

Covid19: Technology Catalyst For Higher Order Thinking Skills (Hots) In Teaching And Facilitation

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Abstract

Education is a lifelong learning process and cannot stop to produce a balanced individual. In order to ensure the objectives are continuously achieved, formal teaching and facilitation (PdPc) in education must be carried on and achieved. The skills that need to be mastered by teachers today are higher order thinking skills (HOTS) in teaching and facilitation (PdPc). However, under certain circumstances the process needs to be adjusted according to its surrounding to ensure the teaching and facilitation process runs effectively, for instance during this COVID-19 pandemic and Movement Control Order (MCO). These situations should not be a barrier for effective teaching and learning process to happen between teachers and students. However, only the landscape of teaching should change from physical to virtual. This requires teachers more HOTS in the layout of every lesson session that happend. Thus, a research concept paper using qualitative method by utilizing the library resources will discuss the education concept and PdPc landscape that teachers and students still apply HOTS during PdPc and need to adapt to ensure education can continuously take place.

Keywords: Education, Teaching and Facilitation (PdPc), Higher Order Thinking Skills (HOTS), Technology, Covid-19.

1. INTRODUCTION

The Coronavirus Disease 19 (COVID-19) which has spread rapidly around the globe resulted in many deaths and various sectors affected. Obviously it causes deaths worldwide. Medical sector has become the frontliners to prevent and cure people who are infected by the virus. Other than the medical personnel who become the front liners to fight the deadly disease, it is also important to pay attention to the education sector because it gives great impact to the intellectuals and manners of the younger generation. Regardless of situations, education needs to take place and be carried on. In this regard, teachers need to be more HOTS in preparation and Method teaching

COVID-19 has indirectly changed the landscape of national education system. Turkey for instance, the government has started implementing long distance teaching and facilitation (PdPc) to curb the spread of COVID-19. According to the Anadolu News Agency, the learning process was initiated by the Education Minister, Ziya Selcuk which involved millions of students starting 9 am local time. On the last 13th March, Turkey announced all access to education starting primary to university are closed. Students however can participate in online learning via Education Information Network (EBA) with six special channels provided (Merve Gül Aydoğan Ağlarıcı, 2020)

Indonesia on the other hand has cancelled their National Examination (UN) or school examinations for year 2020 and discouraged their people to travel back to their hometowns during this upcoming Aidilfitri celebration in May (TheStar, 2020). Indonesian Education and Culture Minister, Nadiem Makarim has said that the national examination for elementary (known as Ujian Penilaian Sekolah Rendah in Malaysia), national examination for junior high (known as Pentaksiran Tingkatan 3 in Malaysia) and also national examination for high school (known as Sijil Pelajaran Malaysia in Malaysia) are cancelled and this move has also been agreed by the House of Representatives. However, it should be thought that teachers should be more creative and thorough preparation in teaching that will be in the form of a virtual PdPc.

This dilemma not only across various countries, even triggering the crisis increasingly critical in various sectors of life including higher education and schools. Without exception in Malaysia, after the mid-term school holiday which started on the last 14th March for a week and followed by the MCO for four weeks, such situation has made teachers to take several initiatives to ensure their students are not left behind in their studies. The teachers apply their digital knowledge so that their classes can be

conducted virtually. The initial step taken by teachers was actually carried out much earlier before the internal order was released by the Ministry of Education (MOE) (Wan Normi Hasan, 2020). There are three popular online classes that are being used namely *Google Meet*, *Zoom*, *Skype*, *Webex* and *Team*. These methods of PdPc are in visual, must be focused on HOTS on every subject that is taught. It gives challenges for teachers and teaching methods used.

If the technology-based teaching is fully utilized, online learning does not require students to come to school but they still can gain the same learning experience as if they are in class and HOTS should continue to take place, especially for teachers as their teachers have to do their preparations and encourage their students. Therefore, this concept paper will highlight several educational issues and challenges encountered during COVID-19, the meaning of education besides current methods that can be fully applied in the PdPc in build HOTS process during this quarantine period.

2. LITERATURE REVIEW

2.1 COVID-19 Issues and Challenges in Education

Novel coronavirus (n-CoV) or COVID-19 is a virus that can cause respiratory infections and may lead to death. The disease has been declared as global illness and categorized as pandemic by the World Health Organization (WHO, 2020). This pandemic has spread rapidly to over 150 countries including Malaysia within a period of not more than five months (Hasrizal Hanafiah, 2020). According to the recent statistic on April 8, 2020, the cumulative positive cases of COVID-19 around the globe has reached 1.4 million with over 82 000 deaths. As of April 9, 2020, Malaysia has contributed to a total of 4228 positive cases of COVID-19 and 67 deaths (KKM, 2020).

The impact of the global spread of COVID-19 has affected numerous sectors causing global economic fallout. Service, logistic and manufacturing are the three main sectors affected by the border shutdowns or restrictions by countries greatly affected by the virus (Riduan Asaha, 2020). As a matter of fact, affected sectors such as tourism, trade and investment also give impact to the global economic especially Malaysia (Norlin Khalid, 2020). Not only that, COVID-19 also has given significant impact to the education sector be it elementary, secondary or tertiary. A statistic from the United Nations Educational, Scientific and Cultural Organization (UNESCO) states 188 countries have taken the action to close schools and educational institutions since April 8, 2020. This action has indirectly affected the learning process of about 1.57 billion students and that makes up 91.3% of the total number of students around the globe (UNESCO, 2020). As a result, there are numerous emerging educational issues and challenges that need to be examined and discussed so they can be solved holistically.

