

## Collaborative learning, using Facebook’s page and Groups

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### Abstract

This study designed, developed and evaluated an ICT artifact, including Face Book’s page and groups based on Cruz and Carvalho framework for practicing collaborative learning. All features utilized, be evaluated by observation, Facebook metrics and interviews based on activities and interactions amongst students and all users on Facebook with design science research methodology (DSRM). This study shows students and learners could practice collaborative learning and regulate their knowledge in this platform and enhance their performance and self–regulation.

**Keywords:** Collaborative learning, Cruz and Carvalho framework, Design science research methodology (DSRM), performance and self–regulation.

### I. INTRODUCTION

The rapid development of technology and integration of this modern technology into the learning process leads to educational evaluation and enhancement. It is the theme of the current educational reform to foster, Collaborative abilities among students, Contemporary information communication technology brings out web-based communication techniques, and the traditional collaborative approach is adopting web-based techniques. Instructors and students could collaborate, Communicate, share knowledge, and help each other to gain a better understanding of the subjects by using E-learning artifact. It helps students to be more active, motivate and engaged in the learning process. Web-based collaborative learning could help students, practice self regulation, lifelong learning, and enhance their awareness and critical thinking, morality and professional ethics.

### II. Cruz and Carvalho Theoretical Framework For Web 2.0 Integration

Cruz and Carvalho theoretical framework for Web 2.0 integration is used in this study that involves Constructivist, engagement and motivation theory (Fig.1). This theoretical framework explains how information, communication and collaboration tools can be applied in the learning process. This framework indicates that: “students with web –based collaboration could achieve learning goals of constructivist theory”. Cruz and Carvalho asserted that in a social constructivist environment, learners with collaboration can develop critical thinking, negotiation, interpersonal and cooperative skills by experiencing the perspectives of other group members and constructing their own knowledge [1]. Constructivist has been described as a student-centered learning paradigm [2] [3]. Instructional models based on the social constructivist perspective stress the need for collaboration among learners and with practitioners in the

society. A society’s practical knowledge is situated in relations among practitioners, their practice, and the social organization and political economy of communities of practice. For this reason, learning should involve such knowledge and practice [4] [5]. Social constructivist approaches can include reciprocal teaching, peer collaboration, cognitive apprenticeships, problem-based instruction, web quests, anchored instruction and other methods that involve learning with others [6].

[7] considered instruction based on constructivism theory in three parts: condition of instruction, methods of instruction and learning goals. Collaborative learning is one of these instructional methods.

According to [8] the effective integration of technology and ICT tools into the learning process could enhance learning and teaching process. Face Book as a Web 2.0 and ICT tool has various characteristics, which fit well with Social Constructivist learning [9].

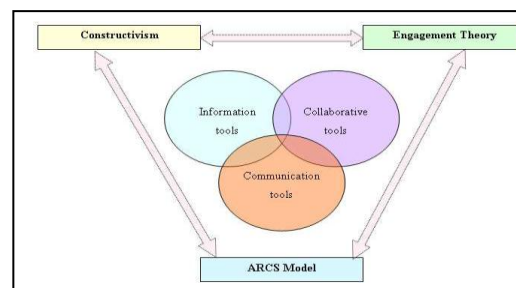


Figure1: Crus and Carvalho( 2005)model for Integration of ICT into Collaborative Learning

### III. COLLABORATION AND INTEGRATION OF ICT INTO COLLABORATIVE LEARNING

Collaborative learning is based on the idea that learning is a naturally social act in which the participants talk among themselves. It is through the talk that learning occurs [10]. Learning is an active process that requires the

learners to process and synthesize information. They benefit when exposed to diverse viewpoints and their learning flourishes in a social environment. Learners are required to articulate and defend their ideas. They could actively engage in this platform and converse with peers, present and defend ideas and exchange diverse beliefs [11]. Collaboration has numerous potential benefits of learning. It enables group members to help and learn from one another, it helps to promote students' social relationships; it may also develop students' communication and critical thinking skills.

