ACCEPTABLE SOLUTIONS USING ONLINE DISCUSSION PLATFORM

Shazarin Ahmad Zainuddin

Politeknik Ungku Omar, Malaysia
shazarin@puo.edu.my

ABSTRACT

Active participation from learners to solve learning problems are crucial to ensure validity of collaborative learning using online discussion platform. Comments contributed during online discussions are assumed as solutions to solve given problems in a collaborative problem based learning session. The solutions are proposed by students in their assigned groups to solve problem based learning sessions. Uncertainties of solutions validity are doubtful to ascertain its reliability and acceptance. Selected randomly, the proposed solutions are conceptually analyse using solution's theme as the unit of analysis in content analysis. It was discovered, comments analysed are valid to act as solutions to solve problems normally occurs in the workplace. This has reflected, comments given during collaborative problem based learning are acceptable as solutions.

Keywords: online discussion, comments, solutions, collaborative learning, content analysis.

1. Introduction

Online discussion boards have been implemented in various learning institutes to allow learners to communicate and interact with each other. Applied as learning platform, online discussion boards have created active learning environment whereby students have the ability to contribute and participate in learning session unconstraint to time or physical factor (Atan, 2010). Apart from online discussion board, learning also have been conducted over social media platform by educators across countries. Related to this, an online discussion board called Collab2learn Discussion Board was developed to support online discussion. This platform generated collaborative problem-based learning environment for students; and usable for students to participate in collaborative learning hence give feedback to comments given by their group member (Zainuddin & Ahmad, 2014).

Zainuddin (2015) described collaborative problem-based learning through discussion board allows students to discuss problems structured by educator over the internet. During the discussions, comments are given to answer problems designed as the learning content. All comments are recorded and displayed for other students in the same collaborative group. Comments contributed during the online discussions are suggestions to solve problems constructed by teacher. Pertaining to this, it is important to have a valid and reliable suggestion treated as solutions or answers for problem constructed as the learning content. Based on the unstructured

sentences given by participants, conceptual content analysis is conducted to proposed solutions for the same problem.

2. Literature Review

2.1 Technology And Education

The usage of technological application for learning session have becoming a norm. Supported by the institution and government policies, teaching and learning sessions are broaden to not just conventional face-to-face session, but also to active information acquiring activities. Technology have created the possibility to learn across countries through online communication tools via social media.Technology, particularly the Internet, has also widened the boundary of school, students and teachers with the unlimited access to multimedia information over the network, which was previously constrained in the form of physical materials, such as books, papers and space (Atan, 2010). Applying developed systems such as multimedia courseware, social networking sites, online discussion boards or forums, as well as implementing technological tools such as electronic blackboard, multimedia projectors, desktop computers, mobile or ubiquitous devices with the ability to access network environment are common to assist teaching and learning activities (Ogata, 2010).

The impact of technology in education involves various aspects including educational community and society. Jhuree (2005) describes learning environment supported by technology will enhanced learners performance in learning. Due to technology provides a motivating learning environment, learners are given the opportunity to engage themselves with the instructions or learning content. Learners can gather pedagogical benefits of technology in classroom if it is properly implemented. Technology is also a powerful tool to supplement the teachers' instructions in classroom. If it is properly used by the teachers, technology can foster more interest in learning on the part of students, while teachers can use it in the instructions of their respective subjects. Technology has the potential to make instructions easier, more challenging and motivating for teachers.

2.2 Online Discussion Platform For Collaborative Learning

Collaborative learning can be defined separately based on the descriptions of learning and collaboration. Learning as a process of acquiring knowledge of facts, skills and methods can be stored or reproduced when necessary (Smith, 2003). On the other hand, collaboration, as a situation when more than one person work together, performs the same actions and has a common goal (Dillenbourg, 1999; Dillenbourg, Huang & Cherubini, 2008). Collaborative learning happens when learners or students participate in active learning, information gathering, and sharing of learning materials, and work together to maximize their own on each others' learning. Mutual engagement or learners' participation in a co-ordinate learning session to solve problems is essential during collaborative learning. Hence, teachers' or facilitators' participation and monitoring are important for learners to achieve learning objectives during collaborative learning sessions.

