

Online Collaboration Learning: A Way to Enhance Students' Achievement at Kingdom of Bahrain

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Abstract—The increasing recognition of the need for education to be closely aligned with team playing, project based learning and problem solving approaches has increase the interest in collaborative learning among university and college instructors. Using online collaboration learning in learning can enhance the outcome and achievement of students as well as improve their communication, critical thinking and personnel skills. The current research aims at examining the effect of OCL on the student's achievement at Kingdom of Bahrain. Numbers of objectives were set to achieve the aim of the research include: investigating the current situation regarding the collaborative learning and OCL at the Kingdom of Bahrain by identifying the advantages and effectiveness of OCL as a learning tool over traditional learning, examining the factors that affect OCL as well as examining the impact of OCL on the student's achievement. To achieve these objectives, quantitative method was adopted. Two hundred and thirty one questionnaires were distributed to students in different local and private universities at Kingdom of Bahrain. The findings of the research show that most of the students prefer to use FTFCL in learning and that OCL is already adopted in some universities especially in University of Bahrain. Moreover, the most factors affecting the adopted OCL are perceived readiness, and guidance and support.

Keywords—Collaborative learning, perceived readiness, student achievement.

I. INTRODUCTION

THE increasing recognition of the need for education to be closely aligned with team playing, project based learning and problem solving approaches has increase the interest in collaborative learning among university and college instructors [1]. Smith and MacGregor [2] demonstrate that the traditional teacher-centered method for learning has been shifted to a completely different method with the emergent of the collaborative learning. The new method of learning which involve collaboration can provide number of significant educational outcomes include: critical thinking, meta-cognition, and motivation [3]. The significant impact of the collaboration has increased with the use of technology [4]. The emergence of new technologies has a vital effect on the learning process and education in general. Information and Communication Technology (ICT) opens a wider range of collaboration and facilitates the online learning in a way to improve the student's skills, learning achievement, and critical thinking [5, 6].

Online Collaborative Learning (OCL), sometimes called Computer-Supported Collaborative Learning (CSCL) creates a

paradigm shift in teaching methods. OCL has more features than face-to-face collaborative learning which make it more effective [5 - 7]. Such method of learning has affected the performance of most of the educational institutions and enhanced the students' understanding and achievement. However, traditional structures and culture of the academy are still challenging OCL. Such factors are perpetuating the teacher-centered, transmission-of-information model of teaching and learning [8]. Furthermore, OCL may be impacted by other factors such as: perceived readiness, collaborative intention or tendency, access to technology, time constraint, guidance and support, individual accountability, effective team support, consensus building skills, level of interpersonal skills, level of commitment, and changes in technological infrastructure [9, 10, 11]. These factors can play an important role in enhancing the effective impact of OCL on the student's achievement and performance [8].

Traditional learning (teacher-centered method) is the method of learning that is mostly adopted by the educational institutors at the Arab countries in general and the Kingdom of Bahrain specifically as one of these countries. Educational institutions at Kingdom of Bahrain are facing many problems with their traditional learning methods which are limiting the student's capabilities to contribute, interact, and achieve in a better way. In order to solve the limitations of the traditional learning, there is a need to adopt new learning and teaching methods such as collaborative learning and especially OCL in such country. Therefore, the current research aims at examining the effect of OCL on the student's achievement at Kingdom of Bahrain. Numbers of objectives were set to achieve the aim of the research include: investigating the current situation regarding the collaborative learning and OCL at the Kingdom of Bahrain by identifying the advantages and effectiveness of OCL as a learning tool over traditional learning, examining the factors that affect OCL as well as examining the impact of OCL on the student's achievement.

The current research paper consists of six sections; each will touch a significant component of this research. The following section will spot the light on the literature review on the OCL as well as the factors affecting the adoption of such method. Section three, will discuss the research model and hypotheses. The data collection and survey instruments development are discussed in section four. Section five describes the data analysis and results. Finally, the findings of this study will be discussed and a conclusion will be presented and made ready for universities and educational institutions that are intend to adopt OCL as their alternative method for learning.

