management system.

Table 4. Extent of Faculty's Utilization of Learning Management System in Instruction

Profile		Use of Learning Management	Verbal Interpretation
Age	29 below	1.73	Very Slight Extent
	30-39	2.11	Slight Extent
	40-49	1.77	Very Slight Extent
	50-59	1.83	Slight Extent
	60 above	1.14	Very Slight Extent
Sex	Female	1.79	Very Slight Extent
	Male	1.89	Slight Extent
Academic Rank	Instructor	1.86	Slight Extent
	Asst. Prof.	1.49	Very Slight Extent
	Asso. Prof.	1.98	Slight Extent
	Professor	1.96	Slight Extent
Teaching Experience	Less than 3	1.62	Very Slight Extent
	3-9 yrs.	1.96	Slight Extent
	10-20 yrs.	1.78	Very Slight Extent
	Over 20 yrs.	1.86	Slight Extent
Grand Mean		1.83	Slight Extent

Table 4 showed that participants have slight extent in the utilization of learning management system as a whole. Further, results showed that participants 29 years old below, 40-49 and 60 years old and above have very slight extent. Females have very slight extent while male are slight. In terms of academic rank assistant professors have very slight extent while others are slight. Finally, those teaching less than three years and 10-20 years have very slight utilization of LMS while slight extent for those teaching 3-9 years and over 20 years.

The tremendous growth of ICT in the field of education posed many challenges to both the faculty and the institutions. Higher Education Institutions (HEIs), for example, have spent and continuously spending considerable amounts of money to provide information technology infrastructure and online learning opportunities. Faculty are expected to achieve technological competence and implement best methods of teaching practices and mechanisms, which improve the student learning experiences. SUCs encourage faculty to adopt ICT for their preparation and delivery of classes. The faculty's resistance or acceptance for the adoption/application, however, is influence by some factors such as age, teaching experience, computer competency and educational attainment. Table 5 presents the extent of application of CMC tools in instruction.

Table 5. Extent of Faculty's Application of Varied Instructional Uses through Computer Mediated Communication Tools

Profile		Application of Varied Instructional Uses through Computer Mediated	Verbal Interpretation
Age	29 below	3.05	Moderate
	30-39	2.83	Moderate
	40-49	2.66	Moderate
	50-59	2.42	Slight Extent
	60 above	2.04	Slight Extent
Sex	Female	2.63	Moderate
	Male	2.86	Moderate
Academic Rank	Instructor	2.78	Moderate
	Asst. Prof.	2.41	Slight Extent
	Asso.	2.76	Moderate
	Professor	2.89	Moderate
Teaching Experience	Less than	2.64	Moderate
	3-9 yrs.	3.14	Moderate
	10-20 yrs.	2.68	Moderate
	Over 20	2.49	Slight Extent
Grand Mean		2.72	Moderate

Table 5 revealed that the participants as a whole are moderately applying varied instructional uses through

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

computer mediated communication tools. Further, 50 to 60 years old and above are at slight extent while others at moderate extent. Male and female have the same extent of application at moderate level while assistant professor and those teaching for more than 20 years have slight extent. Instructor, associate professor and professor and those teaching from 20 years and below are of moderate extent.

Advances in Information Technology (IT) have resulted in the development of various computer-mediated communication and social networking tools. However, quantifying the benefits of utilizing these tools in the teaching-learning process remains a challenge. More importantly, the utilization of these tools by teachers in the teaching process should be identified as baseline in the quantification of learning benefits and outcomes. Hence, measuring faculty used of CMC tools in diverse perspective is necessary.