Barrow and Tamblyn (1980) describe PBL as a learning that results from working towards understanding of a problem, and the problem must be encountered first in the learning process. PBL educational goals are to develop students' thinking or reasoning skills (e.g. problem solving, metacognition and critical thinking) and help them to become independent and self-directed learners. Students train to learn and manage their learning situations.

An (2006) in his thesis describes that learning online provides comfortable learning environment and discussion opportunities for students who do not perform well in spontaneous face-to-face discussion because they are shy. Communication and discussion using text-based collaborative discussion board can be overwhelming to students when there are large numbers of messages to read and respond to (Iskandar, 2017).

In engineering courses, collaborative problem-based learning often merges with project-based learning, where the focus is on completing a project that results in creating an artefact (Jones, Epler, Mokri, Bryant & Paretti, 2013). Apart from engineering courses, collaborative PBL has also been applied in medical, law, business and nursing courses. This is due to its positive effect to learning environment in communication, interaction and discussion with others, which creates the feeling of acceptance for learners (Gwee, 2009) and motivates them in learning (Jones et al., 2013).

2.3 Communication Type In Collaborative Session

Collaborative session is accelerated with the support from communication tools implemented. Different synchronicities create different effects to the learners' learning (Serçe, Swigger, Alpaslan, Brazile, Dafoulas & Lopez, 2011). Synchronous tools allow real-time communication and instant interaction to occur, whereas asynchronous tools are flexible whereby learners may receive feedback or comments at longer time. Learners are able to give instant feedback or comments that allows negotiation of principles and ideas between their group members in synchronous learning session to occur promptly because the learners are gathered at the same time during a short period. An asynchronous learning session occurs between one week or more depending on the topics provided. In addition, learners are flexible to attend the learning session anytime during the long period, thus the interaction between the learners are not instant, while negotiation of knowledge and principles takes longer time.

Synchronicity tools applied in collaborative learning should allow learners to project themselves as real persons socially and emotionally, thus creating social presence. Social presence enriches interaction and communication among members. Low social presence will disconnect learners' motivation and engagement; however, high social presence will increase the group's engagement involved in group processes (Valdivia & Nussbaum, 2007).

This paper reports comments proposed during both synchronous and asynchronous learning sessions for students without focusing which type of comments produced by students at which type of learning synchronicity.

3   Method

3.1 Research Design

This research was design for experimental study on selected participants. All workplace scenarios are designed as problem based learning content. Learners participate in collaborative learning through online platform to comment suggestion to solve the learning content. All scenarios contain general workplace environment issues with generic problems (i.e. communication problem, workload problem, disciplinary problem, interpersonal interaction problem and problem solving problem). Participants communicate and discuss within their group on questions given based from the scenarios. Comments or suggestions contributed during online discussions were analysed for its validity using conceptual content analysis.

3.2 Research Aim

The aim of this research is to analyse comments given during online problem based learning are acceptable as proposed solutions in problem solving.

