

A Review on User Experiences of Collaborative Online Learning

Punsisi Nayanaprabha Somaratne*

University of Colombo School of Computing, No 35, Reid Avenue, Colombo 7, 00700, Sri Lanka

E-mail: pns@ucsc.cmb.ac.lk

Abstract

Online learning has become involved in assisting learners to conduct their academic work irrespective of the number of participants and the distance. Therefore the institutions try to provide the learning experience for the online learners which are similar to classroom learning. In such scenario both individual and group based tasks are given for the online learners where collaborative learning has become a part of it to promote the team building and group involvements of the learners. Since the teacher and learner do not interact with each other face to face as the traditional learning, it is important to identify whether the expected learning outcomes are achieved through collaborative learning. Otherwise the use of collaborative learning cannot be achieved by its users. In order to identify the effectiveness collaborative online learning, the user experiences can be used. The study focused on reviewing the literature to explore the experiences of users in using collaborative learning.

Keywords: collaborative learning; online learning; distance learning; user experience

1. Introduction

Usage of online learning has been increased in Higher Education sector to increase the participation, social diversity and compete with other institutes [1]. The courses are delivered through Virtual learning Environment while emphasizing on the learning outcomes. The learning outcomes are achieved through access to resources and interaction among students [1]. Through online learning knowledge can be disseminated among large number of participants but now collaborative online learning has become evolving since it is a new learning paradigm [2] [3]. Collaborative learning has become important in order to enhance and develop the teamwork capabilities and to create positive contribution to learning of the students [4].

* Corresponding author.

E-mail address: pns@ucsc.cmb.ac.lk.

It develops the learners by providing experience in real life to work as a group and use their meta cognitive skills [5]. Therefore, the learners should be given both time and opportunity to conduct their activities. Even though, the collaborative learning has advantages, it is a question that these benefits are achieved as expected under online learning [4]. According to the example of a journal article in [4], the interaction between students is handled through media without face-to-face discussions. Therefore, it can lead to a frustration for the students [4] [6] where they are interested to work with online groups. There are different interactions in online learning which are shown in Figure 1.

1.1. Collaborative Learning

Collaborative learning is that students work in groups to achieve a given learning task. As the explained example of a journal article in [4], when a task is given, members distribute it among them and work individually and independently and assemble them together. Therefore, discussion among the group members is expected as effective collaborative learning [4]. Figure 1 shows levels of interactions that can be occurred in online learning [5].

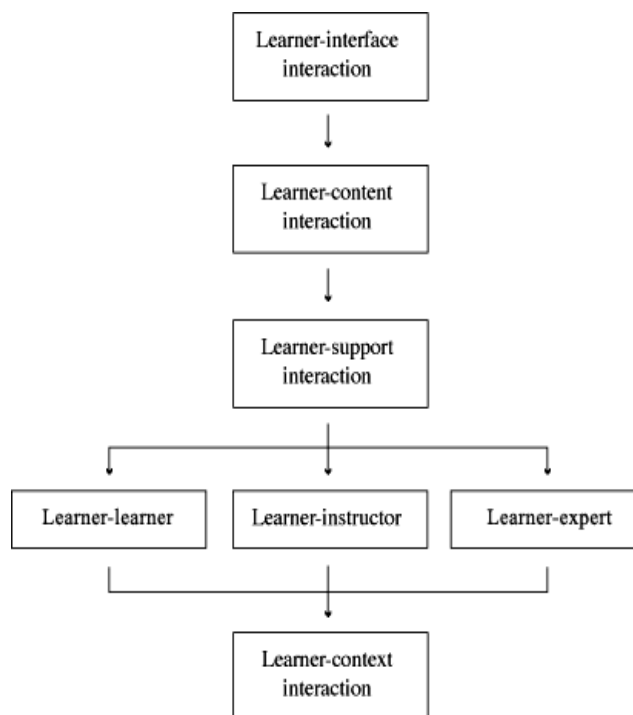


Figure 1: Levels of Interaction

According to the reference [5], the top level provides the interaction with interface. That is the learners access the contents or resource materials through computers where the computer acts as the interface. The second level interaction is with the online materials and the learners navigate through the materials to get the learning resources. The next level provides interaction with different parties to communicate and get support. This interaction can be with other learners, instructors and subject experts. Finally, learner-context interaction

