

# Challenges during the Covid-19 Pandemic: Opportunities for Classroom Innovations

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## ABSTRACT

The COVID-19 pandemic has suddenly changed the education landscape around the world. The immediate closure of learning institutions has made teaching and learning to be fully implemented virtually. Thus, online learning replaces face-to-face instruction during the COVID-19 pandemic. There are numerous challenges caused by this drastic shift of teaching and learning approach. The challenges may open various opportunities for classroom innovations in order to make the delivery of instruction on the virtual platform more effective. As a result, this situation has also provided research and publication opportunities. This paper aims to describe to describe the opportunities and the instructional design models which can be applied for classroom innovations.

**Keywords:** classroom innovations, instructional design models, COVID-19, design and development

## 1. INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) cases were first reported in Wuhan China on 31 December 2019 (WHO Regional Office for Europe, 2021). Consequently, the first case of COVID-19 in Malaysia was reported on 4 February 2020 (Bernama, 2020). Then, the first lockdown in Malaysia was implemented for two weeks on 18 to 31 March 2020 (New Straits Times, 2020). This led to the closure of many higher learning institutions in Malaysia since the first lockdown. As a results, online learning has been fully imposed at higher learning institutions in Malaysia since the first lockdown. As for schools, the full closure for all schools was only during the first lockdown. After that, the closure of schools was imposed from time to time and according to locations which depends on the number of active COVID-19 cases at the locations.

The closure of learning institutions especially at the tertiary level has tremendously impacted the teaching and learning process. It is only feasible via online platforms. As a result, the instruction has changed from face-to-face-instruction or blended learning (combination of face-to-face instruction and online learning) to online learning completely.

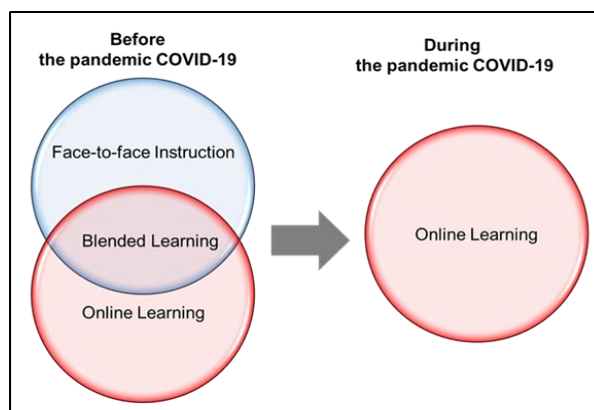


Figure 1 Teaching and learning approach before and during the pandemic COVID-19 pandemic

## 2. ONLINE LEARNING ACTIVITIES AND ENGAGEMENT

Learning activities which are designed for face-to-face classes may no longer be suitable for online learning in terms of promoting engagement. Engagement is crucial to ensure students participate in learning activities so that learning may occur, and knowledge and/ or skills will be acquired. Hence, online learning activities should have certain features that can promote engagement.

Online learning activities should be fun as the fun elements can increase engagement (Malone & Lepper, 1987)(Klopfer, Osterweil, & Salen, 2009; Prensky, 2002; Khaleel et al., 2016). Numerous studies have revealed that gamification elements can increase engagement as the elements promote fun in learning (Boyle et al., 2016; Hamari et al., 2016; Koivisto & Hamari, 2019; Li et al., 2012; Reynolds & Taylor, 2020). Thus, instructors should select appropriate gamification elements by taking into account several aspects such as content, learning outcomes, students' learning needs and preference.

The learning content should also be provided in the bite-sized so that students will not be overwhelmed with a lot of information provided at the same time. It is the current trend in education to provide a bite-sized content in order to ease comprehension and promote microlearning (Horst et al, 2020). Bite-sized learning is an instructional method that utilizes brief and focused learning units. Manning et al. (2021) revealed that presenting learning contents in bite-sized according to learning units benefit in the demand of time and cognitive load. Thus, chunking the learning content into bite-sized is useful in the design and development of online learning activities.

Classroom innovations should consider gamification elements and chunking the learning content into bite-sized learning activities in order to promote engagement. With regard to learning during the COVID-19 pandemic, learning occurs at home where students can be distracted from learning by various reasons such as having other commitments to fulfil, sharing personal computers, and not having appropriate learning space. Thus gamification elements may help to engage them in online learning activities. Whereas, presenting online learning activities in bite-sized may help them to utilise a limited time for meaningful learning. Furthermore, online learning activities need to be developed rapidly within a limited time since online learning has been implemented abruptly. Hence, designing and developing online learning activities using bite-sized contents is also practical as the time required for creating the activities should be less compared to creating learning activities for complete contents.

