Guidelines for engaging in Online Collaborative Learning

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Abstract: Collaborative learning has been known for its advantages in promoting holistic learning outcomes in education. The Online Interaction Learning theory is proposed based on research findings is useful to provide some ground for online collaborative learning. This paper reviews some case studies on online collaborative learning (OCL) and identified key observations and findings that frame an “Input-Process-Output” guides for OCL activities in secondary schools. This paper also recommends some issues within the guidelines such as the importance of idea generation guides, which requires further review and investigation.

Keywords: Online collaborative Learning, guidelines, case studies, schools, Malaysia perspectives

1. Introduction

Online collaborative learning can be defined as using Internet, web or telecommunication technologies for collaborative learning. Collaborative learning is an instructional strategy where students work together in small groups towards a common learning goal. With the involvement and interaction between and among students, many learning experiences with multiple perspectives can be acquired. Collaborative learning is believed to be a catalyst for improving teaching and learning in the classroom [1, 2, 3, 4, 5]. For example, Panitz [5] has listed many advantages of collaborative learning in the aspects of academic, social, and psychology learning outcomes; collaborative learning could also be an alternate form of assessment in education. Some examples of the technologies or web applications which can support collaborative learning are Web-based email, blogging, online grouping, instant messaging, SMS, mobile web, voice conferencing, etc. These technologies enable group communication and group learning activities in a more convenient way. With online and communication technologies, collaborative learning is expanded and extended to take place outside classrooms, without being bound by temporal and spatial limitations. Technology, particularly Web 2.0 technology has made improvement on the mechanism of group or individual participation via a distance, anytime, and from anywhere [6, 7].

The interactive nature of OCL makes it an ideal learning environment for active learning among Malaysian students. Literature indicates a common observation that Asian students tend to struggle to be active and expressive in the classroom. This could be due to years of conditioning in direct instruction which focuses on rote learning, spoon-feeding, drill and practice as well as the exam-oriented environment in schools [8, 9]. Coupled with the deeply rooted Asian cultural traditions of maintaining social harmony, filial and obedience to people of authority, as well as fear of embarrassment, these students tend to be passive learners. The OCL strategy is believed to be a useful platform for learner-centered learning, where learners are empowered to express themselves through technology shared space with an opportunity to articulate their thoughts and offer suggestions on the issue or problem given at hand in relation to their studies.

To support and promote this learning environment, this paper aims to recommend some guidelines for conducting online collaborative learning based on the review of some case studies carried out in Malaysian secondary schools. These guidelines would be useful for other context of education as well; such as for other Asian schools or other OCL activities in general.

2. Online Interaction Learning Theory

The theoretical background of the guidelines is based on the Online Interaction Learning Theory by Benhuman-Fich et al. (2005) [10]. Figure 1 shows an overview of this theory.
Figure 1. Online Interaction Learning Theory  
(Benbunan-Fich et al., 2005, p.24)

The main structure of this theory is based on the factors of “Input-Process-Output” in online interaction learning. This theory proposes five pillars of quality learning outcomes (Output) which are interrelated among each other and also related to other Process and Input factors. The Access and Cost effectiveness (e.g. saves time, money and other resources) are the pillars of non-instructional output while Faculty Satisfaction, Student Learning and Student Satisfaction are the three pillars related directly to instructional output and learning quality.

In order to ensure successful learning outcomes in OCL or online learning in general, the following are some reviews of the factors which can be categorized into “Input” factors and “Process” factors. The “Input” includes the characteristics of the following: 1) the technology, 2) the individual, 3) the instructor and 4) the course or class. The technological factor is characterized in technical terms (such as functionality and usability) and communication perspectives based on the matrix of time and space (synchronous/proximate, asynchronous/dispersed, etc). The individual factor is characterized by the degree of motivation, cognitive ability and learning style. The instructor factor is characterized by the teachers’ actions or involvement in pedagogical design, the degree of structuring or scaffolding in a course and also by their behaviours and experiences in online teaching while the course or class factor is characterized by the number of students involved, their year of studies and the subject matter of the course. The course or class factor involves the organization of the group, the size of the group, group leadership or management, and how technology is used in the group setting [10].