permits learner to apply what they have learnt and allows the learners to develop knowledge. Moreover, “reciprocal teaching” [7] directs for positive learning for students where they can share their ideas and understanding about the tasks among the members [4]. Therefore, collaborative learning assists the students to work together and improve the team building skills [8]. Further, the example of a journal article in [8] elaborated that students can explore ideas together and also the ideas can be clarified through group discussions and obtain feedback from other group members [9]. In addition, he mentioned that students take responsibilities collectively and plan the given tasks accordingly which support them in their employment also. According to the example of journal article in [10], collaborative online learning has different characteristics. In collaborative learning the interaction among the members are frequent therefore it is an active learning. The other characteristic is that the teacher plays role of a facilitator. Unlike the traditional class, the teachers are not teaching the students from the scratch. They give opportunities for the students explore the knowledge and when the guidance required then the teacher facilitates. Since the work is done through interactions the teaching and learning is taken place with shared experiences. Next characteristic is that the learners involve in activities that are performed in small groups. Then the learners must be responsible for their learning as well as they should be capable to think on their own. Finally, the Social and team building skills are established with the shared knowledge.

The technology which can be used in supporting collaborative online learning is known as collaboration tools. Different types of tools have been developed to use in collaborative learning. Examples for some of the collaboration tools are MindMeister, Google Docs, BigMarker, SlideRocket, Skype etc. MindMeister allows the members of the group to work together by planning and brainstorming the work together. Google Docs provide a flexible working environment for the group to manage the work and communicate the work. BigMaker facilitates in creating the environment for the group to discuss the given work in real time. Similarly, they can use live chat, document sharing and online conferencing also. Creating online presentations with the help of the group members are carried out through SlideRocket tool. It is very interactive therefore both learners and teachers can discuss. Skype is a well-known video conferencing tool which facilitates the group members to discuss the given work. Furthermore, the teachers can meet the group to evaluate the progress and also to provide feedbacks.

1.2. Theories on Collaborative Learning

The members of the group communicate together and organize their work. Therefore, all the members do not need to hold all the required knowledge at the same time [11]. This leads to the theory of social interdependence [12]. Based on the social interdependence theory described in the example of a journal article in [12], group members need to depend on each other when they are involved in a learning task for the effective performance of the group. Furthermore, “each individual group member is responsible for the work of the group and the group as a whole is responsible for the learning of each individual group member”. Therefore, members of the group are connected to each other and their success depends on each other [11]. According to an example of a journal article in [4], “the behaviour of the social interdependence theory includes giving and receiving help, exchanging resources and information, giving and receiving feedback, challenging and encouraging each other and jointly reflects on progress and process”.

Communication is important in collaborative learning where “shared memory systems” are used and it had been identified under Wegner’s transactive memory theory [11]. According to the theory the group members can aid the other members as “external memory aids” [11]. In the example of journal article in [13] stated that transactive memory system facilitates the members of the group to make use of the knowledge they have efficiently. The other theory developed based on the communication is Dialogical theory. This theory explains that members of the group exchange ideas and negotiate through dialogues [14]. Therefore, both parties are interested regarding the opinions of each other. Both parties try to develop a mutual understanding to achieve the common goal.

A learner may not possess all the memory required to complete a task. Therefore the learner requires additional support to complete the task. This can be achieved through grouping learners where the group members support each other to complete the task [15]. Not only group members but also the teachers can support the learner to attain the required skill or knowledge. This creates the environment for the learners to complete a task within a group than on their own with the assistance of the teacher and peers [15]. This theory is named as Lev Vygotsky’s Zone Proximal Development theory.

