PRESERVICE AND INSERVICE TEACHERS' PERCEPTIONS OF THE UTILITY OF E-LEARNING DIGITAL COLLABORATION TOOLS FOR TEACHING AND LEARNING

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ABSTRACT

The success of teaching depends on a number of factors including pedagogical teaching strategies. Active learning via collaboration is one of the instructional strategies that largely affect students' achievement and attainment in any course. Students' learning outcomes are achieved better when students collaborate on projects, tasks, and other activities inside and outside the classroom. The advancement of technology, particularly e-Learning infrastructure and management systems, has brought active learning via collaboration into a new level. A huge number of digital collaboration tools are available for teachers and students to use. However, such use depends on teachers and students' knowledge, awareness, and perceptions of the utility of these tools. This study investigates preservice and inservice teachers' perceptions towards the utility of a number of eLearning digital collaboration tools in the United Arab Emirates k-12 schools and universities. In addition, differences between preservice and inservice teachers are investigated. Results show high positive perceptions towards the use of digital collaboration tools for teaching and learning. In addition, some differences are noticed between preservice and inservice teachers' perceptions of the utility of these tools. Recommendations and implications are discussed.

Keywords: eLearning, digital collaboration learning, teachers' perceptions towards ICT.

Introduction

Using technology in education was a long time intent so on-line studios have been flourishing since the mid-1990s (Laiserin, 2002). The gradual dependency on using technology tools is met by seeking methods for developing the instruction by governments, institutions and even individuals. There has been a growing global demand for using technology in teaching and learning in all aspects of life, particularly within the last 15 years.

Governments have reoriented their budgets for education to suit the new trends and technology advancements. For example, the Australian government estimated that about AUD$8 billion was invested in ICT in education in 2008. In 2006, the United States Department of Education reported spending more than USD$9.5 billion for educational technology in public schools Like Australia and the United States, Saudi Arabia has also made substantial investments in educational technology King Abdullah's Public Education Development Project (Tatweer) which aimed to equip classrooms with ICT equipment was launched with a huge budget over a six-year period (Al Harbi, 2014).

It has been documented in the literature that cooperative work inside and outside the classroom could yield positive results and increase students' motivation. However, cooperative work is not done solely in a traditional way, as it could be achieved utilizing state-of-the-art of ICT. There are a number of tools and Internet services that can help teachers and students implement collaboration. The current study investigates ICT/eLearning in the form of Digital Collaboration Learning Tools (DCLT) and teachers' perceptions/attitudes toward the use of these tools and their impact on teaching and learning. Fryer and Bovee (2016) quoted a number of researchers stating that a number of studies demonstrated the role of the teachers as cucial in falciitating eLearning in the sense that they suport technological efficacy, facilitate content comprehension, foster engagement in collaboative learning, and overcome technological limiations.

Problem statement and rationale

The United Arab Emirates is one of the few countries that have made great efforts in integrating ICT, particularly eLearning as part of their educational systems. University and k-12 schools are using eLearning systems as part of their strategies to enhance teaching and learning. For example, Abu Dhabi university and the United Arab Emirates University are using Blackboard Learn as the main eLearning management system. Faculty members use Blackboard Learn as part of blended learning to post course materials, conduct online exams, receive assignments, and increase students' interaction using commutation tools. Similarly, many of k-12 schools are using a variety of eLearning management systems such as Moodle, and Edmodo to enhance their instruction and students' interaction.

As eLearning strategy has been adopted by stakeholders in the United Arab Emirates and is supported by educational policies, preservice and inservice teachers are the ones who affect the success of such strategy. Thus, investigating their perceptions towards eLearning or some of its aspects is very crucial. According to Khan (2010), in spite of the fact that the United Arab

Emirates is spiraling towards an e-Learning education, very little or no research has been conducted investigating the impact of technology being used in such teaching and learning environments.

This study, investigates preservice and inservice teachers towards digital collaboration tools, which constitute a major part of eLearning. For the purpose of this study, eLearning in the United Arab Emirates is defined as the use of state-of-the-art of technology in the form of eLearning management systems and Online/Web 2.0 collaboration, sharing, and interaction tools and services such as blogging, podcasting, sharing files/pictures/videos, and creating surveys and quizzes services.

Literature review

The following sections cover the impact of ICT/eLearning on teaching and learning. The emphasis will highlight some studies that focus on Web 2.0 tools, particularly Digital Collaboration Learning Tools (DCLT) and their impact on teaching and learning, especially in the United Arab Emirates context.