Apparently, the COVID-19 pandemic has created unique challenges to instructors in designing and developing engaging and meaningful online learning activities. However, the situation can also be seen as an opportunity for instructors to create classroom innovations.

## 3. CLASSROOM INNOVATIONS

According to Online Cambridge Dictionary innovation means "(the use of) a new idea or method" (Cambridge University Press, 2021a), and classroom means "a room in a school or college where groups of students are taught" (Cambridge University Press, 2021b). Classroom can be physical or virtual. Thus, a classroom innovation is any new idea or method which is implemented for teaching students which can occur offline or online. Innovation is not creating something new as it just improves things which have been invented before. Thus, they are not as challenging as inventions whereby things that have not existed are created.

They may come in the forms of approaches, processes, strategies or products. The immediate need to be addressed during the COVID-19 pandemic is to provide engaging online learning activities. Thus, approaches, processes and strategies for designing and developing online learning products are needed. As for products, to name a few, the products which can be provided online are e-notes, e-books, digital games, and digital applications. The products can be designed for different platforms such android, iPhone Operating System (iOS) and windows.

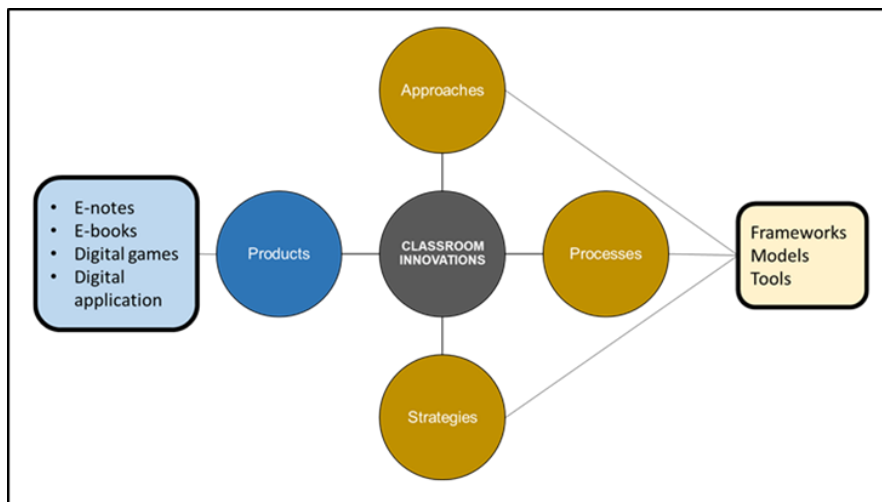


Figure 2 Classroom innovations

#### 4. CLASSROOM INNOVATIONS AND RESEARCH

A classroom innovation involves a process which consists of several stages. First, innovators need to identify a problem in teaching and learning. Second, an objective is set for solving the identified problem. Third, a product to solve the problem is designed. Fourth, the product is developed based on the design which has been decided in the previous stage. Finally, the developed product need to be tested on the target group. The testing can investigate attitudes, acceptance and motivation of target students toward using the product. The effectiveness of the product in promoting learning can also be proven by conducting a quasi-experiment on the target students. Besides, the usability of the product can also be studied. Therefore, the innovation process is certainly design and development research of instructional materials.

There are various instructional design (ID) models that can be used for facilitating design and development research of instructional materials which will be henceforth referred as products. Some common ID models are the 3P Model developed by Biggs (1989), the ADDIE Model developed Florida State University's Centre for Educational Technology 1970's (Discover Learning Designs, 2021), the Hevner's Framework (Hevner et al. (2004) where the diagram is simplified by Ellis and Levy (2010), the original (Bloom et al., 1956) and revised (Kratwohl, 2002) Bloom's Taxonomy, and the Gagne's Nine Events of Instruction (Gagne, Briggs, & Wager, 1992). The ID models are as follows:

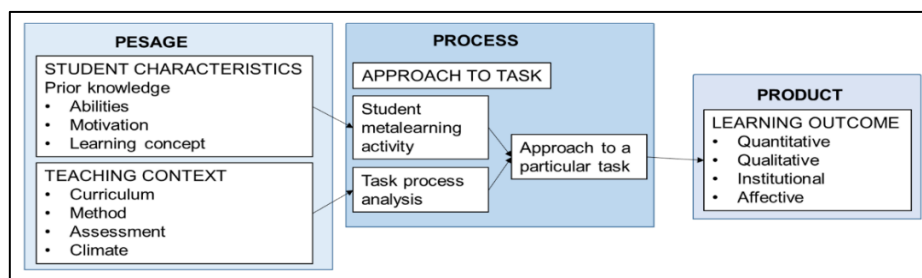


Figure 3 3P Model (Biggs, 1989, p.21)

##### 4.1 Classroom Innovations and Publication

Classroom innovations can be published for different target readerships. Articles on classroom innovations published in newspapers and bulletins can reach the general public. The article should be written in a simple language and the use of terminologies should be avoided. Whereas, articles for experts can be published by using technical terms to share findings obtained from the design and development research. The articles can be extended abstracts, conference proceedings, journal articles and chapters-in book.