1.3. Collaborative Learning Through Online Environments

The collaborative learning develops the interaction with teachers and with learners. The teachers conduct a role of guiding the learners with the course materials. Therefore, teachers can conduct seminars [16]. These seminars are facilitated through Communication and Information Technology and also to interact between teacher and learner “one to one interactions” like email exchanges can be used [4]. The learners as group members can discuss the work online. As explained by Moore in 1993 regarding effective learner to learner interactions “symposia, debates, role plays, case studies, discussion groups, brainstorming and project groups” [4]. Those activities were performed through email, chat, computer conferencing and online database information access. Moreover, these interactions can be categorized into two as “synchronous interactions” and “asynchronous interactions” [4]. Video conferencing can be denoted as synchronous interaction where video, audio and document sharing [4]. Asynchronous interactions are email, bulletin boards and forums of conversations. The Learning Management Systems also contribute in facilitating the collaborative online learning which allows the interaction with learning resource materials.

2. User experiences on Collaborative online learning

Based on the findings of the research done in past, the users had both negative and positive experiences. The interaction between learners is challenging than face to face discussions since the frequent access to all the learners are not easy [17]. On the other hand, the computer aided communication facilitates distance learning by creating both site and time independent interaction among both learners and as well as teachers [17]. Therefore, through the networked learning environments the distance learners are able to communicate each other online. The experiences the users of the collaborative online learning experienced can be stated separately as follows.

2.1. Positive Experiences of the Users

The learners become independent, think critically and knowledge effectiveness [17]. Moreover, in the example of a journal article in [17], the learners commented that online collaboration provided “psychological support”, feeling of attachment among members and low drop-out rates. Learners had positive experiences in participating online groups where they enjoyed the learning and also they shared the knowledge and distributed the work among them to achieve a common goal [1].

The learners explained that the discussions do not possess any barriers in physical separation. Therefore, they can discuss flexibly and conveniently irrespective of the distance [1]. The learners mentioned that their communication skills were developed through the discussions [1]. Other than the communication skills, the other soft skills like working as a team, negotiation skills, making decisions as a group and manage tasks can be experienced by the learners [18].

Online learning environments provide “connectivism” and it forges the knowledge through collaboration [19]. Therefore, the experience assists the learners in engaging in the “learning communities and social networks” effectively [19]. When the members of the group support each other they are motivated to perform well with a trustworthy and respectful environment [1]. This also enhances the motivation and the participation of the learner in the group tasks.

The computer conferencing which facilitates the collaborative learning provides the ability of reviewing the earlier session later [9]. Therefore, the learners will not miss the discussion contents. The learners have the opportunity of accessing to the "rich learning environment" in collaborative online learning where both interaction and connectedness are provided [20]. Through collaborative online learning, an effective online community connection can be developed [19]. This facilitates the learners to "apply, analyse, synthesis and evaluate information" [20]. Learners commented that they feel confident in discussing in an online environment rather than discussing in a class room since the group is very small [9]. The computer mediated communication supports in tracking the involvement of the members of the group [9]. Since the interactions are reflective, fair assessments can be done accordingly. The learners can publish the problematic and doubtful areas in their group discussion forum then either other group members or teachers can assist the learner to solve it without a time delay.

2.2. Negative Experiences of the Users

However, the expectation of collaborative learning is to interact with each other and achieve the given goal but the learners individually complete their tasks and integrate them and submit without discussing the work together [1]. According to the example of a journal article in [17], some learners participate in the discussions only if those discussions are associated with their assignments and if only the discussions are compulsory in the course. As stated in the reference [2] when there can be members who complete the given task completely without allowing others to work and the free riders also depend on it without contributing to the work. Collaborative learning is mediated with communication and information technology. Therefore, if the learners are incapable in using the computers and related technologies then frustration can be created [4].