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II. RESEARCH BACKGROUND

A. Collaboration Learning and Traditional Learning

Collaborative learning is a term that covers different aspects of learning and educational approaches that engage a joint academic effort by students, or students and teachers together [2]. Collaborative learning is a teaching approach that involves groups of students working to solve a problem, complete a task or create a product [12]. Based on social interdependency theory, the fundamental of the collaborative learning is a social act in which members talk among themselves [13]. With collaborative learning, the learning process has been changed from teacher-centered model to learner-centered model [14]. Within the teacher-centered model for learning, students are playing passive roles as the teachers are passing on knowledge to them. However, collaborative learning promotes higher achievement than all forms of individualistic teacher-centered learning across all age levels and subject areas [15]. In fact, there are many distinctive differences between collaborative and traditional learning. The collaborative learning environment can be described by heterogeneous membership with positive cooperation, self-responsibility, and individual accountability [16]. Conversely, in the traditional learning groups are homogeneous with one leader shared leadership among the group [16]. Moreover, cooperation and individual accountability are absent in such environment as each one is responsible only for himself. Therefore, collaborative learning is considered more effective than traditional (teacher-centered) learning [15].

Collaborative learning has an obvious impact on student's achievement and performance inside and outside the class [14]. Collaborative working not only affect student's performance, but also affect students' attitude to learning and skills such as communication, interaction with others and how to work effectively within a group [17]. Members of group use different approaches to solve problems and understand tasks required which can enhance retention of all members of the group [18, 19]. As well, students in groups can identify their capabilities, strengths and weaknesses while doing required tasks [17]. On the other hand, there are some drawbacks for collaborative learning. If students were selected randomly and not by their choice, this will affect their engagement in the collaboration process as they become inactive and feel that they are irrelevant to the group [3, 17]. Moreover, given that groups consist of students with different talents and skills, some students may carry out the whole tasks of the groups which will affect the contribution of the other members and their effective involvement in the collaborative work [1, 14, 17, 18].

B. Technology and Collaboration Learning

Until recent years, face-to-face learning was used for collaboration experience. With the emergence of the ICT and groupware technologies, new learning environments in which integration of technology with academic community have initiated [18, 20]. The new technologies open a wider range for the students to interact and collaborate together without

being limited by time or place [19] as well as change the manner in which student are communicate, collaborate and participate within a group. As ICT can facilitate a social interaction between teachers and students, and among students, it can enhance the quality of the collaboration [21]. Thus, a shift from using technology to support individuals to support interactions and relationships between individuals has been occurred [22]. As a result, OCL has emerged as one of the most promising instructive approach for improving learning [5]. OCL can provide an ideal environment in which interaction between students plays a significant role in learning process [23]. The focus of OCL is based on using technology to support collaborative learning in facilitating work in groups, peer interaction, and knowledge sharing and distribution [24]. It prepares students for today's international industries requirements where workers involve in group projects are geographically separated with no concern about time and place [20, 25]. Currently, there are many different applications that can be used to facilitate online collaboration comprising of special network and various multimedia and hypermedia applications [5]. Networks including Local Area Network (LAN), Wide Area Network (WAN), and Internet provide education with many tools for collaboration such as e-mail, electronic bulletin boards, teleconferencing systems, and specialized groupware [5, 24]. Previous studies demonstrate that OCL has more features than face-to-face collaborative learning which make it more effective approach for learning [5, 6, 7]. OCL provides an interactive, simulation-based, creative and accumulative learning [5, 7]. In addition, OCL enables students to connect with other students any time, access different sources of data, experience virtual travel and improve their learning productivity and performance [25].

