ONLINE SCAFFOLDING THROUGH ASYNCHRONOUS ONLINE DISCUSSION FORUM

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INTRODUCTION

Since the last decade, the rapid development of information and communication technology (ICT), brings a lot of changes to nearly every fields of life including management, entertainment, financial, and legislation (Mohd Fuad, 2014). With internet, humans have access to infinite knowledge and communication can be made to people across the globe with just a few clicks. The immense potential of internet creates interest for the educators to take advantage and implement online communication in educational setting.

Nowadays, online learning is commonly practiced in many higher learning institutions throughout the world (Yaacov and Yaacov, 2003). Online learning not only been practised in distance education, but more campus-based higher learning institutions are starting to incorporate online learning as a major part of student learning experience. Apart from the relative cost-effective of online learning, learning has become significantly more flexible, and internet has opened the doors for the learners to reach wider sources of knowledge and worldwide expertise from their desktops.

Among other online learning activities, researchers across the globe have shown a great interest in online learning discussion

because of its positive impact in students' learning and besides it has been widely used in teaching and learning process. Online learning discussion forum is a computer mediated communication that is text-based, where students are given the opportunity to share their opinion and ideas, with their instructors and their peers regardless of time and space. The importance of asynchronous online discussion forum (AODF) in online courses has been emphasized by Thomas (2002). AODF can be a medium to engage instructor and students in a way that promotes critical thinking, meaningful problem solving, and knowledge construction. Thomas (2002) also stated that AODF can lead to enhanced learning outcomes for students.

Activities involving AODF often require students to express their view, posing questions, consider other students' opinion, critically analyse every information received, and constructing comprehensive explanations. However, students may come across difficulties when they engage in a complex learning tasks. As such, students often need appropriate assistance to develop their cognitive development (Veermans and Tapola, 2004). One of the best solution is by using scaffolding. Scaffolding is an instructional support by an expert that helps student to accomplish a specific task or to fulfil a specific goal (Wood, Bruner and Ross, 1976). The expert can be a teacher, parent, or other knowledgeable peers. Scaffolding also may enrich students' knowledge by providing them support that gradually fades. Scaffolding of learning is analogous to the scaffolding that is used in constructing a building, which is removed when the building can stand by itself. The same concept with scaffolding for learning, scaffolding is provided to help students accomplish tasks that are beyond their capabilities and it gradually reduced and eventually removed completely once the students become more competent.

SCAFFOLDING

Scaffolding was first introduced by Wood, Bruner, and Ross (1976) in their report "The Role of Tutoring in Problem Solving". According to the original definition, scaffolding refers to instructional support from more knowledgeable peers that helps student to accomplish task that cannot be done on their own. The instructional support is gradually removed or fades away as student's competence increases. Two years after that, the scaffold definition is revised and compared to Vygotsky's (1978) notion of zone of proximal development, ZPD (Sharma and Hannafin, 2007). Vygotsky's (1978) idea of ZPD concept consists of two levels of learning, which is actual developmental level, and potential developmental level. Whereas actual developmental level refers to the level where the student can accomplish task without the help of others, potential developmental level refers to the level where the student manage to accomplish task with the assistance and support by expert or more knowledgeable peers. The distance between these two levels is called the student's zone of proximal development. Figure 1 shows the illustration of ZPD concept by Vygotsky (1978).

Wu (2010) in his research about scaffolding in technology-enhanced learning environment has studied 56 research articles that focused on the implementation of scaffolding. He found out that 34 of the 56 failed to define scaffolding. The rest 22 research articles comprised one or more of the following components: (1) receiving guidance and assistance from a more capable person (such as instructor, peer or parent) or tools, (2) constructing mutual understanding on the goals between a student and more knowledgeable peers which encourage students to engage in the task, (3) providing suitable and timely support by observing each students' learning process (4) helping students to do activities that are unable to accomplish on their own, and (5) gradually fading support as students competency increases.

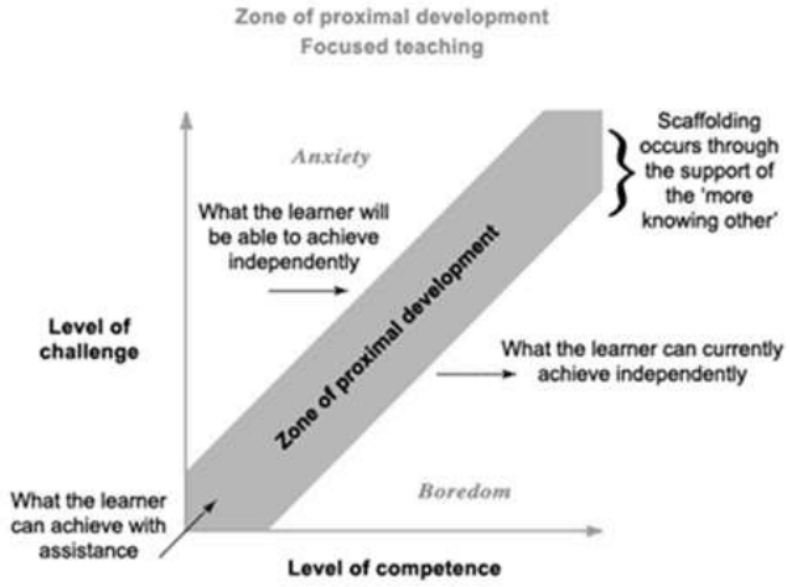

Figure 1 ZPD concept by Vygotsky (1978)

According to Saye and Brush (2002), scaffolding can be classified into two groups: hard and soft scaffolds. Hard scaffolds are fixed, non-negotiable, and primarily technology-mediated. Hard scaffolds can be in the form of computer or paper-based cognitive tools. Examples of hard scaffolds are computer simulations and animations where the scaffolds are static and support common learning needs. On the other hands, soft scaffolds are dynamic, customized and negotiable. Soft scaffolds can be in the form of instructors' facilitation and through small group learning (Sharma and Hannafin, 2007; Choo, 2012). Example of soft scaffolding are instructor scaffolding and peer scaffolding in AODF. As this article focus on scaffolding in AODF, the author will discuss about soft scaffolds in AODF which are instructor scaffolding and peer scaffolding.