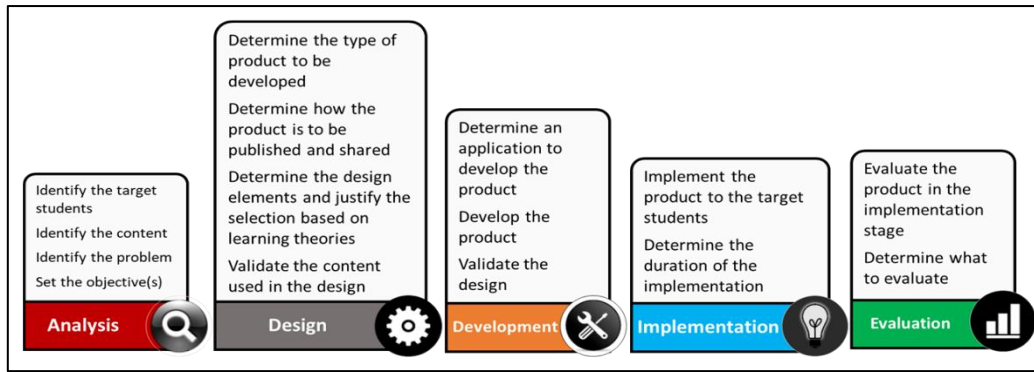


Figure 4 ADDIE Model

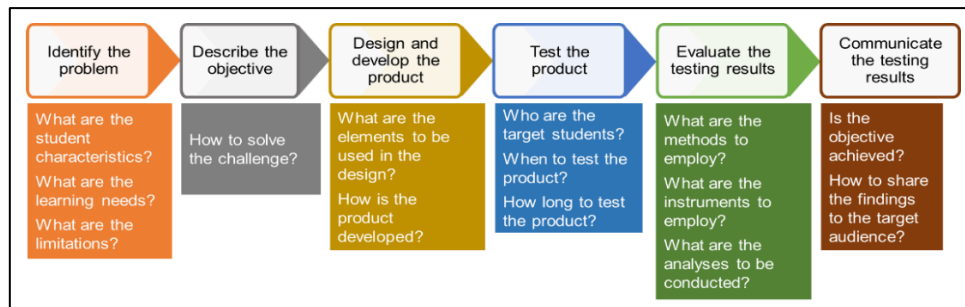


Figure 5 Hevner's Framework

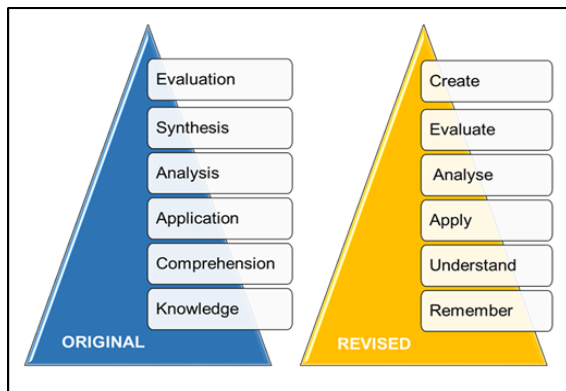


Figure 6 Original and Bloom's Taxonomy

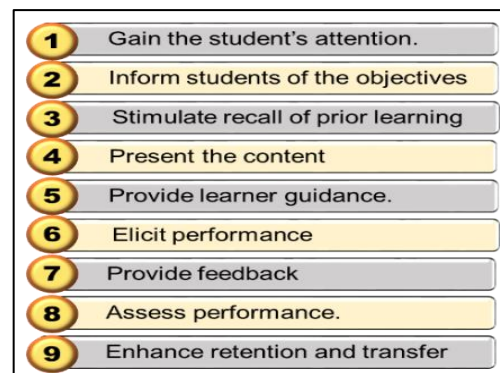


Figure 7 Gagne's Nine Events of Instruction

## 5. CONCLUSION

The COVID-19 pandemic has opened numerous opportunities for classroom innovations as online learning is fully implemented for all programmes especially at the tertiary level. In addition, the learning process happens at home with many distractions and limitations. Thus, this unique situation during the pandemic requires special attention in the design and development of online learning activities in order to ensure students are engaged in learning, and the online learning activities are effective and meaningful.

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