C. Factors Affecting Online Collaboration Learning

Previous literatures have identified many factors that influence OCL and perceived as either enablers or inhibitors for OCL. Clarity of design, interaction with instructors and active discussion among course participants, for instant have been identified to influence student satisfaction with perceived learning from asynchronous online learning [26]. Many educational researchers found that teacher's verbal behavior like giving admiration and non verbal behavior like eye-contact may impact the mental distance between teachers and students and leading to greater learning [27]. Moreover, a research conducted in Malaysia has identified factors such as perceived positive effects of OCL, collaborative intention or tendency, new learning paradigm, access to technology, time constraint, and guidance and support to have an effect on perceived readiness for OCL [10]. In addition, factors such as individual accountability, affective team support, presence of positive group leader, consensus building skills, and clear instructions perceived as either facilitating or impeding successful completion of online group work [11]. On the other hand, OCL can be also impacted by a wide range of external factors such as: changes in organization structure, changes in technological infrastructure, changes in knowledge and skill level, and improvements in didactical approach [9]. Besides,

Lorraine [28] has identified factors such level of knowledge, level of skills level of interpersonal skills, level of commitment, quality of group collaboration, quality of group learning, and quality of individual contributions as some of factors that need to be considered in implementing OCL. These factors influences the learning process by changing collaboration and communication practices, adapting the learning content, and customizing the learning and run-time execution procedures [9, 29].

III. RESEARCH MODEL AND HYPOTHESES

A. Research Model

The current research study has a main objective of investigating factors that influence the adoption of OCL at Kingdom of Bahrain. Moreover, the impact of OCL on students' achievement will be examined. It was mentioned in previous section that the literature revealed for many factors that may affect the adoption of OCL. For the purpose of the current research, five factors have been selected which include: perceived readiness, collaborative intention or tendency, access to technology, time constraint, and guidance and support. The research model is developed as depicted in Fig. (1).

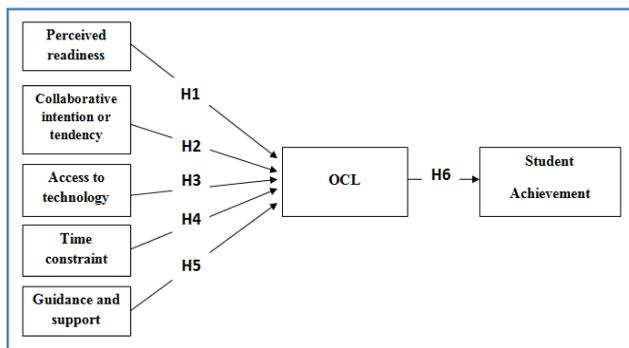


Fig. 1 Research model

B. Research Hypotheses

By involving in an OCL, students need to search for their assignments and home works online, manage their time effectively, participate in online activities, and make significant contributions to the work [30]. Therefore, students need to presume a greater responsibility and be ready to work in such learning environment [30]. Perceived readiness is determining whether students are ready to engage in online collaboration and collaborative activities [10, 31]. Hence, it can be measured by students' perceptions of their ability for "self-directed learning", motivation for learning, computer/Internet self-efficacy, learner control, and online communication self-efficacy [30]. Many studies have stated that the perceived readiness plays a great role in determining the effect of OCL [10, 31, 32]. The findings of Koo's [10] demonstrate that many schools failed to implement OCL because most of the students are new to OCL and are not ready to involve in such new environment.

H1: The perceived readiness of students has a positive effect on the adoption of OCL.

Collaboration intention or tendency is the willingness of students to collaborate, communicate, and share knowledge within an online collaborative learning environment [33]. Collaborative intention can be measured by the willingness of students to collaborate with their colleagues from the same school or other schools. Moreover, collaboration intention can be considered as the students' perception of the importance of the collaboration learning to achieve their objectives and learning outcomes successfully [10]. Many studies established that collaborative intention or tendency of students has a positive influence on the OCL as it will facilitate their involvement in such environment and prompts an effective collaboration [33].

H2: Collaboration intention or tendency has a positive effect on the adoption of OCL.

With the emerging of OCL, access to technology (i.e. computers and internet) in schools and any educational institutes has become a major challenge for implementing an effective OCL [10, 34; 35]. Educational institutes need to implement a reliable technical infrastructure and adequate technical support as well as create robust access to computers and electronic networks which are enough to support a collaboration learning environment [35]. Koo [10] measured the access to technology by investigating whether schools have sufficient access to computers and Internet in addition to the students' ability to use their home computers for learning purposes. Access to technology is considered as one of the most critical factors that affect the adoption of OCL [10, 34]. If the IT infrastructure can't support the collaborative learning and enhance group working, students and teachers will become frustrated which will impact the quality of the collaboration and the learning process [36].