3.3   Description on Solutions Proposed

As described in previous section, the collaborative problem based platform contains problem based task to be discussed among participants. During the online discussion sessions, participants are allowed to give their comments as many as their want to any or all scenarios provided. The comments will be recorded in the database in the web server. All scenarios contained users' ID, scenario ID and comments given to particular scenarios. Figure 1 described solution entities recorded for all problem designed as learning content Learning content are designed as real life scenario. All scenarios are identified as Scenario Type table consisted with Scenario ID connected to Proposed Solutions table consisted with User ID and Comment Content entities. This allows comments to be retrieved from the web server and analysed for the purpose of this excerpt.
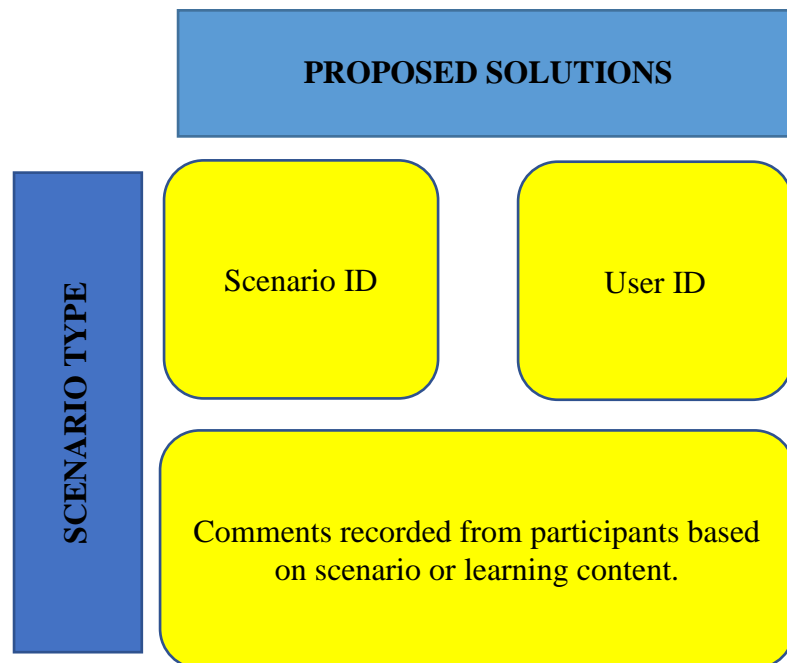

Figure 1: Descriptions on scenario types and entities of proposed solutions

3.4 Unit of Analysis

Comments retrieved from database are selected randomly; and only five (5) solutions from all types of scenarios were conceptually analyse. The units of analyses were consistent theme or idea frequently suggested by participants (Guide: Content Analysis, 2013). Accepted ideas were flexible to either positive or negative sentences and related to the problem given.

4. **Result and Discussion**

This section described the results for comments contributed by participants from the view to examine the comments validity.

4.1 **Acceptance of Comments as Solutions**

Comments were analysed using conceptual content analysis method. It is crucial to select suitable unit of analysis and method of selection as a unit of analysis was consistent for all scenarios. The unit of analysis selected was consistent with the theme or concept related to the scenarios (Wever, Schellens, Valcke & Keer, 2006). All proposed solutions were summarized thoroughly based on the solution concepts suggested by the students. Samples of five (5) solutions were selected randomly and conceptually summarized (Guide: Content Analysis. 2013). The underlined sentences coded as unit were the solution concepts suggested (Neuendorf, 2017) by the students who participated in online discussion learning session

The concepts selected were considered relevant to the scenarios, which were frequently suggested by the students and flexible to positive or negative ideas. A generalization of the concepts was summarized for all types of scenarios.

Figure 2 displayed recorded comments from participants for scenario Type 1. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are superior, manager, calm, new reservation and another reservation

It is suggested that the conceptual summary of the solution for Type 1 would be "Calm the customer, refer him/her to the manager and make a new reservation". This was based on the proposed solutions, whereby the students suggested two solutions of referring the customer to higher authority, two solutions of making a new reservation, while one solution of calming the customer which was relevant to the scenario.

Solution 1: "The clerk needs to get her <u>superior</u> to handle the situation. Most likely, there is miscommunication regarding on the hotel reservation. Probably, the previous clerk did not key-in the customer reservation".
Solution 2: "Will bring him to the <u>manager</u>".
Solution 3: "<u>Calm</u> the customer and apologized for the incident".
Solution 4: "Make a <u>new reservation</u> for him at another hotel".
Solution 5: "Make <u>another reservation</u> from other hotel for the customer".

Figure 2: Comments contributed by participants for Scenario Type 1

Figure 3 displayed recorded comments from participants for scenario Type 2. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are advise, point out to him/her and not surf pornography.