ICT/elearning perceptions towards its use.

Based on an analytical study conducted by lango et al. (2008), a number of countries in the Middle East such as Bahrain, Oman, Saudi Arabia, and UAE are making efforts and assessing e-leaning initiatives to attain international standards. The researchers pointed out and concluded that the virtual universities at these countries have the infrastructure and ready to offer online education. This conclusion by the authors is very much supported when investigating the UAE case.

The United Arab Emirates (UAE) pays a lot of efforts to the role of ICT use in education represented by preparing the infrastructure including technology for k-12 schools and higher education institutions. Abu Dhabi Education Council (ADEC) facilitates and encourages teachers' use of ICT inside and outside of the classroom to enhance teaching and learning.

ADEC's Strategic Plan (2012), emphasizes purchasing the latest ICT tools. Also, ADEC provides ICT technology-rich learning environments to provide equitable opportunities for students to use technology in meaningful, authentic tasks that develop their various learning skills in all school subjects. The revolution of Web 2.0 and its great reflection on life development makes it the main trend in education. The main focus was on students' learning behaviors in relation to their cultural values.

Abu Dhabi Education Council (ADEC) has recently increased its emphasis on ICT, and a large investment in its infrastructure has been made. As a result, teachers are more likely to be capable and effective in implementing ICT in teaching and learning. However, there are only a few studies conducted in the UAE regarding ICT use in education, and teachers' perceptions towards such use. A small number of researchers investigated this issue such as (Tella et al., 2007; Mohammed, 2012; Almekhlafi and Almeqdadi; 2010; and Ismail, Almekhlafi and Al-Mekhlafy 2010).

The role of teachers in using technology in teaching and learning is very crucial. Thus, teachers' attitudes play an important role in supporting ICT usage within the teaching process. Teachers play a crucial role in the integration of ICT in teaching and learning. According to a number of studies, most teachers revealed a positive attitude towards using technology in their classes whenever suitable conditions are provided and achieved (e.g. Albirini, 2006; Al-Zaidiyeen, 2010; and Mahdi & Al-Dera, 2013).

In their research, Tella et al. (2007) examined 700 Nigerian secondary school teachers' uses of ICTs and found that most teachers perceived ICT as very useful and helpful in making teaching and learning easier. This research highlighted the importance of having a good mastery of ICT skills and integration in teaching and learning. To achieve this, schools are urged to have professional development plans to support ICT-related teaching models, especially the ones which encourage both learners and teachers play an active role in teaching activities.

Almekhlafi and Almeqdadi (2010), investigated teachers' perceptions of technology integration in the United Arab Emirates classrooms. Results showed that teachers highly and positively perceive their ICT use in technology integration especially in model schools ranged from 4.0 to 4.8 on a 5-point scale. Female teachers, however, showed higher perception of their ICT integration than the male group. At the same year, Ismail, Almekhlafi and Al-Mekhlafy (2010) investigated teachers' perceptions of ICT in teaching languages in k-12 schools in the United Arab Emirates. Results showed teachers' willingness to increase technology integration in classes to improve teaching and learning.

Similarly, Mohammed (2012) investigated the perceptions of English language teachers of their Information and Communications Technology (ICT) use. The study examined the awareness of the use of technology in Abu Dhabi Education Council schools in the UAE. Study findings indicated that English language teachers have low perceptions of their ICT use. Also there was no significant difference in terms of years of experience in teaching English language. More recently, Kavanoz, Yüksel, & Özcan (2015) investigated English as a Foreign Language (EFL) pre-service teachers' perceptions of their self-efficacy regarding Web Pedagogical Content Knowledge (W-PCK) and attitudes towards web-based instruction. Results showed that participants' level of general self-efficacy regarding W-PCK was positively correlated with their attitudes towards Web-based instruction.

Based on Mumtaz's (2000) review of a number of studies, successful ICT integration needs to address key factors: The teacher, the school, and policy makers as a framework for such integration. Park and Son (2009) pointed out that the quality of education depends heavily on teachers, not the use of technologies. Teachers' positive attitudes and effort to integrate technology into their classes will definitely improve teaching and learning.