Contemporary information communication technology brings out web-based communication techniques, and the traditional collaborative approach is adopting web-based techniques. Instructors and students could collaborate, communicate, share knowledge, and help each other to gain a better understanding of the subjects by using E-learning artifacts. Social networking sites are platforms that facilitate information sharing, interaction and collaboration among their users. Facebook(www.facebook.com) is probably the most popular example of social networks or Web 2.0. This popularity of the Social Networking Technology has paid more attention from both educators and practitioners worldwide. Such technologies have been used to help students network, collaborate, and share resources with one another for educational purposes. Llorens, Capdeferro showed, Facebook has great potential for collaborative learning in ICT platform. Two types of collaboration can be implemented on the Facebook: inside collaboration and outside collaboration. Inside collaboration provides a supportive environment for asking questions, descriptive directions, suggesting or contributing resources, and working on joint projects with class members and team working. Outside collaboration provides the integration of external personnel and resources, such as speakers, guest lecturers, and Web sites, for course activities. The comment area of Facebook that is under each post is considered for collaboration and debate [12].

Collaboration can be used in e-learning to create an authentic learning environment. Collaboration needs to involve discussion and social negotiation thereby opening up one's constructs to alternative viewpoints [13]. Debates on e-learning could be designed to exchange ideas. Graphics, photographs, audio and video can be integrated into discussions and debates. Learners can write their own opinions and learn about others. Distance teachers should seek evidence of collaborative skills in their learners by asking them to share information and participate in interpersonal dialog and respond to the direct interchange of information. Collaboration and debates on controversial issues can help learners engage in a meaningful learning [14].

Facebook provides Informal, a non-hierarchical and more democratic learning environment. Students are comfortable with Facebook and have direct communication with instructors. Facebook promotes collaboration via collective intelligence, offering a searchable resource and strengthens classmate connections. It encourages passion through ownership, teaches personal and social responsibility. Facebook encourages shy students to participate and keeps students engaged inside and outside

of class. By using a social media platform such as Facebook Group, certain evidence can be automatically recorded and this evidence enables the teacher to monitor students' progress and their individual contributions, the recorded evidence may allow the teacher to fairly assess the students' contributions. According to [15], Collaboration as a method of instruction in constructivist theory, is working together towards a learning goal. The learners are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful. Harasim believes that integration of ICT into collaborative learning could improve this method of instruction [16].

A. Facebook-based Collaborative learning based on Ataie, Shah and Mior Nazri model (Fig.2)

Collaboration needs to involve discussion and social negotiation thereby opening up one's constructs to alternative viewpoints [7]. Integration of Web 2.0 into collaborative learning and negotiation could improve this method of instruction. This paper presents a Facebook-based Collaborative learning based on Crus & Carvalho framework and, [18] model for collaborative learning. This model is based on Quran and constructivist theory and shows communication and collaboration needs to involve discussion and social negotiation. The procedure in this collaborative learning model consists of twelve steps:

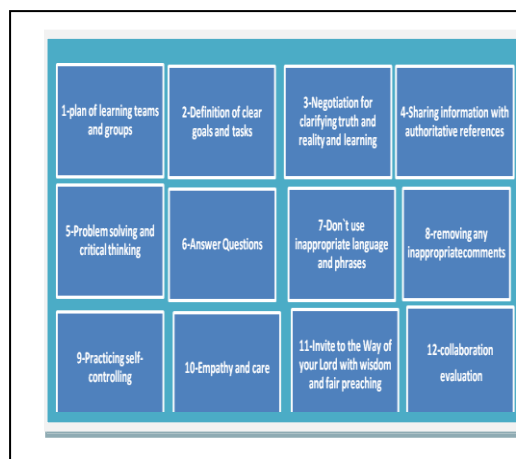


Figure 2. Ataie, Shah and Mior Nazri (2014) Facebook-based Collaborative learning model

IV. Design Science Research Methodology (DSRM)

According Wang and Hannafin, Design based research (DBR) is systematic but flexible methodology aimed to improve practices and provides IS researchers and educators with the guidelines to create and evaluate the effectiveness of IT artifacts in solving identified problems. Design-based research stresses collaboration among participants and researchers and it is also characterized by iterative cycles of design [20]. In this study DSRM with two rounds of design and evaluate, was chosen by the researcher.