The success of the online groups depends on the active participation. However, the equal participation in completing the task cannot be experienced when working as online groups which lead to frustration among some of members of the group [1]. Some of the learners who follow the course full time commented that the part time students' contribution is not sufficient [1]. The work load distribution among members also cause conflicts because members compare the work load and argue that the distribution is uneven [2]. When some of the learners prefer to work in advance while others prefer to work at the very last moment where conflicts can occur and it harms the motivation of the members who perform efficiently and creates conflictive working environment among members [2]. Reference [2] further elaborates that the "free riders" of the group also creates de-motivation to other members.

Even though the communication skills are developed through collaborative learning, learners have hesitant in involve in the discussion since they do not know other members [1]. Therefore, they show their reluctance in arguing or expressing their views and ideas on the task. Furthermore, learners can be frustrated to work with the people they do not know and it leads to "emotional and de-motivation" situations [2]. Similarly, the learners feel frustrated to work with a group which consist with members who are more capable and competent [2]. The members of the group do not develop a hierarchy of their role allocation in the group [1]. According to the reference [1], they only distributed their work among the members but there was no leader assigned to direct, motivate or check the progress of group.

Delay in interactions and feedback can cause negative impression on collaborative online learning [2]. This can happen when members of group do not interact according to the schedule, when teachers do not support the learners on time and also when the required learning resources are not published on time by the education institute. These lead to decline in the progress of the group [1]. Learners believe that it is important to have continuous guidance and feedback from the teacher regarding the progress of the group where the teachers need to encourage learners and guide them with clear instructions [1]. Reference [2] mentioned that the learner's experience situations where the assigned teacher does not interact with them properly or sometime the teacher has never interacted with group. These teachers do not provide proper guidance to the learners in conducting the course work. Sometime the learners found hard to communicate the teachers to get feedback on their work and performance. The learners also commented that the teachers sometimes try to emphasize their ideas and view and dominate the learners in the discussion and this leads to de-motivation among the learners [1]. However, there was an impression on some of learners that the group members' feedbacks and ideas are essential and important than the feedback and information given by the lecturer [1]. Therefore, the learners try to ignore the lecturer comments or not interact with lecturer at all [1].

Learners stated that they face limitations in technology when using discussion boards online [1]. According to the example of journal article in [1], learners commented that they cannot "delete, update, organize and search through the messages" on the discussion boards. If the learners are assigned to collaborative online learning environment without evaluating their readiness to use the system and without providing the required skills then the learning is ineffective [20]. The users commented that they were not introduced to the online collaborative

learning environments systematically. As given in the reference [1], some learners considered collaborative learning as posting messages on discussion boards and view the messages but not tried to use other interactive communication media like video and audio for their interactions [1].

The learners mentioned that the final evaluation of the work is focussed on the final outcome where the individual contribution is not assessed [2]. Therefore they are frustrated that the hard workers as well as free riders are evaluated equally [2]. Reluctance in spending time to discuss the individual work completed and discuss together to organize them is another negative behaviour in collaborative online learning [2].

3. Recommendation

According to the study the learners should be motivated in engaging with the collaborative work. At the beginning it is important to provide the essential training in using the online environment. Thereafter, the expected objectives of the learning should be explained clearly. It is important to provide clear instructions to avoid time delay in clarifying the task. Learners are enthusiastic in collaborative learning when the assessments are involved. Therefore, making the discussions compulsory in collaborative learning is essential. Furthermore, the teacher assigned for the course should monitor the progress and the involvement of the students and also provide feedback on the tasks completed by the groups. The study is limited in exploring the user experiences gained from previous researches. This study can further improved through identifying suitable guidelines for effective collaborative online learning.

4. Conclusion

Through the findings of the review, the collaborative online learning is advantageous in developing students and improving their learning outcomes. The study has elaborated the experiences of users in using collaborative online learning. According to the experiences, the users have experienced both positive and negative impacts in using collaborative online learning. The collaborative online learning is developed to generate different learning outcomes through development of skills of its users. Therefore, it is important to enhance the positive uses of it while reducing the negative effects. The study has shown various negative experiences of the users where they are drawn towards frustration and de-motivation. Since the online learning address distance learning and mass number of learners, it is important to attract the users to it. Therefore the study had elaborated the experiences of the collaborative online users based on the research articles published to improve the quality of collaborative online learning and to provide an effective learning experience for its users.