In the rationalization of the “Process” factor for online learning, Benbunan-Fich et al. [10] highlighted the mode of adaptive technology in learning processes such as 1) the amount and type of activity or interaction to be conducted, 2) the methods of conducting the activity whether through individual or collaborative learning strategies and 3) the media-rich environment for community building processes.

3. Practical Guides for OCL

For the discussion and recommendation of the OCL guidelines, this paper has adopted some key notions of online interaction learning theory. The emphasis is on the elements or conditions of student learning effectiveness and students learning satisfaction. The practicality of these guides is also derived from some case studies on OCL
conducted in Malaysian secondary schools [11, 12, 13, 14] and also based on other relevant literature. These guides are framed within the Input-Process-Output factors, adapted from the online interaction learning theory.

3.1 Input Guides for OCL

Figure 2 shows the elements of Input factor, with some guides for each element.

<table>
<thead>
<tr>
<th>Learner Characteristics</th>
<th>Family</th>
<th>Collaborative Group</th>
<th>Teachers</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;Have software and Internet skills.</td>
<td>&gt;Provide support and work closely with teachers.</td>
<td>&gt;Group leadership.</td>
<td>&gt;Allocate time for OCL.</td>
<td>&gt;More access to the Internet.</td>
</tr>
<tr>
<td>&gt;Proactive and committed (Motivated).</td>
<td>&gt;Provide support or assistance to their children.</td>
<td>&gt;Familiar with group members.</td>
<td>&gt;Reduce their workload.</td>
<td>&gt;Reduce cost for the Internet access.</td>
</tr>
<tr>
<td>&gt;Willing to learn.</td>
<td>&gt;Provide support or assistance to their children.</td>
<td>&gt;Goals oriented.</td>
<td>&gt;Be aware of the new learning paradigm.</td>
<td>&gt;Flexible system for accessing the computer and the Internet.</td>
</tr>
<tr>
<td>&gt;Problem solver.</td>
<td>&gt;Provide support or assistance to their children.</td>
<td>&gt;Gain support from higher authority.</td>
<td>&gt;Change beliefs or attitudes towards the Internet.</td>
<td>&gt;Provide training</td>
</tr>
<tr>
<td>&gt;Confident</td>
<td>&gt;Provide support or assistance to their children.</td>
<td></td>
<td>&gt;Gain support from school</td>
<td></td>
</tr>
<tr>
<td>&gt;Expressive</td>
<td>&gt;Provide support or assistance to their children.</td>
<td></td>
<td></td>
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</tbody>
</table>

Figure 2: Details of Input guides

Before conducting any OCL activities, it is essential for teachers and learners to be aware of the characteristics of the learners, whether they are motivated or ready for OCL. Many research findings support that learners’ motivation in online learning environment to be a predictor for the success or readiness for online learning [15, 10, 11, 16]. Family support is of equal importance as most OCL activities will involve the use of Internet at home due to convenience and accessibility. Family members, such as parents, can provide support to their children’s OCL learning activities while working closely with the teachers in schools [12]. The collaborative group that is involved is also a vital element when considering input factor for OCL. Group leadership, relationship among group members, goals for the group and support for the group contribute significantly to the quality of group work in OCL.

The teachers in schools and their attitudes also play an important role in OCL. Their commitment towards OCL should be established by reducing their workload or by providing a specific time or space for them to participate in OCL. Time is one of the constraints which inhibit teachers from being prepared for OCL [13]. More importantly, teachers need to be well informed and aware of the transformational impact of the Internet in education. With sufficient knowledge and training, coupled with positive attitude with regards to using Internet as a teaching tool, teachers will be motivated to utilize and promoting OCL to their students [13]. With a greater belief in this new learning paradigm, teachers will be more ready to explore and overcome challenges while executing OCL activities with their students. Access to technology is another significant component of the input element for OCL [13, 17]. It can be achieved by reducing the cost of access or upgrading the system of accessing the school computer facilities. For obvious reasons, without access to the Internet, OCL cannot function as it should be.