A. Design Objectives of the Solution

The first round of this study began identifying the problematic issues and justifying the value of the solutions. Nowadays E-learning has developed in Education system and learning process, to build an information network that encourages collaborative learning. As a result of

technological and global factors, the complexity of delivering successful e-learning courses and products is an increasing challenge for subject matter experts and instructional designers. E-learning has become blended learning environments, comprised of synchronous and asynchronous modes of delivery, multiple media forms, and global and localized audiences to meet the demands and flexibility it affords. Successful E-learning is a combination of multiple media types, technologies, communication and collaborative learning method of instruction. E-learners have become multimodal learners, with the ability to adapt to multiple media forms, environment types, and tools. [23] [24].

Researching about collaborative learning through Facebook page and groups continued with a semi-structured interview that was conducted with three undergraduate students in IIUM who was members of the this study developing Facebook page and groups. The interview was face-to-face about 20minutes in IIUM by the researcher about the collaborative learning using this artifact. Students in interviews mentioned that in the discussion and collaborative learning on Facebook they have some problems. Sometimes users share information without reliable resources and sometimes they don't engage in collaboration appropriately. They unanimously agree that, they don't have enough time in class to collaborate and discuss about different subjects in courses. They like to continue their discussion and collaboration after class, using Facebook's facilities, but they don't have enough experience and knowledge about collaboration via Facebook. One of interviewee said: "Very few teachers use technology for collaborative learning. Youth need new methods of teaching and learning. Learning only inside the class is boring..."

The researcher asked the other student about using Facebook for collaborative learning. The interviewee explained that he has created a Facebook account, but he does not have enough experience in using Facebook for collaboration or discussion and learning. He was enthusiastic to know that how Facebook could be used for collaboration.

One of interviewee believed that face to face interaction with teachers in class has an especial impact on his feeling. He said: "I like face to face class. I like to see how my teacher is angry, how is his feeling." [25] in their study, according IIUM students' interview and based on literatures concluded that Facebook cannot totally replace with the face to face discussion and real-life collaboration. Students asserted that for better understanding they need to see their teachers' body language and facial expression. This finding is substantiated by [26] that Facebook usage can only enhance and support the conventional face to face group discussion but cannot replace with it. In addition Students' ordinary written expression might not be rich enough to convey the message they are trying to pass across.

One of IIUM Islamic and Oriental Arts scholars in interview with this study asserted that as different major information technologies were born for different practical use we still believe that these technologies cannot replace with traditional face to face education. He believes that writing in Facebook or using sophisticated equipments

could not replace with the ordinary written expression and skilled hands of calligraphers as calligraphy in Islamic tradition is not only a vehicle for conveying information but also it has been an act of faith and a means of celebrating God's glory as well as a mode of self expression. Therefore, so long as the faith, the human motions and the alphabet live the art of calligraphy may also continue.

The second step of this methodology is finding solutions and definition of objectives. Based on Cruz and Carvalho framework, The integration of ICT into teaching and learning through ICT enabled teaching tools, using pedagogic strategies to integrate activities occurring both inside and outside of the classroom and enculturation collaborative learning based on discussion and working in groups to gain common goal could improve the condition and methods of instruction to achieve learning goals: self-regulation, critical thinking, and performance of the student. This could generate motivated, engaged, aware students.

Because of Face Book's potential for education and collaborative learning, the researchers and educators should help students to use Facebook and ICT tools for education and learning [27][28]. Students must learn how to use it. Mali and Hassan indicated that teaching strategies need to be incorporated with social network from two way communication and collaborative work in order students to believe in the system and making use of it [29].

This study developing, Facebook –Based collaborative learning tool could promote teamwork and essential skills, self-regulation and engagement of students and prepare them for the future opportunities in collaboration and lifelong learning.