H3: The access to technology has a positive effect on the adoption of OCL.

Time constraint identified by many studies as one of the main problems faced by teachers and students with OCL [10, 37, 38]. Time constraint can be indicated by the difficulty in communication with team member in different time zones or it can be considered as the time required for active group participation [38, 39]. According to the results of a survey conducted by RW3 [40], time zone differences present the greatest challenge of working in virtual team and collaboration environment. Gabriel [39] found that one of the major challenges experienced by her students was the time required to prepare their responses to other group members. Time pressure sometimes led to superficial comments not thoughtful feedback [38]. Moreover, with the heavy workload and schedules, both teachers and students have less time and less initiative to adopt new approaches in the classes [10, 37, 39].

H4: Time constraint has a negative effect on the adoption of OCL.

OCL can't be automatically successful without the appropriate instructional support and guidance. The role of instructors is critical; not only for supporting subjects matter but also for simplifying the learning process for the students

[41]. The instructors should prompt feedback; facilitate the social interaction, direct involvement in the online activities, and scaffolding online collective knowledge construction [41]. Guidance and support for involvement in OCL is playing a significant role in implementing this approach in universities and schools [10, 42]. OCL can be implemented more effectively when teachers and students receive adequate training, and sufficient guidance and support to gain enough experience to engage in a collaborative learning process [10, 43]. Koo [10] reported that guidance and supports of the school principle and administrators is an important factor to be considered in order to prepare both teachers and students to use OCL in school.

H5: Guidance and support has a positive effect on the adoption of OCL.

Some of the previous studies indicate that there is no difference between online and face-to-face collaborative learning in the level of students' achievement. Some studies claim that the contribution of OCL to students' achievement is not proven yet and that both OCL and face-to-face collaborative learning provide the same level of achievement [44]. On the contrary, results of several studies have proven that OCL produces greater achievement than face-to-face collaborative learning [11, 19]. Many studies have reported the impact of the OCL on increasing the students' achievement and enhancing a positive learning attitude [11, 19, 44]. Developing good collaborative activities within online collaborative environment can impose many benefits for both teachers and students. OCL helps in getting better psychological connections (support and commitment), greater social competence, and self-esteem [11]. It can also generate higher order thinking skills, improve socialization skills, as well as enhance critical thinking. Koo [10] stated that the effect of OCL on student's achievement can be measured by the ability to promote acquisition of skills, cultivate positive attitude in learning, and promote the application of knowledge and responsibility to their own learning.

H6: the adoption of OCL has a positive effect on student's achievement.

IV. RESEARCH METHODOLOGY

The study sample is comprised of students from the University of Bahrain (the only local university at Kingdom of Bahrain) and six private universities. Four hundred surveys were distributed to the students. Only two hundred and thirty one completed questionnaires were returned. The survey instrument provides a response rate of 57.8% which can be considered as high rate bearing in mind many students, either from public or private universities, refused to answer the questionnaire either because they were very busy with their study or they were not interested. The survey instruments were developed using validated items from the prior researches. As such, scales for measuring perceived readiness, collaborative intention or tendency, access to technology, time constraint and guidance and support were developed by adopting items from the measurements of Koo [10] and An, Kim and Kim [11]. Scales of students' achievement were developed by

adopting modified items from the measurement of Nichols and Hall [45]. However, the measurements of the construct of the adoption of OCL have been developed by the author for the purpose of the current research. All items were measured on a seven-point Likert-scale anchored at both extremes to 1 (strongly disagree) and 7 (strongly agree). The midpoint (4) represents the state of unsure or "neutral".