Table 6. Significant Difference on the Extent of Faculty's Utilization of CMC Tools in Instruction when grouped according to Age, Academic Rank, and Teaching Experience

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.203	4	1.051	2.071	.090
Within Groups	53.793	107	.507		
Total	57.996	111			
Academic Rank					
Between Groups	1.635	4	.545	1.035	.380
Within Groups	56.361	107	.527		
Total	57.996	111			
Teaching Experience					
Between Groups	3.623	4	.906	1.766	.141
Within Groups	54.373	107	.513		
Total	57.996	111			

Results showed no significant difference on the extent of faculty's utilization of CMC tools grouped as to age, academic rank and number of years in teaching. Likewise, when faculty grouped as to sex no significant difference exist, as illustrated in Table 7. This can be explained in the context according to participants that the benefits of integrating CMC in the teaching-learning process is overwhelming and that to stay attuned and ensure students holistic acquisition of knowledge teachers must learn to integrate CMC in instruction. Findings from the Center for Research and Education on Aging and Technology Enhancement (CREATE) [20], however, reported that older people or groups are less likely to use technology and had higher level of computer anxiety. This computer anxiety influences their behavior of utilizing CMC in instruction.

Table 7. Significant Difference on the Extent of Faculty's Utilization of CMC Tools in Instruction when grouped according to Sex

Use of Computer Mediated Communication Tools in Instruction	Sex	N	Mean	Std. Deviation	Std. Error Mean
	Female	67	2.7139	.77914	.09549
	Male	44	3.0832	.57684	.08696

Further, test of significant difference on the utilization of social media sites was also measured based on the aforementioned variables as follows.

Table 8. Significant Difference on the Extent of Faculty's Utilization of Social Media in Instruction when grouped as to Age, Academic Rank, and Teaching Experience

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.919	4	.730	1.204	.313
Within Groups	64.218	107	.606		
Total	67.136	111			
Academic Rank					
Between Groups	1.418	4	.473	.769	.514
Within Groups	65.719	107	.614		
Total	67.136	111			
Teaching Experience					
Between Groups	3.434	4	.859	1.429	.230
Within Groups	63.702	107	.601		
Total	67.136	111			

Results showed that there is no significant difference on the extent of faculty's utilization of social media when grouped as to age, academic rank, and teaching experience. The FGD revealed that middle-aged teachers are increasingly integrating social media in the delivery of instruction as the education landscape calls for it. That the longer they stay in the process of teaching and learning the more they experience gratification of use of social media. Likewise, when grouped as to sex no significant difference exist on faculty's utilization of social media in instruction, as shown in table 9 below. While study of Hoskins in 2005 proved that males are dominant in using the social media (web) for instruction this study disputes the findings for reason that the

demands for quality education are driven by technology utilization. And that to maintain competitive advantage both male and female faculty must learn to integrate social media in instruction. Learning and using it is not an option rather a necessity, for teaching and learning to be more meaningful.

Table 9. Significant Difference on the Extent of Faculty's Utilization of Social Media in Instruction when grouped according to Sex

	Sex	N	Mean	Std. Deviation	Std. Error Mean
Social Media Sites	Female	67	2.3058	.79401	.09700
	Male	44	2.4573	.76123	.11476

Finally, faculty's utilization of learning management system such as Moodle, Edmodo, Google Classroom and other LMS based on variables studied are illustrated in the tables 10 and 11.

Table 10. Significant Difference on the Extent of Faculty's Utilization of Learning Management System in Instruction when grouped according to Sex

	Sex	N	Mean	Std. Deviation	Std. Error Mean
Learning Management	Female	67	1.7854	.79851	.09755
	Male	44	1.8861	.80223	.12094

Results revealed that there is no significant difference on the extent of faculty's utilization of LMS when grouped as to sex. While participants' views on the utilization of LMS appeared to be different when the choice of the type of LMS is considered the result explains that both male and female have the same extent considering that they are not familiar with LMS tools. Focused Group Discussion with the participants transpired that when they are taught on the use and when LMS is user friendly their level of adoption of LMS and other ICT tools increases.

Results on Table 11 revealed that there is no significant difference on the extent of faculty's utilization of LMS in instruction when grouped as to age, academic rank, and number of years in teaching. The finding is validated by diverse groups of participants during the series of focus group discussions in each participating SUCs who shared that when they are made to understand the benefits that LMS can offer and the ease of use they expresses the increase level of inclination. However, the major concern is that the limited in-house ICT capacity or capability building of faculty hinders them to integrate LMS, CMC and other ICT tools in teaching.

