Asia Proceedings of Social Sciences (APSS)
www.readersinsight.net/APSS

CONCEPT OF METACOGNITIVE ONLINE DISCUSSION MODEL FOR ONLINE TEACHING TO ENHANCE STUDENTS' ENGAGEMENT AND MASTERY DURING CORONAVIRUS OUTBREAKS

Mohamad Ariffin Abu Bakar*

School of Education, Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia
Malaysia
mohamadariffin6299@gmail.com

Norulhuda Ismail

School of Education, Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia
Malaysia
p-norulhuda@utm.my

***Corrosponding author's Email:** mohamadariffin6299@gmail.com*

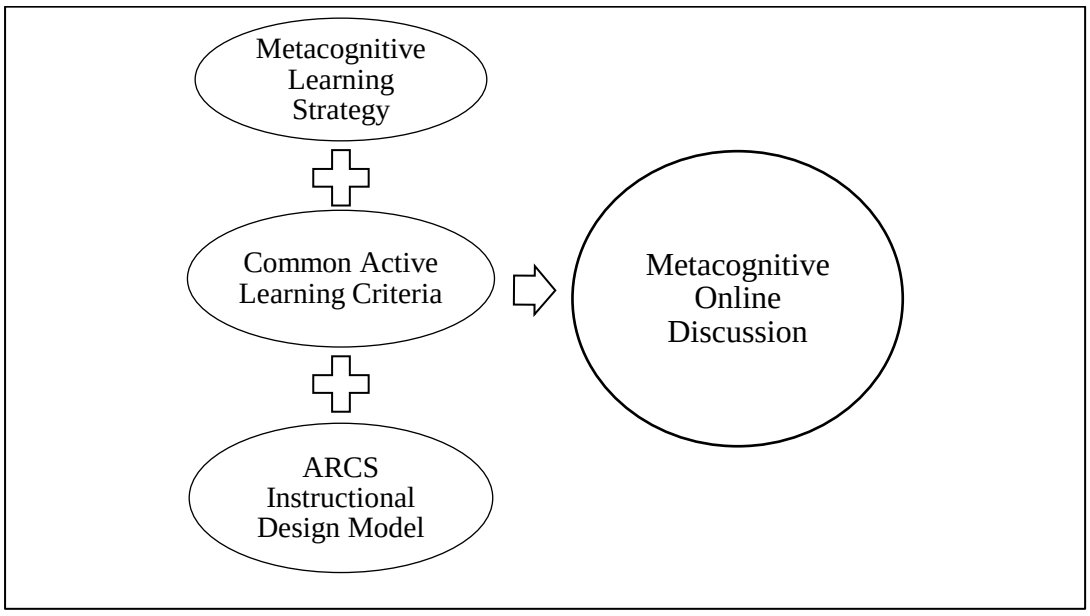
Peer-review under responsibility of 4th Asia International Multidisciplinary Conference 2020 Scientific Committee
http://connectingasia.org/scientific-committee/

Asia Proceedings of Social Sciences (APSS)
www.readersinsight.net/APSS

Research Highlights

This concept paper discusses the design and development of metacognitive online discussion learning models to create active learning and ensure that students master mathematics contents during outbreaks online teaching sessions. The model aims to provide teachers with guidance and reference to produce a simple and effective online teaching to address the problems limitations of internet networks, applications, equipment and motivations of teachers and students during outbreaks. In addition to maintaining motivation, engagement, fun and effective to the students' mastery of mathematics concepts. This model is an integration of elements from Anderson's (2002) metacognitive learning strategy model, common active learning criteria proposed by Bonwell & Eison (1991) and online motivated instructional design, ARCS Model (Keller, 1987).

Graphical Abstract



Research Objectives

This study aims to develop an online mathematics teaching model that integrates metacognitive regulation learning strategies with common active learning criteria and motivating online instructional design. Issues in the application of online teaching occur due to some constraints such as the internet network, technology used, preparation problems, lesson content, task load, time and so on. It is important to make sure that student mastery is at the highest satisfaction with each online teaching session. According to Digiovanni,

Asia Proceedings of Social Sciences (APSS)
www.readersinsight.net/APSS

Conley, Chiu & Zaborski (2004), the motivation of teachers and students in these outbreaks is unclear. The aim of online teaching to tackle these issues is to apply methods and techniques that can affect student involvement, motivation, awareness and, in effect, have a direct impact on student achievement. Teachers do have the motivation, flexibility and not the stress of managing online classrooms. There is a need to design and develop an online teaching design model to be used in a limited internet state and use devices such as mobile phones for less challenging applications.

Methodology

The research design, Design and development research (DDR) method used in this study developed a practical teaching model used during the implementation of outbreaks for online mathematics learning. Based on the method suggested by Dick, Carey & Carey (2015), design and development studies are used according to the following steps: i) needs analysis, ii) design and development and, iii) implementation and evaluation. This approach is carried out because this research begins by reviewing the problems by analyzing learning needs during the outbreaks, obtaining high-impact learning strategies for teaching design and subsequently evaluating the usability of the model and assessing student learning and mastery of mathematics.

Results

The Metacognitive online discussion model based on the proposed integration of metacognitive regulation learning strategies and active learning elements that emphasize conceptual understanding of students' regulation and management of learning to enhance mastery of mathematics concepts. The integration of elements of metacognitive regulation skills, the effect of active learning and medium of motivation can producing and promoting students' engagement, development of metacognitive regulation skills and thinking skills based on four proposed components namely, preparation, regulation, presentation and evaluation.

Findings

This conceptual paper explores the effort to design and develop an online teaching model called Metacognitive online discussion against the use of mathematical learning throughout crises. This study analyzed and presented the possible integration of metacognitive learning strategies, active learning activity criteria and motivating online learning design, and the improvement of metacognitive regulation skills to improve student mathematics mastery.

Asia Proceedings of Social Sciences (APSS)
www.readersinsight.net/APSS

References

Anderson, N.J. (2002). *The Role of Metacognition in Second Language Teaching and Learning*. ERIC Digest, ERIC Clearinghouse on Languages and Linguistics. Washington DC.

Bonwell, C. C. & Eison, J.A. (1991). *Active Learning: Creating Excitement in The Classroom*. ERIC Digest. ERIC Clearinghouse on Higher Education.Washington DC.

Dick, W., Carey, L. & Carey, J.O. (2015). The Systematic Design of Instructional, Eight Edition. USA: Pearson.

Digiovanni, C., Conley, J., Chiu, D. & Zaborski, J. (2004). Factors influencing compliance with quarantine in Toronto during the 2003 SARS outbreak. *Biosecurity and bioterrorism: biodefense strategy, practise, and science*, 2(4), 265-272.

Keller, J.M. (1987). Development and use of the ARCS Model of instructional design. *Journal of Instructional Development*, 10(3), 2-10.

Author's Biography

Mohamad Ariffin Abu Bakar *is a student who is currently undertaking his master's in mathematics study program under School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, Johor, Malaysia.*

Norulhuda Ismail *is a senior lecturer in Sciences, Mathematics and Creative Multimedia Department in School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia, Johor, Malaysia.*