V. DATA ANALYSIS AND RESULTS

A. Demographics

Demographics characteristics of the overall participations are presented in Table I. The results revealed that most of the participants are from the University of Bahrain (63%) and that they are mostly studying business (52%) and Information Technology (38%). However, it has been revealed that there are few or no participants from the Engineering, Arts and Educations (<= 1%). Normally, there are few enrollments in such colleges in most of the private universities even the University of Bahrain.

TABLE I
SELECTED CHARACTERISTIC OF THE SAMPLE

University Name	%	Field of study	%
University of Bahrain	63%	Information Technology	38%
		Business	52%
Bahrain Polytechnic	0%	Laws	2%
Ahlia University	17%	Engineering	1%
University College of Bahrain	8%	Art	1%
Arab Open University	10%	Science	4%
Others	1%	Education	0%

TABLE II
LEARNING METHODS ADOPTED BY THE UNIVERSITIES

	Yes	No	
Using computer for learning purposes by students at the university	97%	3%	
Are you familiar with collaborative learning	90%	10%	
Are you familiar with online collaborative learning	87.6%	12.4%	
	FTFCL	OCL	Both
Using collaborative learning by students at the university	38%	22%	40%
	Traditional	Online	Both
Adopted teaching methods by the university	19.5%	5.3%	74.5%
Preferred teaching methods by the students	35%	17%	47.6%

Results on the current situation regarding the learning methods adopted by the universities as well as the OCL are presented in Table II, Table III, Table IV and Table V. Results in Table II indicate that 97% of the participants are using computer for learning purposes. The awareness toward the collaborative learning and OCL are very clear as more than 87% of the students are familiar with these two concepts.

TABLE III
PERIOD AND SUBJECTS OF OCL

Period of using Online Collaborative Learning	%	Subjects where OCL is used	%
Less than one year	16%	Science	11%
1-2 years	26%	Mathematics	10%
2-4 years	35%	Languages	32%
4-6 years	15%	Arts	6%
6-8 years	5%	IT	59%
More than 8 years	3%	Others	20%

Moreover, the results show that 100% of the students are using collaborative learning and that they are mostly using both FTFCL and OCL method (40%). It also revealed that most of the universities are adopting both traditional and online method for teaching (74.5%) as it is preferred by most of the students (35%). However, only 5.3 % of the participated universities are based just on online method for learning. It also revealed that more than 70% of the universities have adopted OCL before one to four years and that OCL has been adopted for teaching IT (59%) and Language (32%) courses but not for teaching Arts (6%) as shown in Table III.

TABLE IV
ADVANTAGES AND DISADVANTAGES OF OCL

Advantages of OCL	%
It is convenient in time and place	59%
Interpersonal skills development	29%
Actively involve students in learning	38%
More opportunity for personal feedback	42%
Enhance critical thinking	41%
Details of the discussion remain. One can backtrack and reread a message	34%
Freedom to express opinions and comment on other's remarks	59%
Disadvantages of OCL	%
There is no problem faced with OCL	15%
Less commitment to the group	48%
Less communication between members of the group	40%
Took away the features of conversation (e.g. immediacy of response, interactivity)	28%
It is possible to decide on the discussion before completion of the task	33%
Some students relied on others to post (not all students participate)	52%
Not possible to read face-to-face nuances such as body language	43%

Table IV presents students' perceived advantages of the OCL. The results show that almost 60% of the participants believe that OCL is more convenient in time and place and students can have the freedom to express their opinions and comments on other's remarks. However around half of the participant believe that with OCL students may rely on others to continue their work i.e. not all students will participate (52%) and student with OCL can have less commitment to the group (48%).

Finally, Table V demonstrates that Google document (55%) and SharePoint (25%) are the most adopted tools for the OCL in the universities.