Table 11. Significant Difference on the Extent of Faculty's Utilization of LMS in Instruction when grouped according to Age, Academic Rank, and Teaching Experience

Age	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.274	4	1.068	1.722	.150
Within Groups	65.753	107	.620		
Total	70.026	111			
Academic Rank					
Between Groups	2.633	4	.878	1.393	.249
Within Groups	67.394	107	.630		
Total	70.026	111			
Teaching Experience					
Between Groups	1.380	4	.345	.533	.712
Within Groups	68.647	107	.648		
Total	70.026	111			

Study of Chang, Shen, & Liu [21] reported that instructors who received enough training support performed better in the dimensions of instructional design and technology use in teaching than instructors who receive little training support.

CONCLUSION AND RECOMMENDATION

Most of the participants are aged 40-49 years, female, with academic rank of Instructor and have spent an average of 3-9 or over 20 years in service. There is limited utilization of computer- mediated tools, social media more so of learning management system by the Teacher Education faculty of SUCs. Likewise, limited application of computer-mediated communication tools, social media and learning management system in varied instructional purposes is also evident. The faculty among diverse groups based on age, sex, academic rank and years of teaching do not differ significantly on the extent of their utilization and application of computer- mediated tools, social media and learning management system.

Findings of this study explains relation of previous studies and the principle that the utilization of CMC tools is dependent on the kind of perceptions and prior experience the faculty has during their stay in school. How they acquired their learning, competencies and the license to teach contribute or gauged their ability to integrate CMC, LMS, and other technology-based learning tools in instruction. Without sufficient training, most faculty would not attempt to teach online or use

CMC tools as reported by the studies of Daily (2000); Fish & Gill (2009); and Nelson & Thompson (2005)

Intensive studies focused on the positive impact of utilization and application of CMC tools, LMS and Social Media on work performance is evident. Hence, faculty may strategically use and apply computer-mediated communication tools, social media and learning management system for instructional purposes providing students more opportunities to access useful information and to interact with learning groups. However, to enhance and level-up its utilization and application appropriate and effective administrative and technology support may be provided to the faculty to maximize their full potentials of utilizing computer-mediated tools, social media and learning management system. Considering the utilization of these tools and platforms may led to an increasingly mobile but better connected teacher-student relationship, this study provides a compelling rationale to embed CMC, LMS and social networking tools in the teacher education curriculum more so in the internship or student teaching levels.

The implementation of this CMC, LMS and social media tools curriculum may shape faculty's work performance and therefore remain competitive in the global market today and in the future. Seeing that factors such as age, academic rank, teaching experience and sex do not directly affect the participants' acceptance or resistance in utilizing CMC tools, social media and learning management in instruction presence of an effective HEIs' ICT training and development plan may be implemented to allow faculty to see their contribution and the impact of ICT in students' performance. This study may be used as baseline data to monitor impact after provision of customized interventions considering socio-demographic factors. Future studies may include external and organizational factors like status of internet connections, availability of customized computer system to fit the needs of various group.

Likewise, similar study may be conducted to faculty of private higher education institutions to provide comparison among type of schools. Similarly, a study on faculty's utilization of ICT in instruction across all programs that will include gratification, frustrations and inconveniences may be undertaken. Comparative study on the utilization and integration of CMC and other technology-based teaching tools across different groups or disciplines may be considered. Today's instructors face a growing demand from students to offer a more flexible, technology-enriched course delivery while facing the pedagogical challenges to design innovative learning environments, which integrate technology enhancing students learning. In fact, educational leadership may consider this as an educational goal if not the highest priority to redesign and rethink faculty multidimensional roles to be addressed in the professional development programs preparing them to teach in online environments. A research therefor on how to improve the training to prepare teachers to teach online may be undertaken

REFERENCES

[1] Griesemer, J.A. (2012). Using Social Media to Enhance Student'sLearning Experiences. Quality Approaches in Higher Education, 8-11.