It is suggested that the conceptual summary of the solution for Type 2 scenario would be "Advise or tell the friend not to surf pornographic websites". This was based on the proposed solutions, whereby the students proposed three solutions of advising the colleague, and two solutions of telling him/her not to do the unethical behaviour. All the proposed solutions were relevant to the scenario and question.

Solution 6: "<u>Advise</u> him not to do so".
Solution 7: "Try to <u>point out to him/her</u> in a polite way".
Solution 8: "<u>Advise</u> him nicely. Don't scold him because he is your friend. Friend can be an influence other friend".
Solution 9: "Do <u>not surf pornography</u> web site".
Solution 10: "I will <u>advise</u> him about responsibility".

Figure 3: Comments contributed by participants for Scenario Type 2

Figure 4 displayed recorded comments from participants for scenario Type 3. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are solve all problems one by one, release tour tension, don't be too stress and rest.

It is suggested that the conceptual summary of the solution for Type 3 scenario would be "Try to release your tension and solve the problem one by one". The proposed solutions showed similar statements suggesting to release the stress and solve problems one by one. All the solutions were relevant to the question and scenario.

Solution 11: "I will try to <u>solve all problems one by one</u>. If not I will settle with the most important problem. I will bring my daughter to the doctor first because my daughter's life is the most important for me".
Solution 12: "Find someone to listen to your problem. It will <u>release your tension</u>. Maybe your friend will help to solve your problem".
Solution 13: "Plan to <u>solve all problems one by one</u>".
Solution 14: "<u>Don't be too stress</u>. Relax and settle the problems one by one".
Solution 15: "<u>Rest</u> and go for a holiday".

Figure 4: Comments contributed by participants for Scenario Type 3

Figure 5 displayed recorded comments from participants for scenario Type 4. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are believe in yourself, confident, support, preparation and not be nervous.

It is suggested that the conceptual summary of the solution for Type 4 scenario would be "Get support from others, do some preparation and be confident". All the solutions were relevant to the question and consisted of a similar scheme which contained positive remarks towards solving the task.

Solution 16: "<u>Believe in yourself</u> because others will be amazed with your proposal".
Solution 17: "Take a long breath and be <u>confident</u>".
Solution 18: "Give <u>support a</u>nd tell him to do the best because it will make him be more confident".
Solution 19: "Do some <u>preparation</u>".
Solution 20: "Ask him <u>not be nervous</u>, give motivation and <u>support</u> him".

Figure 5: Comments contributed by participants for Scenario Type 4

Figure 6 displayed recorded comments from participants for scenario Type 5. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are stop the quarrel, teamwork, all of them gave contribution, no point of arguing, discuss and work together.

It is suggested that the conceptual summary of the solution for Type 5 scenario would be "Stop quarrelling, discuss and work together to complete the task". All the proposed solutions were relevant to the question and generally contained a similar scheme in accordance with teamwork and cooperation in completing the task.

Solution 21: "<u>Stop the quarrel</u> between them because <u>teamwork</u> is better than working alone".
Solution 22: "Tell them to calm down to think. <u>All of them gave contribution</u> to the proposal. If any of them did not contribute, the proposal would not be complete".
Solution 23: "There is <u>no point of arguing</u>".
Solution 24: "<u>Discuss</u>".
Solution 25: "Find partners that can <u>work together</u> to achieve desired goals".

Figure 6: Comments contributed by participants for Scenario Type 5

Figure 7 displayed recorded comments from participants for scenario Type 6. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are refer to any IT books or the internet, honest and confess, learn, completer and refer to manual or ask help experienced people.

It is suggested that the conceptual summary of the solution for Type 6 scenario would be "Design the websites by learning from the Internet, be truthful with the supervisor of not having the know-how and get help from knowledgeable peers". These solutions seemed to focus on similar ideas, which stated that the person needed to be independent and truthful in completing the task. Generally, all the proposed solutions contained positive remarks and were relevant to the question.