We will incorporate pedagogical strategies into the developing artifact, and integrate activities occurring both inside and outside of the classroom for enhancing motivation of students to use this artifact. This artifact has great potential to increase computer self efficacy in IIUM and this study is a real example or model of how the Facebook as an ICT tool could be integrated into the teaching process. This helps students to learn how to use Facebook for learning purpose.

Design Science Research Methodology has great potential for practice of knowledge. This could enhance the performance of students and would able them to face the challenges of their lives in the border-less world and live as vicegerent of God.

This artifact could provide interaction and collaboration service to educators and learners within the hosting university.

This study contains interviews with two Distance learning students in IIUM. They believed that social interaction could improve the learning process. They are aware of Facebook potential for collaboration and they integrated Facebook into Learning Management system for using chat facilities on Facebook. One of the interviewees said:

"May be we can have Facebook where a student's name will appear in the section so we can know who is inside the system. So we can contact them and Interact with them."

They believed that close relationship and sharing information with lecturer and classmates could enhance learning competence. One of them argued that:

“Social interaction and, making video, audio, clips, and so on, have great impact on learning process and motivation. We could be creative and independent. This lead to deep-understanding.”

This study analyzed interviews and previous studies and the researcher came up with two themes:

- 1) Learning goals: self-regulation and performance
- 2) Facebook based collaborative learning

Based on this study framework, using information tools, communication tools, and collaboration tools in an E - learning environment provide good condition for achieving learning goals. The purpose of this study is to analyze ICT artifact includes Facebook page and groups to build a successful collaborative learning environment. This study wants to present Facebook page and groups to collaborative learning and improve performance of learners. Design science research methodology provides good opportunity for Students using developing artifact practice collaboration and discussion in group and practice self-regulation. The objectives of this study are:

1. To employ various pedagogic strategies by using Facebook to build a successful collaborative learning environment based on constructivist theory.
2. To evaluate Facebook as a learning artifact under the guideline of DSRM, and propose innovative pedagogies for current and future instructors.

*B. Design, Development, Demonstration and Evaluation (Round 1)*

The first round of design-evaluate began by researcher, design, development and demonstration of a Facebook Page and groups as Web 2.0 platform for collaborative learning. This artifact includes five features of the Facebook

1- Face book's page is for sharing information and connects with learners. In this study the page was designed based on constructivist theory [30] in Cruz and Carvalho frame work, and different pedagogic strategies were used to foster learning competence of students. Students and learners could research and collaborate and construct their own knowledge and improve their awareness. The content Prepare them to research and study in problem solving ambiguous situations that enhance their critical thinking. Researcher as Page creator can manage admin roles, send messages and create posts, ads, and view page insights. (Fig 3)



Fig 3 Facebook page IIUM study circle

2) The Facebook group: The learners could collaborate and negotiate about different subjects, by posting information, videos, pictures etc. This study created an open group that allows students and people all over the world to join it and collaborate with each other. And also we created a secret group for our class. The students in “Research Methodology “and “Islamic world view and IT “were added to these groups. The learning process was mediated by the researcher as learning facilitator by posting information, news updates, weekly assignments, teaching thoughts, and class materials in secret group.( Fig 4)

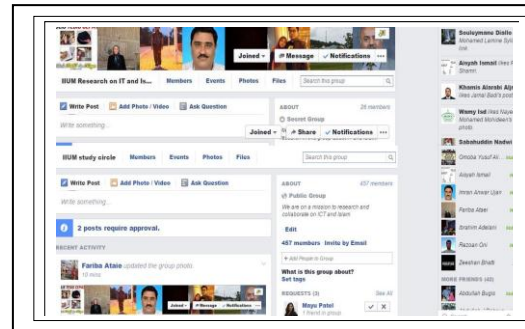


Fig 4: Facebook groups: IIUM Research on IT & Islam(secret group) and , IIUM study circle (public group)

2-comment sections: All subgroup members have a lively conversation and interactive communication in comment sections. Students and learners could collaborate based on this study developing model. When students discuss about subject of posts and give for or against point of view, this lead to better understanding of concepts. . (Fig 5)