3.2 Process Guides for OCL

OCL involves some learning processes such as individual learning process, collaborative learning process and idea generation process. Figure 3 provides some guides for these processes.
Though OCL involves a group of people, ultimately learning is still an individual process [18]. There are several aspects related to the arrangement or quality of individual learning and one of them is time management. Students in Malaysia are generally busy with homework and extra classes [19]. One important aspect is that they need to be guided in terms of their time management by balancing their time wisely for online learning, their school works, and co-curriculum activities. Recognition on participation would be an incentive to motivate learners in joining OCL activity. On top of that, there should be a space to encourage self-reflection as well as self-analysis for students to identify the benefits and the meaningful experience of participating in OCL. Sometimes, their motivation of online involvement can decline as time goes by. This was observed through a case study conducted and reported in [14]. There should have some interesting and variety activities planned to reactivate participation through online collaboration such as online field trip, leisure chats, etc.

As for collaborative learning process, the online medium (technology) has added some complexity to collaboration. However, according to Alavi and Dufner [20], the outcomes of online asynchronous learning have in fact established no significant difference with face-to-face learning environment, with the exception that the learning process is guided by strong pedagogical grounds such as group dynamics and group learning process. Some pedagogical guides for collaborative learning are provided in Figure 3 such as the need for meaningful tasks which are suitable for young learners, the need to establish goals for collaborative learning, the need for positive interpersonal skills in team work as well as the need for planning and scheduling.

Another important part of the process element is idea generation in a social learning context. Knowledge work such as idea generation is discretionary and invisible, thus difficult to understand and to support the process [21]. However, some form of analysis and guides on how learners generate ideas and contribute ideas in an online collaborative setting should be transmitted to the learning community. Efimova [21] mentioned about the mechanism of having exposure, awareness, and lurking experience for learners to learn about the social norms in online participation, and also to build trust, to establish and maintain their collaborative networks. In term of knowledge exchange in collaborative setting, learners’ prior knowledge should be matched so that everyone is able make connection of their existing knowledge with the new topic discussed online. There may be other ways of effective idea generation process which can be explored from literature and in future research.

### 3.3 Output Guides for OCL

Figure 4 highlights the elements and guides for different learning outcomes or output conditions provided through OCL. In this case, the output can be in the form of tangible products such as learning artefacts, or intangible change of behaviors.

![Table: Process](image-url)

<table>
<thead>
<tr>
<th>Individual Learning</th>
<th>Collaborative learning</th>
<th>Idea Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide guides on how to use individual’s time for OCL (Time management).</td>
<td>Meaningful, interesting and flexible task.</td>
<td>Provide guides on idea generation. A mechanism to promote idea generation is necessary.</td>
</tr>
<tr>
<td>Recognises individual’s participation at the end of OCL.</td>
<td>Establishes goals for quality of group work (or expectations) and project scopes.</td>
<td>Match of prior knowledge among the learners to facilitate discussion or sharing of ideas.</td>
</tr>
<tr>
<td>A channel to promote self reflection / self-analysis during OCL.</td>
<td>Immediate response during collaboration</td>
<td></td>
</tr>
<tr>
<td>Reactivation through interesting activities in tackling declining motivation</td>
<td>Elicit commitment in group work.</td>
<td></td>
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<tr>
<td></td>
<td>Informal communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planning and scheduling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appropriate guidance from the teachers.</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3: Details of Process guides**
Learning is not just limited to the change of cognitive learning aspect, which is mainly related to the acquisition of the knowledge about a subject matter. Learning should involve the following aspects of learning outcomes: 1) the affective learning, which involves feelings, interest or satisfaction of learning; 2) the social learning in which the learners look up to and try to emulate a role model for their self development, or to identify some negative characteristics of their role model so that they will know to avoid it; 3) the invention of learning artefacts, which promotes creativity in learning, and finally, 4) the increment of accessibility to a variety of resources such as their learning peers, teachers, experts, other parties or a wide range of information, is also an outcome which is preferred by the authority and educational community.

4. Conclusion

In this globalize era, teamwork plays an important role to prepare individuals with competence skills and knowledge to facilitate their performance in workplaces. The collaborative and social skills of individual are indeed important. Online interaction learning theory is able to inform the factors of Input-Process-Output, which affect the effectiveness and efficiency of online learning. Meanwhile, the online Input-Process-Output guides suggested in this paper are aimed to bring OCL to a more practical level. In future research, these guides can be expanded or adapted based on different context of OCL. Hopefully, this paper is able to provide schools, educators and researchers an easy and practical reference when conducting OCL in their respective schools or classrooms.

References