Solution 26: "She can always <u>refer to any IT books or the internet</u>".
Solution 27: "I will suggest Lim Wei to be <u>honest and confess</u> to the supervisor of not having any experience in designing websites. She can use this opportunity to <u>learn</u> how to design websites".
Solution 28: "<u>Learn</u> to edit websites from the YouTube and other websites forum".
Solution 29: "<u>Complete</u> the work confidently. Failed or passed are not important".
Solution 30: "<u>Refer to the manual or ask help from experienced people</u>".

Figure 7: Comments contributed by participants for Scenario Type 6

Figure 8 displayed recorded comments from participants for scenario Type 7. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are go to programming course, we should be selfish, friend, to attend the things I want to do.

It is suggested that the conceptual summary of the solution for Type 7 scenario would be "Choose to improve ourselves by attending the course, or help the friend". These solutions expressed both negative and positive ideas, which denoted either to be selfish or not. All the solutions were acceptable because they were relevant to the question.

Solution 31: "I will go to the programming course".
Solution 32: "In this situation, I think we should be selfish".
Solution 33: "I will go the programming course because I want to achieve my dreams".
Solution 34: "Attend the meeting because your friend trusts you".
Solution 35: "I will choose to attend the things I want to do. Regarding my friend request, I will tell her the truth and suggest someone else to help her".

Figure 8: Comments contributed by participants for Scenario Type 7

Figure 9 displayed recorded comments from participants for scenario Type 8. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are not help him, not help, ignore her, inform the superior and advice her.

It is suggested that the conceptual summary of the solution for Type 8 scenario would be "Choose not to help your friend by signing the log book attendance and conclude to inform supervisor". All the students proposed similar solutions suggesting negative ideas by declining the friend's request; however, the solutions were acceptable because they were relevant and ethical solutions to the workplace problem.

Solution 36: "Could not help him".
Solution 37: "Sorry because this time I could not help you with the attendance log book".
Solution 38: "Ignore her because I do not want give signature for her".
Solution 39: "Inform the superior if she frequently comes late".
Solution 40: "Advice her regarding being constantly overslept".

Figure 9: Comments contributed by participants for Scenario Type 8

Figure 10 displayed recorded comments from participants for scenario Type 9. All comments are relevant to the scenario and considered as solutions to solve the learning content. The coded concept from the solutions are make extra effort to search for information required, to complete the task, ask help, ask help and work had to find information required.

It is suggested that the conceptual summary of the solution for Type 9 scenario would be "Self study or do some research to access the required information from other staff to complete the task". In general, these solutions focused

on a similar scheme, which stated that one has to be independent in completing the given task. The proposed solutions were acceptable and relevant to the question.

Solution 41: "Employees have to make extra effort to search for information required. He could consult to the finance executives because they are responsible to the required information".
Solution 42: "Try to complete the task by yourself".
Solution 43: "Ask help from other colleagues to complete the financial report".
Solution 44: "Try to search in the internet and ask help from senior staff".
Solution 45: "Advise him not to give up. All problems have solutions. Work hard to find information required".

Figure 10: Comments contributed by participants for Scenario Type 9

Referring to all coded concept identified as unit of analysis, conceptual summaries generated have produced valid sentences and accepted as possible solutions for collaborative problem based learning using online discussion platform.

5. Conclusion

Solutions proposed in the collaborative problem-based learning of this study were summarized based on the solution concept suggested by the learners. All suggested solutions were relevant positively or negatively to workplace environment; however, the effects of solutions still require further analysis. It is suggested to validate the proposed solutions with implementation based on syllabus and real-life workplace environment. Stimulate more workplace scenarios to add more possible solutions on solving the problems. More opportunities have also been discovered to strengthen the study's limitations that will contribute to the research society.