Teachers" readiness to use technology is another important and crucial factor for the success of such technology integration into teaching. Hung (2016) examined elementary and middle school teachers' readiness as online learners on the basis of the Teacher Readiness for Online Learning Measure (TROLM). Study results showed that male teachers exhibited greater readiness in learning-transfer self-efficacy than did female teachers. In addition, the study showed that the fewer teaching years a teacher had, the higher the teacher's communication self-efficacy tended to be; and the more teaching years a teacher had, the higher the teacher's self-directed learning tended to be.

Web 2.0 tools/digital collaboration tools

The term Web 2.0 is used to describe a variety of web sites and applications that allow anyone to create and share online information or material they have created. Web 2.0 differs from other types of websites as it does not require any web design or publishing skills to participate, making it easy for people to create and publish or communicate their work to the world. The University can make use of these tools to communicate with students, staff and the wider academic community. It can also be an effective way to communicate and interact with students and research colleagues (Wiki, 2016).

The rapid recent flow of web applications such as wikis, blogs, podcasts, and social networking sites has often been referred to as "Web 2.0", indicating a "second" phase of development of the Web (Lindmark, 2009). Interactive communications via web 2.0 have revolutionized the habits of human daily communication. Email, instant messenger, discussion boards, and social networking have become an integral part of interaction of people's lives in many aspects. The evolution and progress of Web 2.0 have had a profound effect on the design, development and use of the Internet. Central to Web 2.0 is the concept of social stages that have been breaking down barriers for an efficient sharing of information. Web 2.0 aims to facilitate sharing and collaboration among users rather than focusing on the introduction of new technology. This new approach to the usage of ICT services and communities has inspired innovative modern teaching environments (Shao et al., 2007).

More recently, the use of different web 2.0 applications such as blogs, and wikis has been traced. ICT Integration into teaching should fulfill many conditions to be effective and feasible such as keeping technology to be user friendly to students (Mahdi and Al-Dera, 2013). Generally, using the term "Web 2.0" is broader and more neutral in the field of education. Drawing on Pascu (2008) and Pascu et al., (2008), Web 2.0 is composed of a set of innovative applications, technologies among its users' roles. There are a number of elements and characteristics, which are common across the various observable versions of Web 2.0.

Digital Collaboration Learning Tools (DCLT), as a type of Web 2.0 tools, are what is being used for collaboration purposes among teachers and students. Vickery (2007) argues that in Web 2.0 online environments, social networking is a concept which emphasizes collaborative interaction by user-to-user. This social networking aims at providing a community-based website, where users can share personal experiences and construct their knowledge.

Web 2.0 applications including wikis, blogs, social networking, folksonomies, podcasting & content hosting services, according to Valcarcel (2012), are the second-generation Internet applications that are used for numerous purposes including productivity, pleasure, and for facilitating information sharing and collaboration.

Vaughan (2008) indicated that wiki use in the classrooms can promote peer collaboration and support learning. Similarly, Wang (2008) reported that a wiki is a useful digital tool for teaching. A number of studies have investigated Web 2.0 and its integration into teaching (e.g. Abdullah et al., 2006; Shao et al., 2007; Rogers et al., 2007; Tella et al., 2007; Chou & Chen, 2008; Wetzel, 2009; Dang and Robertson, 2010; Raymond, 2010; Zhang, 2010; and Shih, 2011).

Chou & Chen (2008) employed a Web 2.0 tool (Wiki) to promote students online collaborative learning. The results showed that the technological tool motivated students to engage in collaborative learning, and its use supported student learning. According to Zou, Xiang, Hua, and Jeaco (2012), in a study of 291 male and female students using Web 2.0, Web 2.0 tools (e.g. blogs, social networking, and Wikis) can provide students opportunities to discuss learning materials through online resources, in addition to opportunities to communicate with others at large distances. Dudeney, and Hockly (2012) pointed out that Web 2.0 gave rise not only to teacher development resources, but also to more creative practices in the classrooms. Similarly, Vurdien (2013) pointed out that students' collaborative skills were fostered through students' regular interaction in blogs.

Mahdi & Al-Dera (2013) investigated teachers' integration of ICT into language teaching. They aimed to identify the impact of teachers' age, experience, and gender on the integration of technology into language teaching. The sample was 46 inservice EFL teachers working at Najran University, Saudi Arabia. The results showed that teachers generally have positive attitudes towards integrating ICT in teaching. However, there was no significant difference in using ICT between teachers due to their age and teaching experience. On the other hand, a significant difference was found between male and female teachers in using ICT in language teaching. Female teachers use of ICT in their instruction was less than male teachers.