TABLE V
TOOLS USED IN THE OCL

Tools used for OCL	%
Google document	55%
Wiki	8%
SharePoint	9%
Blogs	3%
SharePoint	25%

B. Model Measurement Assessment

The strength of the measurement model is determined by its reliability and validity. Cronbach' alpha was used to assess the reliability value of each dimension. All the reliability values of the current research measurements considered to be in the acceptable range. Convergent validity was assessed by the examination of composite reliability and Average Variance Extracted (AVE). The data indicates that the measures are robust in term of their internal consistency reliability. The composite reliabilities of the different measures ranged from 0.731 to 0.809 which exceed the recommended threshold value of 0.7 for each construct. AVE values were all above the recommended range (0.50) [46], thereby establishing convergent validity for each construct. Moreover, to assess the convergent validity confirmatory factor analysis with Varimax rotation was conducted to assess the underlying structure for the items of each research construct. The loading of each factor should be greater than or equal to 0.5.

C. Hypotheses testing

To test the research model, regression analyses were conducted. The first regression analysis was performed to test the relationships between perceived readiness, collaborative intention or tendency, access to technology, time constraint, and guidance and support and OCL as shown Table VII. The results show that perceive readiness ($\beta=0.470$, $t=6.664$), collaborative intention or tendency ($\beta=0.135$, $t=2.074$), access to technology ($\beta=0.139$, $t=2.661$) and guidance and support ($\beta=0.195$, $t=3.349$) have a positive effect on OCL, while time constraint has shown no impact on OCL ($\beta=0.041$, $t=0.860$).

TABLE VI
EXPLANATION OF VARIANCE

Factors	R ²
Perceived readiness	
Collaborative intention or tendency	
Access to technology	.695
Time constraint	
Guidance and support	
Effect of OCL on student achievement	.798

TABLE VII
MODEL TESTING RESULTS

Hypotheses	B	t	Status
H1: The perceived readiness of students has a positive impact on OCL.	0.470	6.664	Accepted
H2: Collaboration intention or tendency by students has a positive impact on OCL.	0.135	2.074	Accepted
H3: Access to technology has a positive impact on OCL.	0.139	2.661	Accepted
H4: Time constraint has a negative impact on OCL.	0.041	0.856	Rejected
H5: Guidance and support has a positive impact on OCL.	0.195	3.349	Accepted
H6: OCL has a positive effect on student's achievement.	0.894	30.114	Accepted

The total variance explained of the adoption of OCL is around 70%. Thus, around 70% of the variance on OCL is caused by perceived readiness, collaborative intention or tendency, access to technology, and guidance and support as shown in Table VI. However, there are surely other factors to explain other reasons affecting the adoption of OCL in the universities at Kingdom of Bahrain.

The other regression analysis was conducted to test the relationships between OCL and students' achievement as shown in Table VII. The results demonstrated that the OCL has a positive effect on the students' achievement ($\beta=0.894$, $t=30.114$). The results moreover, reveal that 79.8% of the variance in the students' achievement is caused by the adoption of OCL.

II. DISCUSSION AND CONCLUSION

The current research was conducted to achieve two main objectives. The first objective was to investigate the current situation regarding the adoption of collaborative learning and OCL at the Kingdom of Bahrain. The second main objective was to investigate the impact of some factors affecting including perceived readiness, collaborative intention or tendency, access to technology, time constraint, and guidance and support on the adoption of OCL in the universities at the Kingdom of Bahrain as well as to examine the effect of OCL in enhancing student's achievement.

The results provide a great indication about the adoption of collaborative learning and OCL at the Kingdom of Bahrain. Among the important points highlighted are that most of the students are familiar with the concept of collaborative learning and OCL. The results also indicated that around 70% of the students are involved in a collaborative learning. However, most of them are preferred to use the FTFCL method of collaboration. The results indicate that the students at Kingdom of Bahrain are willing to work in a group as a way to share their knowledge and experiences. Therefore, most of the universities are offering both online and traditional methods for their learning and teaching process. Moreover, and as a way to enhance the effectiveness of the learning, they are adopting both FTFCL and OCL. Regardless of the method of collaboration preferred by the students, the universities at Kingdom of Bahrain are encouraging the students to