5.1 Recommendations

This paper produced the summary of solutions for all types of scenarios as conceptually proposed by the students. To further verify solutions summary, suggestions on validation for the solutions' summary are as follows:

- Coordinate curriculum development. Create teaching and learning activities based on the scenarios to stimulate real-life work experiences. Pre-internship students will gain skill experiences prior to their internship.
- Collaborate with the industry. Internship students are tested with similar workplace scenarios and their responses are recorded for references. As a stakeholder, the industries are involved implicitly in enhancing students' soft-skill development.

5.2 Future works

Microblogging for learning by habiting the hashtag trend of points in their comments. The validity of hastagged sentences perceived as unit of analysis to measure learning performance (Ivanova, 2013) has created the opportunity to conduct learning activities through social media. Researcher is interested to validate hashtagged sentences from microblogging for learning using content analysis.

References

Atan, H. (2010). *Activity Tools for Constructivist Pedagogies in the Web-Based Learning Environment.* Paper presented at the International Conference on Computers in Education, Malaysia.

An, Y.-J. (2006). *Collaborative Problem based Learning In Online Environments.*
Indiana University, Indiana.

Barrows, H. S., & Tamblyn, R. M. (1980). Problem Based Learning: An Approach To Medical Education. New York: Springer Publishing Company, Inc.

Colorado State University. (2013). Guide: Content Analysis. 2013, from http://writing.colostate.edu/guides/guide.cfm?guideid=61.

Dillenbourg, P. (1999). What do you mean by 'collaborative learning'?, *Collaborative-learning: Cognitive and Computational Approaches* (pp. 1-19): Oxford: Elsevier.

Dillenbourg, P., Huang, J., & Cherubini, M. (2008). Interactive Artifacts and Furniture Supporting Collaborative Work and Learning: Springer Sciences + Business Media.

Gwee, M. C.-E. (2009). Problem-based Learning: A Strategic Learning System Design for the Education of Healthcare Professionals in the 21st Century. *Kaohsiung J Med Sci, 25*(5), 231- 239.

Iskandar, R. S. (2017). People just want to connect. Retrieved from http://www.nst.com.my/opinion/columnists/2017/04/234505/people-just-want-connect

Ivanova, M. (2013). Understanding microblogging hashtags for learning enhancement. *Form@re – Open journal per la formazione in rete, 11*(74), 17-23.

Jhurree, V. (2005). Technology integration in education in developing countries: Guidelines to policy makers. *International Education Journal, 6*(4), 467-483.

Jones, B. D., Epler, C. M., Mokri, P., Bryant, L. H., & Paretti, M. C. (2013). The Effects of a Collaborative Problem-based Learning Experience on Students' Motivation in Engineering Capstone Course. *Interdisciplinary Journal of Problem-based Learning, 2*(2).

Neuendorf, K. A. (2017). *The Content Analysis Guidebook.* In (pp. 120).

Ogata, H. (2010). *Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL).* Paper presented at the International Conference on Computers in Education, Malaysia.

Serçe, F. C., Swigger, K., Alpaslan, F. N., Brazile, R., Dafoulas, G., & Lopez, V. (2011). Online collaboration: Collaborative behavior patterns and factors affecting globally distributed team performance. *Computers in Human Behavior 23, 27*, 490-503.

Smith, M. K. (2003, 11/2/2010). Learning theory, the encyclopedia of informal education. from http://www.infed.org/biblio/b-learn.htm

Valdivia, R., & Nussbaum, M. (2007). Using Multiple Choice Questions as a Pedagogic Model for Face-to-Face CSCL: Wiley Periodicals Inc.

Wever, B. D., Schellens, T., Valcke, M., & Keer, H. V. (2006). Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A review. *Computers & Education, 46*, 6-28.

Zainuddin, S. A., & Ahmad, W. F. W. (2014). Usability of an Online Discussion Board. *International Journal on Recent Trends in Engineering and Technology, 10*(1), 1-12.

Zainuddin, S. A. (2015). *Collaborative Problem-Based Learning System and Its Effect On Workplace Soft-Skills Performance.* Universiti Teknologi PETRONAS,