In the Arab world, Al-Zaidiyeen (2010) explored teachers' attitudes and levels of technology use in classrooms in Jordon. The study was conducted on 460 Jordanian teachers of different cycles. Results indicated that teachers had a low level of ICT use for educational purposes. In addition, results showed a significant positive correlation between teachers' level of ICT use and their attitudes.

Albirini (2006) conducted a study to investigate the attitudes of EFL teachers in Syrian high schools toward technology in education. The results from both quantitative and qualitative data indicated that teachers had positive attitudes toward technology use in education. The successful use of technologies in the classroom depends mainly on teachers' attitudes toward these tools.

The recommendation was that teachers' attitudes are a main key in using technology inside classrooms. More practice and encouragement change teachers' attitude toward technology and make them accept it as an essential tool in teaching and learning. Recently, Baş, Kubiatko, & Sünbül (2016), investigated teachers' perceptions towards ICTs in teaching-learning process. Results indicated that there is a positive correlation among three factors namely: attitude, usage, and belief.

From the literature highlighted above, it becomes clear that teachers' attitudes toward something affect how it is used and, hence affect its impact on teaching and learning. This is true with eLearning/Web 2.0 as well as other ICT technologies.

Theoretical Framework

This study depends mainly on constructivism views of learning, namely on Vygotsky and Social interaction theory. Constructivism reverses the learning trend from a teacher-centered to a student-centered environment. Instruction has shifted to make students dominant (Bransford et al., 2000), emphasizing that students are no longer passive information-receivers; rather, they are active knowledge-constructors. Tools should be provided to support student learning during the knowledge-construction process (Davis & Miyake, 2004).

Jonassen (1994) argued that constructivism proposes that learning environments should support multiple perspectives or interpretations of reality, knowledge construction, and context-rich, experience-based activities. In addition, he pointed out that technologies often serve as suitable scaffolding tools in learning environments.

Research Questions

This study aims at answering the following questions:
1. What perceptions do participants have toward using digital collaboration teaching and learning strategy?
2. What Digital Collaboration Learning (DCL) benefits do participants perceive for teachers?
3. What Digital Collaboration Learning (DCL) benefits do participants perceive for students.
4. What digital collaboration software, applications, and services do participants use?
5. Are there any significant differences between preservice and inservice teachers' perceptions towards Digital Collaboration Learning Tools?

Method

Participants
The participants in this study were 262 preservice and inservice teachers. The study was conducted during the academic year 2015-2016. A questionnaire was loaded to one of the digital collaboration tools distribution and storage services, namely Google Drive and then sent to participants.
The questionnaire consisted of a number of sections:
1. Demographic variables for data analysis purposes.
2. Participants' perception/attitude toward using digital collaboration teaching and learning strategy.
3. Digital Collaboration Learning (DCL) benefits for the teacher.
4. Digital Collaboration Learning (DCL) benefits for the student.
5. Digital Collaboration Software, applications, and services participants use.

The preservice teachers were mainly from the College of Education freshmen to senior students, United Arab Emirates University. On the other hand, inservice teachers were from k-12 schools in the United Arab Emirates with varied years of teaching experience ranging from one year to more than a decade.

Data Collection

As mentioned earlier, the study employed a questionnaire focusing on a number of themes related to participants' perceptions toward Digital Collaboration Learning. In addition, it focused on students and teachers' perceptions of the use and impact of DCTs on teaching and learning.

The questionnaire was developed by the researcher and reviewed by a number of experts including a number of university professor of different majors. Several changes were made to the questionnaire based on the feedback received from these reviewers. Then, it was piloted with 38 preservice and inservice teachers with the same characteristics as study sample. The Cronbach alpha was calculated and was 0.94, which meant that the reliability of the questionnaire was high.

Data Analysis

Using the Statistical Package for Social Sciences (SPSS), two types of statistics were used. Descriptive statistics were used for measuring inservice and preservice attitudes towards collaboration digital learning, and independent sample t-tests were used to investigate any significant differences between preservice and inservice teachers.