References

- [1] A.R.D Finegold, & L. Cooke, "Exploring the attitudes, experiences and dynamics of interaction in online groups". *Internet and Higher Education*, vol. 9 ED- 3, pp 201–215, 2006
- [2] Capdeferro N and Romero M, "Are online learners frustrated with collaborative learning experiences?" *The international review of research in open and distributes learning*, Vol 13. ED-2, pp. 26-44, 2012.
- [3] Dirks, J. M., & Smith, R., "*Thinking out of a bowl of spaghetti: Learning to learn in online collaborative groups*", *Online collaborative learning: Theory and practice*, pp. 132-59, 2004

- [4] D.D Curtis and M.J. Lawson, "Exploring collaborative online learning", *JALN*, vol. 5 ED- 1, 2001
- [5] Ally, Mohamed. "Foundations of educational theory for online learning." *Theory and practice of online learning*, Vol 2: pp.15-44, 2004
- [6] Ragoonaden, K., & Bordeleau, P. "Collaborative learning via the Internet". *Educational Technology & Society*, Vol. 3 ED-3, pp. 361–369, 2000
- [7] Palinscar, A. & Brown, A. "Reciprocal teaching of comprehension-fostering and comprehension monitoring activities". *Cognition and Instruction*, Vol 1 ED- 2, pp. 117-175, 1984
- [8] D Boud, Cohen R and Sampson J, (1999), "Peer Learning and Assessment", *Assessment & Evaluation in Higher Education*, vol 24. ED-4, 1999.
- [9] Elizabeth Stacey, "Collaborative Learning in an Online Environment", *Journal of Distance Education*, VOL. 14. ED- 2, pp. 14-33, 1999
- [10] K. Kreijns et al, "Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research", *Computers in Human Behavior*, Vol. 19., pp. 335-353, 2003
- [11] Kirschner F, Paas F, Kirschner P.A and Janssen J, "Differential effects of problem-solving demands on individual and collaborative learning outcomes", *Learning and Instructions*, Vol. 21, pp. 587-599, 2011
- [12] Johnson & Johnson, "Cooperation and the use of technology. In D. H.Jonassen (Ed.)", *Handbook of research for educational communications and technology*. pp.1017-1044, 1996
- [13] Moreland, R. L., & Argote, L. "Transactive memory in dynamic organizations. In R. Peterson & E. Mannix (Eds.)", *Leading and managing people in the dynamic organization*, pp. 135-162, 2003
- [14] Stahl Gerry. "Theories of cognition in collaborative learning." *International handbook of collaborative learning*, pp. 74-90, 2012
- [15] (Lehtinen, Erno. "Computer-supported collaborative learning: An approach to powerful learning environments." *Powerful learning environments: Unravelling basic components and dimensions*, pp. 35-54, 2003
- [16] Thorpe M, "Rethinking learner support: the challenge of collaborative online learning", *Open Learning*, Vol. 17 ED-2, 2002
- [17] Y.Y.H.Fung, "Collaborative online learning: Interaction patterns and limiting factors," *Open Learning*, vol. 19, pp.135-149, 2004
- [18] Macdonald, Janet. "Assessing online collaborative learning: process and product." *Computers & Education*, Vol 40 ED-4, pp. 377-391, 2003
- [19] Siemens George. "Connectivism: A learning theory for the digital age." *International journal of instructional technology and distance learning*, Vol 2 ED-1, pp 3-10, 2005
- [20] Jane E. Brindley and Christine Walti and Lisa M. Blaschke, "Creating Effective Collaborative Learning Groups in an Online Environment", *The International Review of Research in Open and Distributed Learning*, Vol 10 ED- 3, 2009