experience new methods of learning in order to enhance their learning achievement. However, the results show that OCL is adopted mostly in teaching IT and language courses. The results indicate that OCL can be adopted mostly for the attractive courses but not for the purely theoretical courses such as art or management. On the other hand, Google Docs has been identified to be the most adopted tools for the OCL. Google Doc can provide a simple and direct OCL tool which satisfied the students' needs as it required no training or experience comparing to some other tools like WebCT and blackboard. Other educational technologies used to support the collaboration learning are blackboard, wiki, online media, blog, WebCT and Skype. Despite the enormous number of tools available for OCL, the IT infrastructure and the policies at the universities at Kingdom of Bahrain promote students to use specific tool as the official collaboration tool. For example, at University of Bahrain, students can officially collaborate with other students and academic staff by using Blackboard. Finally, the results provide some of the student perception on the advantages of the OCL. Most of the students believe that by involving in OCL, they feel more freedom and comfortable in expressing their opinions and comments on other's remarks. OCL moreover, can provide more opportunity for personal feedback and critical thinking. Nevertheless, OCL can impact the contribution of the students as some students may rely on the others in accomplishing their tasks and have less commitment to the group which could impact the communication between members of the group.

Results on the research model and hypotheses show that perceived readiness is the main factor that has the most significant impact on adopting OCL in the universities at the Kingdom of Bahrain, followed by guidance and support, and access to technology. If the students are ready to learn new things and have the motivation to improve their learning process by adopting the emergent technologies, then they will be key factors in adopting an effective OCL. Thus, the students' perceived readiness has a positive impact on adopting OCL [10, 31]. In addition to the students' readiness to involve in OCL they should have the intention for collaboration and work in groups. The results show that if the students are willing to collaborate with their colleagues from the same university or other universities; then this will have a positive impact on the OCL. Thus, the student's intention for collaboration can be considered as an enabler for adopting OCL [33, 47]. Moreover, the insufficient access to technology in universities will limit the student's involvement in collaborative work. Results show that access to technology has a significant effect on OCL [10, 34, 35]. Koo [10] stated that access to technology in schools is the key issue that must be considered before implementing OCL. Furthermore, OCL becomes more effective as a learning method when students receive an adequate guidance and training courses to get the full idea behind OCL. Thus, enables them to participate more effectively in OCL to enhance their achievement. At University of Bahrain every semester number of workshops is offered on using Blackboard and WebCT for both students and academic staff. OCL can be more successfully if teachers and

students gain guidance and support from school's principle or management [10, 43]. On the other hand, the research findings demonstrate that time constraint does not have significant effect on OCL. This result was not supported by other studies as most of them indicated that time constraint has a negative effect on OCL [10, 37]. Getting such results can be attributed to many reasons. One reason to get such results is that most of students are collaborated with other students from the same country or from very close countries such as the Arabian Gulf and the Arab countries. Collaboration within such countries makes no difference in the time. Therefore, time zones or time required for active participation will be no more barriers for them. In addition, peering in mind that Blackboard and Web CT are the most adopted tools for OCL in many universities at Kingdom of Bahrain, students or instructors will not going to consume too much time in adopting such approach. These tools are well established in the universities. However, there is still a need to investigate this factor more in future research. Finally, the results of the research show that OCL has a great effect on student's achievement. Most studies indicated that OCL has increased the achievement and positive attitude of both teachers and students [11, 19]. OCL is believed to enhance the learning process and can provide benefits for both students and teachers. OCL can change the role of the teacher from information sources to learning coaches or guides.

The findings of the current research provide many recommendations to be considered by the universities who have already adopted OCL or planning to do so. Any educational institute should provide more access to technology (such as computers and internet) by increasing the number of computers with internet access, and facilitate the mechanism of implementing and using these technologies. Universities should also provide a continuous support for OCL to enhance its performance. They should develop a program for guidance prior to the implementing of OCL and include all participants in this program. On top of that, universities management should allocate time for students to be formally involved in OCL-related activities thus will increase their readiness for OCL.

The current study is one of the few researches that have attempted to examine the OCL at the Kingdom of Bahrain or the Arab countries. Further research can be conducted to identify a more comprehensive model to examine the impact of more factors especially the social factors such the culture and social pressure. Experimental study can also be conducted in school and university level to identify the most appropriate tools for adopting OCL in such countries.

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