Results And Discussion

To answer question 1 "What perceptions do participants have toward using digital collaboration teaching and learning strategy? ", results showed that both preservice and inservice teachers have positive attitudes towards using digital collaboration learning. The mean scores ranged between 4.0 and 4.2 on a 5-point scale with a standard deviation of less than 1.0 (see Table 1). This result indicates that preservice and inservice teachers believe in the utility of digital collaboration tools for teaching and learning. These could help students build their own knowledge by learning via collaboration with others and/or working independently. This assumption is strongly supported by constructivism in the sense that learners construct their knowledge individually or socially when collaborating and interacting with others and with the environment around them. All well-known constructivists such as John Piaget and Lev Vygotsky emphasized this idea (Wikipedia, 2016). Hence, digital collaboration tools and services provide learners with anytime, anywhere strategy of learning without thinking of the geographical or time barriers that hinder learning in traditional face-to-face learning situations.

This positive attitude exerted by both preservice and inservice teachers conforms to the results of other studies such as Abdullah et al., 2006; Shao et al., 2007; Rogers et al., 2007; Tella et al., 2007; Chou & Chen, 2008; Wetzel, 2009; Almekhlafi & Almeqdadi, 2010; Ismail, Almekhlafi, & Almekhlafy, 2010; Dang & Robertson, 2010; Raymond, 2010; Zhang, 2010; and Shih, 2011.

Table 1: Participants perceptions/attitudes toward using digital collaboration teaching and learning (DCTL) strategy.

Item	M	SD
Digital collaboration (DC)		
has high utility for teaching and learning.	4.226	.6230
benefits overcome traditional learning benefits.	4.000	.9104
improves student-teacher relationship.	4.000	.8971
helps me be more successful	4.056	.8212
usage in teaching and learning should be encouraged.	4.230	.7459
enhances performance in teaching/learning	4.053	.7585
integration in schools is highly recommended	4.165	.8298
can address multiple intelligences in teaching/learning	4.186	.7728
can address individual differences	4.000	.8690
helps teachers and students organize their time	4.183	.8368
is easy to apply.	4.003	.8256
creates a rich learning environment	4.065	.8532

To answer question 2 " What Digital Collaboration Learning (DCL) benefits do participants perceive for teachers?", results showed that both preservice and inservice teachers believe that digital learning can benefit teachers. As can be seen from Table 2, the mean scores for all variables were above 4.1. This means that the benefits of digital collaboration learning were apparent to participants such as: enhancing teachers' creative thinking skills; keeping them up to date with digital advancements; and enabling them to share materials with students. These results and high perceptions of the benefits of digital collaboration might indicate that teachers are aware of the tremendous benefits of these services for teaching and learning at the time of technology advancements.

This positive perception of the benefits of digital collaboration to teachers agrees with the results of other studies as mentioned above (e.g. Almekhlafi & Almeqdadi, 2010; Ismail, Almekhlafi, & Almekhlafy, 2010; Dang & Robertson, 2010; Raymond, 2010; Zhang, 2010; and Shih, 2011).

Table 2: Digital Collaboration Learning (DCL) benefits for the teacher.

Item	M	SD
Digital Collaboration Learning (DCL)		
enhances teachers' creative thinking skills.	4.226	.7224
helps teachers' be up-to-date with digital advancements.	4.407	.6118
has multi communication channels.	4.340	.6639
can be anytime anywhere learning	4.325	.7453
increases interaction with content.	4.218	.7524
enables sharing documents with students.	4.425	.6621
enables sharing multimedia with students.	4.515	.6234
enables teachers to send big files.	4.434	.6976
enables teachers to use differentiated instruction	4.219	.6911
is free of time limitations	4.215	.7939
enables teachers to provide students with effective feedback	4.257	.7226
helps teachers feel satisfied with their teaching.	4.147	.7510

To answer question 3 "What Digital Collaboration Learning (DCL) benefits do participants perceive for students?", results showed similar results as benefits of digital collaboration learning tools to teachers as discussed above. This indicates that participants are aware of the benefits of digital collaboration for both teachers and students alike.

Participants showed a very high positive attitude towards the benefits of digital collaboration learning for students. As can be seen from Table 3, the mean scores ranged from 4.0 to 4.3 on a 5-point scale, which means, according to the scale, that participants agree to the benefits of DCL for students. In spite of the fact that all mean scores were high, some items were prevalent and draw participants' attention more such as "provides more attractive learning environment", "helps students create creative projects", "helps in achieving the tasks quickly", "helps students be more productive", "provides students' with immediate feedback", "overcomes geographical barriers", "overcomes time barriers", and "can be used as a learning aid". Looking into these items, it becomes clear that participants believe digital collaboration can increase productivity and overcome a number of teaching and learning barriers. It may be worth mentioning here that technology infrastructures in the United Arab Emirates are very well established and provide teachers and students alike with opportunities to use digital collaboration tools and services whenever they want.