Instructor Scaffolding

Unlike peer scaffolding, instructor scaffolding is more commonly practised and past studies that utilized human-based scaffolding tended to focus on instructor scaffolding than peer scaffolding (Wu, 2010). Instructor scaffolding is important in AODF to ensure the students' discussion achieve its learning goal. Zhu (2006) also claims that cognitive engagement does not happen naturally by just making AODF available, but it needs the "intentional mediation of instructors". This is when the instructor's role is very important.

Pol, Volman and Beishuizen (2010) have highlighted the importance of scaffolding. Scaffolding not only aids students development of cognitive ability but it can increase students motivation in accomplish difficult task. Other than helping the student's learning on target and achieve learning objective, instructor scaffolding also provides explanation and justification for deeper understanding. Student's degrees of freedom can be reduced by taking over those parts that the student still not yet able to perform and thus simplify the task for the student. Scaffolding also may instil interest in a task and help students to coop with the requirement of the task. The facilitation that instructors provide may prevent or minimalize frustration by facilitating students' performance.

Rimor, Reingold and Heiman (2008) use "Tool for analysing Instructors' Online Scaffolding" (TIOS) that help them analyse different types of instructors scaffold in online course. By using the tool, four types of online scaffolding provided by the instructor that has been identified are technical, content-centred, procedural, and metacognitive. Technical support are referring to technical assistance regarding working in online environment. Examples of technical scaffolds is "I haven't got your paper otherwise I would have responded. Please send me your paper using another E-Mail address". Content-centred scaffolds are

support that add information, elaborate and correcting misconceptions. Examples of content support is "I recommend that you read the article by Banks, which deals with multicultural democracy, and Taylor's book named: Politics of Recognition". Procedural scaffolds assist students in managing data process such as searching information, organizing information and representing the data. Examples of procedural scaffolds is "Finally a comment based on assigned articles. Your previous postings were interesting and scholarly, but this is the first one which is related to the theoretical framework of the course". Finally, metacognitive scaffolding refers to instructors support that present rational for task and activities, present the relationship between reading items, course objectives and tasks, support reflective writing, supervising text comprehension, and encourage relationship among participants. Examples of metacognitive scaffolding is "You are right, there are several democratic models, and this is the topic of this course. Which model do you prefer? ".

Even though instructor scaffolding benefits student learning, instructor should know when and how to scaffold students' learning. As 'fading' is an important concept in scaffolding, instructor should know when is the right time to minimise and eventually remove the scaffolding. Another point to consider, Stone (1998) point out that instructor scaffolding is not effective to be applied for a large number of people in a group. It is because every students have different levels of ZPD, thus in this situation peer scaffolding might be a better option.

Peer Scaffolding

Peer scaffolding benefits both parties involved; students who provide scaffolding, and students who receive scaffolding. Oliver and Naidu (1996) stated that when students engage in a discussion, explaining, elaborating, and defending one's position to others, as well as to oneself, students are integrating and

elaborating their knowledge in ways that facilitate higher-order learning. Findings from Vonderwell, Liang, and Alderman (2007) study also found that when students are questioned or given further information on a topic, they expand their knowledge base because they are forced to dig deeper into a topic than they have done otherwise on their own.

Moreover, interactions between peers provide them with the opportunity to identify their relative strengths and weaknesses. Students who are knowledgeable in the topic discussed can provide scaffolding by sharing the knowledge with their peers. If there are disagreement or discrepancies at this stage, students can raise these issues for discussion. In addition, peer scaffolding may motivate other students to learn (Forman, 1989). Also, students may be more willing to express their opinions and engage in discussions when interacting with peers than with teachers (Tudge & Rogoff, 1989).

Kim and Hannafin (2010) comes up with four patterns of peer scaffolds which are; demonstration, procedural assistance, validation, and exchange of multiple perspectives. Demonstration typically involved asking/showing technical problems. This pattern of peer scaffold are obvious when the discussion is about activities that require the students to acquire computer skills. Procedural assistance usually occur when students helped each other to master certain procedure. Validation pattern occur when students confirming their answer with their peers. Last but not least, exchanging perspectives usually happen when students discussing about a project. The students exchange ideas on structure, content and design.

Despite its advantages, peer scaffolding also has some drawbacks. The most dominant limitation for peer scaffolding is students will never provide the same quality of scaffolding as instructors. Plus, the more knowledgeable peers may not know how to provide support that adapts to the changing needs of their fellow students (Wu, 2010). Other than that, without the supervision of the instructor, it is possible if the more knowledgeable peer are actually having misconception. Thus, it is

unavoided if the student provides wrong information to other peers. Nevertheless, peer scaffolding is more helpful for completing tasks than developing higher level thinking skills. Thus, it will be more appropriate for the students to collaborate with each other than relying on a more knowledgeable peer (Wu, 2010).

CONCLUSION

When designing and implementing AODF, it is important for the instructor to consider how students discussion in AODF might assists students to achieve learning goals. Both peer scaffolding and instructor scaffolding have their strengths and weaknesses. It is up to the instructors to choose the right scaffold that suits their students' background and learning objectives.

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