Figure 14 :Facebook comment area

Fig 5: Facebook comment area

3-photos: These, allow all members to have the ability to participate in the learning process, and share with other members their real world experience. (Fig 6)



Fig 6: pictures

4-videos: Student could construct their thoughts by creating videos carefully. (Fig 7)

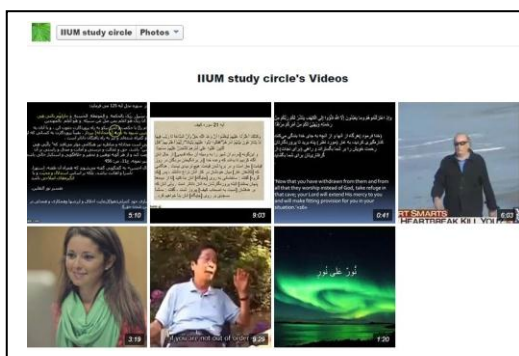


Fig 7: videos

5- Chat on Facebook, is really quite easy. All you need to chat is a Facebook account, nothing to download or install. When you are logged into Facebook you're automatically logged into Facebook Chat so you can chat. At the bottom of every page you'll see your Facebook Chat tools. The first of them is the online friend's tool. This simply tells you which of your Facebook friends are online right now. The next is notifications which will let you know if you have any new notifications right from the tool. The third is the actual chat tool. Students could have a synchronous interaction using Facebook chat that gives students a great opportunity to actively engage in the learning process and construct their own knowledge.(Fig 8)

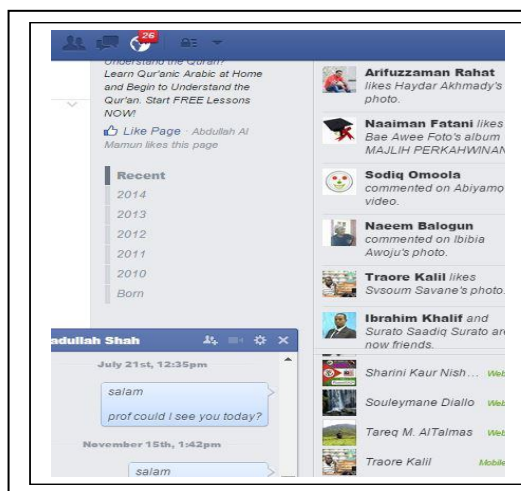


Fig 8: Facebook Chat

The researcher after evaluation of student engagement and by the Facebook page insight that includes some metrics and analysis for helping to understand how people are engaging with Page, found that majority of students only like the page and posts, but do not use this artifact for collaborative learning and discussion. They don't engage in the comment area of this page.

C. Design, Development, Demonstration and Evaluation (Round 2)

This study overcomes engagement problems in the second round with creating and designing Facebook groups. The face Books' group is for collaboration and team working. The researcher plays the role of the learning facilitators. Her main role is to lead discussions, and encourage participations to collaboration and working together in groups of Facebook. She used the posts of Facebook page and shared in the different groups of Facebook. After evaluation by Facebook "page insight" and interviews the results show an improvement of students' engagement and collaborative learning. Students could collaborate with each other and lecturer using developing artifact all the times.

V. Communication and Conclusion

The rapid development of technology and integration of this modern technology into the learning process led to educational evaluation and enhancement. Since the purpose of the education system is to prepare students for living in this world in the best way rather than students with minds full of information using such technologies for education is necessary. Instructors and students could collaborate, Communicate, share knowledge, and help each other to gain a better understanding of the subjects by using E-learning artifact. Some researches show that collaborative learning and implementation of this method of instruction is the main goal of education system. Previous researches show a serious need for enhancement and evaluation of this method of instruction. This study may safely recommend that, the education system should look into collaborative learning problems and improve the situation with integration of technology in collaborative learning process. This study developing artifact could help students collaborate effectively, practice self regulation, and enhance their awareness and critical thinking. It helps students to be more active, motivate and engaged in learning process.

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