[2] Green, K. (2000). The 2000 National Survey of Information Technology in Higher Education. The Campus Computing Project, 2000.

[3] U.S. Department of Education. (2000). eLearning: Putting a world-class education at the fingertips of all children. Washington, DC: U.S. Department of Education, Office of Educational Technology.

[4] Warschauer, M. (2001). Online communication. In R. Carter & D. Nunan (Eds). The Cambridge Guide to Teaching English to Speakers of Other Languages (pp.207-212). Cambridge: Cambridge University Press.

[5] Barrs, K. (2012). Fostering computer-mediated L2 interaction beyond the classroom. Language Learning & Technology 16(1), 10-25.

[6] Wang, Y. (2006). Negotiation of meaning in desktop videoconferencing-supported distance language learning. ReCALL 18(1), 122-146

[7] Young, S. S. C. (2003). Integrating ICT into second language education in a vocational high school. Journal of Computer Assisted Learning. 19, 447-461, http://siti7447.tripod.com/Journals/GE6353/integrating_second_language.pdf

[8] Kitade, K. (2000). L2 Learners' discourse and SLA theories in CMC: Collaborative interaction in internet chat. Computer AssisstedLanaguage Learning 13(2), 143-166.

[9] Xiao, M., & Yang, X. (2005). The effects of internet-based desktop videoconference on EFL students' oral skills in terms of linguistic accuracy, fluency, and complexity. In P. Kommers& G. Richards (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2005 (pp. 882-885). Chesapeake, VA: AACE.

[10] Becker, H.J. (1999). Internet use by teachers: Conditions of professional use and teacher directed student use. Teaching, Learning, and Computing: 1998 National Survey.

[11] Polluck, P.H., Hamann, K., & Wilson, B.M. (2005). Teaching and learning online: Assessing the effecr of gender context on active learning. Journal of Political Science Education, 1, 1-15.

[12] Hollingshead, A.B., Fulk, J., & Monger, P. (2002). Fostering Intranet knowledge sharing: An integration of transactive memory and public goods approaches. In P. Hinds & S. Kiesler (Eds), Distributed work: New research on working across distance using technology (pp.335-355). Cambridge, MA: MIT Press.

[13] Li, Qing. (2006). Computer-Mediated communication: A meta-analysis of male and female attitudes and behaviors. International Journal on E-Learning, 5(4), 525-570.

[14] Allsop, Y. (2016). Does technology improve learning-the value of constructivist approaches to technology-based learning? http://www.ictinpractice.com/does-technology-improve-learning-the-value-of-constructivist-approaches-to-technology-based-learning/. Retrieved October 2019.

[15] Goldie, J. G. S. (2016). Connectivism: A Knowledge Learning Theory forthe Digital Age, 38(10), pp. 1064-1069. (doi: 10.3109/0142159X.2016.1173661)

[16] Cradler, J., M. McNabb, M. Freeman, & R. Burchett. (2002). How does technology influence student learning? Learning and Leading with Technology 2: 46-56.

[17] Flowers, L. & Y. Zhang (2003). Racial differences in information technology use in college. College Student Journal 37:235-241.

[18] Quan-Hasses, A., Cothrel, J., & Wellman, B. (2005). Instant Messaging for Collaboration: a Case Study of a High-Tech Firm. Journal of Computer Mediated Communications, 10(4).

[19] Stickler, U., &Hampel, R. (2010). CyberDeutsch: Language production and user preferences in a Moodle virtual learning environment. CALICO Journal 28(1), 49-73.

[20] Czaja, S.J, Charness, N., Fisk, A.D., Nair, S.N., Rogers, W.A., & Sharit, J. (2006). Factors Predicting the Use of Technology: Findings from the Center for Research and Education on Aging and Technology Enhancement (CREATE). doi:10.1037/0882-7974.21.2.333

[21] Chang, C., Shen, H. Y., & Liu, E.Z.F (2014). University Faculty's Perspectives on the Roles of E-Instructors and Their Online Instruction Practice. http://www.irrodl.org/index.php/irrodl/article/view/1654/2899