As is the case with participants' perceptions of the benefits of digital collaboration for teachers, the same case is with the benefits for students, other studies showed similar results (refer to Almekhlafi & Almeqdadi, 2010; Ismail, Almekhlafi, & Almekhlafy, 2010; Dang & Robertson, 2010; Raymond, 2010; Zhang, 2010; and Shih, 2011).

Table 3: Digital Collaboration Learning (DCL) benefits for students.

Variable		M	SD
Digital Collaboration Learning (DCL)			
	promotes feeling of responsibility	4.065	.8947
	promotes and enhances collaboration among students	4.063	.8804
	enhances students' leadership qualities	4.024	.8801
	helps students respect each other.	4.056	.8344
	helps in enhancing good relationships among students	4.080	.8852
	decreases students' selfishness	4.000	.9314
	helps reduce students' shyness	4.091	.9853
	helps students acquire communication skills	4.160	.8498
	makes learning more fun	4.357	.7353
	provides more attractive learning environment	4.293	.7665
	improves memorization skill	4.115	.8597
	creates more opportunities for Special ed. students to seek help	4.215	.8656
	helps in achieving the tasks quickly	4.281	.7709
	helps students be more productive	4.248	.7708
	increases students' academic achievement	4.051	.8723
	improves high achievers academic achievement	4.165	.7997
	helps students create creative projects	4.308	.7144
	increases students' relationships with each other	4.080	.8709
	increases students' love for learning	4.196	.7381
	provides students' with immediate feedback	4.211	.7638
	multi-sensory way of learning	4.145	.8098
	overcomes geographical barriers	4.354	.7285
	is a good use of independent student efforts	4.288	.7052
	overcomes time barriers	4.217	.8077
	can be used as a learning aid	4.202	.7565
	makes the student feel satisfied with learning experience	4.101	.7610
	helps students solve understanding problems	4.059	.8168
	provides student-student interaction opportunities	4.136	.8050
	provides student-content interaction opportunities	4.186	.7682

To answer question 4 "What digital collaboration software, applications, and services do participants use?", results showed a little bit different results than the results for the previous three questions. In spite of the fact that preservice and inservice teachers high and positive attitudes towards the digital collaboration tools and their benefits for teachers and students, the use of these tools was not very high (see Table 4). The mean scores for all variables were either neutral of below. The highest score was 3.8 (Picture sharing services such as Picasa and Instagram) on a 5-point scale, while the lowest was 2.8 (Using WebQuests for field trips).

These results indicate that preservice and inservice teachers are not using digital collaboration tools to the extent that match their perceptions of the benefits and utility of these tools for teaching and learning. The reason for such insufficient use might be due to lack of access to the tools and time to use them. In addition, encouragement by institution and colleagues could be another important reason for such a lack of use. The mean scores for these variables were low (see Table 5) indicating that teachers are aware of such barriers.

Teachers should be given enough support to be able to use digital collaboration in their teaching. In spite of the fact of the availability of technology infrastructure in most of the schools in the United Arab Emirates, teachers might need professional development training on how to utilize his technology to the fullest. As results show that teachers have a very positive perception

toward digital collaboration, only optimal conditions need to be achieved so that teachers start using this strategy. Teachers should have access to ICT infrastructure including hardware and software in order to be succeed in ICT integration. Goktas Gedik, & Baydas (2013) studied barriers encountered by Turkish primary school **teachers** in the integration of ICT. The results showed a number of barriers hindering the integration. These barriers included, but not limited to the following: Lack of hardware, lack of in-service training, lack of technical support, and lack of appropriate software materials.

Table 4: Digital collaboration software, applications, and services participants use

Item	M	SD
Creating and sharing files on cloud computing such as Google Drive	3.778	1.1036
Picture sharing services such as Picasa and Instagram	3.802	1.1071
Using blogging services such as WordPress, Blogs, Twitter, Wikis	3.613	1.2976
Using Podcast services	3.414	1.3352
Using file Sharing services such as Dropbox	3.481	1.3013
Using survey creation services such as SurveyMonkey, Google Forms	3.369	1.3483
Using collaboration sites such as Linoit	2.906	1.5260
Using mind mapping apps such as Mindomo	3.077	1.4456
File sharing with others	3.462	1.3064
Using WebQuests for field trips	2.863	1.5011
Using Video Sharing services such as YouTube	3.799	1.1551
Presentations sharing such as SlideShare	3.397	1.4205
Using animation services such as ToonDoo for storytelling	2.951	1.5361
Using Virtual Reality for experiments	3.127	1.4489
Communications tools such as google hangouts	3.176	1.4834
Using interactive whiteboards such as Realtimeboard	3.207	1.4901
Using eLearning management systems such as Moodle and Edmodo	3.175	1.4936
Using classroom Management systems such as Classdojo	2.997	1.5557

Table 5: Barriers that affect using digital Collaboration Tools

Variable	Mean	SD
My institution encouragement to use DCL	3.528	1.1989
Colleagues encouragement to sue DCL	3.434	1.1673
Time availability to use DCL	3.301	1.1526

To answer question 5 " Are there any significant differences between preservice and inservice teachers' perceptions towards Digital Collaboration Learning Tools?", results did not show a lot of significant differences between preservice and inservice teachers in the perception towards the benefits and use of DCL tools.   Among the 70+ investigated variables across the different categories, only 10 variables were significant. Investigating the details as shown in Table 6, it can be seen that the mean scores for preservice were higher than the mean scores for inservice teachers in all the 10 variables that showed significant differences between the two groups. This is an indication that preservice teachers might have more access to the DCL tools and are interacting more with these tools for learning purposes. According to Domingo & Garganté (2016) who studied teachers' perceptions on the impact of mobile technology in learning, access to information and increasing students' interaction in the learning process are key factors that affect technology use in the classroom.

In fact, it is very logical that preservice have more access than inservice teachers. This is because preservice teachers are studying at the United Arab Emirates University, which is highly equipped with all types of technology needed for teaching and learning. The UAE University has spent a tremendous budget for ICT infrastructure including the infrastructure for smart classrooms all over university campus. This could be seen from the mean scores of preservice teachers compared to inservice teachers. Results showed that preservice had more time to use DCL, and are more encouraged by their colleagues and institution.

Table 6: Differences between preservice and inservice teachers' attitude and use of digital collaboration tools.

Variables and themes	pre	inservice	t.
Attitudes toward using DCL			
My performance in teaching/learning will be enhanced when using DCL.	4.089	3.838	2.2*
Benefits for students			
Helps students respect each other.	4.117	3.868	2.1*
Helps in enhancing good relationships among students	4.122	3.779	2.6*
Improves memorization skill	4.200	3.941	2.2*
DC software, applications, and services participants use.			
Creating and sharing files on cloud computing such as Google Drive	4.101	4.045	0.5*
Picture sharing services such as Picasa and Instagram	4.068	3.970	0.9*
Using blogging services such as WordPress, Blogs, Twitter, Wikis	4.111	4.045	0.6*

Encouragement and time availability			
My institution encouragement to use DCL	3.869	3.017	4.9**
Colleagues encouragement to sue DCL	3.729	2.915	4.9**
Time availability to use DCL	3.587	2.678	5.6*

Limitations

As this study was conducted in the United Arab Emirates, some of its limitations that might affect results generalization include: (1) the study did not consider gender as a variable when collecting data, and (2) private schools were not taken into account when selecting inservice teachers. Thus, the results might not be generalized to both private and public school teachers.

Conclusion And Recommendations

The main goal of this study was to investigage preserices and inservice teachers' perceptions towards the utility of Digital Collaboration Learning (DCL) tools for teaching and learning in an eLearning environment. Study results showed that preservice and inservice teachers have high positive attitudes towards the utility of DCL tools for teaching and learning. However, when investigating the use of these tools, results showed that the use of these tools does not match the perceived utility and benefits of these tools. This lack of use is due to numerous barriers that teachers see, particularly inservice teachers. Examples of these barriers include lack of time, little support from administration and colleagues. On the other hand, some significant differences between preservice and inservice teachers emerged pertaining to their perceptions toward the benefits and use of DCL tools. These differences were in favor of preservice teachers, which indicates that they have more access and time to these tools than inservice teachers.

It is recommended that more in-depth investigation regarding the use of digital collaboration should be conducted. This could be in the form of focus group interviews and classroom observations. In addition, it is recommended that a more comprehensive research should be conducted covering a wide variety of teachers, different levels, and cycles. Furthermore, a study is needed to investigates differences between groups such as male and female teachers, and private versus public schools. Finally, a comparative study among teachers across countries is needed to shed more light on the use of DCL across countries.

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