2.2 Higher Order Thinking Skills (HOTS) Issues in Teaching and Facilitation (PdPc)

On the outbreak of Covid 19 that occur and prompt action should be taken such as MCO. Hence, in order to PdPc matter, the Minister of Higher Education, Noraini Ahmad suggested that all institutions of higher learning whether public and private were acting in line with a COVID-19 outbreak, also including school-level education and kindergarten (Hasliza Hashim *et al.*, 2016)

Most of the public universities have strategies and alternative measures to the online learning practices that are considered the best choice in the face of the situation to threaten the current learning environment. The teacher is supposed to leverage Open and Distance Learning (ODL). Teachers also use their creativity to interact with students even far away. It is time that lecturers apply whatever their abilities and creativity, as long as the PdPc process has been successfully held. Universiti Pendidikan Sultan Idris, Malaysia (UPSI) himself among the universities obtained the accreditation of the Malaysian Qualifications Agency (MQA) for the implementation of ODL, thus demonstrating the UPSI infrastructure for 'online learning'. Although there has been a technology that supports PdPc online, but technology from the point of assessment through online is still not fully developed (Timmis, 2016).

The MyGuru system was developed to provide facilities for students wherever there are internet accessibility such as downloading the video recording of lecturers. Lecturers in all institutions of higher learning can use their own creativity in PdPc such as through Massive Open Online Learning (MOOC), Open Educational Resources (OER) and Flipped Classroom online and whatever open applications

available. Any application that can help lecturers and students communicate delivering messages and task directives should be mortgaged as soon as possible including WhatsApp, Telegram and Google Class Room. It is time to apply a skill approach to the 4.0 Industrial Revolution era.

Online assessment application for subjects or lessons specially designed for learning on-the-face is challenging and difficult to do (Sahu P., 2020). For example, such as laboratory tests, performance tests, subjects involving painting art and others are impossible to perform online. In addition, this online assessment is quite difficult to monitor whether a student commits any fraud or be honest when performing the online assessment (Semire Dikli, 2003). The question arises, what about the current challenges of COVID19 outbreak, teachers are successful in PdPc by using the existing technology tools?

3. EDUCATION CONCEPT

Education is a significant asset and invaluable and it cannot be ceased (Kamarul Azmi Jasmi et al., 2012). There are several definitions of education given by scholars. In general, education is the process of personality development of a human being that encompasses all aspects of a human. Education is an important element in the development of an individual. It is an element that completes an individual which allows him to live peacefully and harmoniously.

3.1 Education Process

According to Abdul Fatah Hassan (2003), education is a process that educates human to think rationally, freely and good. It helps them to find answers to questions and solve any problems effectively. Husin, Rohana and Amirmudin (2019) on the other hand claim education as a process to deliver and gain knowledge to develop one's intellectual and self-confidence. It can increase one's maturity so that he can provide wise opinions and justifications when dealing with real life situations. Education is also a benchmark to determine the civilization quality of a race in this world. A perfect quality life means having the access to perfect education. Education is one of the factors that can change a person's life for the better. Poor education on the other hand can cause someone to live in poverty (Preston & Elo, 1996) unlike those who are well educated (Lucas, 1972).

According to many researches that have been carried out education influences the development of a race. It makes people become wise in dealing with their working life as well as when it comes to decision making. People who are well educated will be looked upon and vice versa. Education will drive someone to make the correct decision (Wan Hassan, 2007). Education is a right that must be claimed by everyone in the society. Hence, educational process must take place in any given situations be it during the quarantine period or MCO. However, should continue to achieve an educational goal of each individual.

The World Islamic Education Confrens (1977) formulate that educational goals are:

“Education should aim at the balanced growth of the total personality of Man through the training of Man’s spirit, intellect, rational self, feeling and bodily senses. The training imparted to a Muslim must be such that faith is infused into the hole of his personality and creates in him an emotional attachment to Islam and enables him to follow the Quran and the Sunnah and be governed by the Islamic system of values willingly and joyfully so that he may proceed to the realization of his status as Khalifatullah to whom Allah has promised the authority of the universe.”

This is again reaffirmed toward the end of the National Education Philosophy (1988);

“In line with the National Principles, this education philosophy also emphasizes the principles of trust and devotion to God. In fact, the National Education Philosophy is manifested within individuals who possess good qualities, balanced and harmonious. In a broader context, individuals who are good, balanced and harmonious are a reflection

of individuals who are knowledgeable, noble in term of spiritual, having healthy and clean minds and physical who can contribute to the religion, race and nation."

To sum up, the goal of education in Malaysia is to produce individuals who are balanced in every aspect worldly and afterlife. The balance between physical, spiritual, emotional, intellectual and social aspect is the benchmark to measure the success of education philosophy in Malaysia. All of the aspects indirectly can enhance unity among Malaysians. The achievement of the goal needs to align with racial and nation development aspect that comprise culture, social, economy and politic. All of the aspects are aimed to produce a united, disciplined and skillful society. Thus, in order to achieve the goals of education, education needs to continuously take place despite having to conform to the MCO caused by pandemic COVID-19. However, this has changed the landscape of education in which previously PdPc was conducted in the classroom but now it has to be done virtually and need to build the teachers more HOTS in impacting the students.

3.2 Higher Order Thinking Skills (HOTS)

The element of thinking skills is regarded as a very important element along with the statement of Curriculum Development Centre (2006):

"The application of Thinking Skills (KB) in teaching is crucial in line with the demands of national education philosophy and national requirement towards the F-economy. In the KBSR curriculum and KBSM review of thinking skills (KB) is a key element given emphasis and expressed in".

Based on the above statement, at the perspective of Musliha (2010), the concept of high level thinking skills (Higher Order Thinking Skill) became the main agenda in education after the objectives of Bloom Taxonomy (1956) was introduced. Hence, there are several terms used in this writing that require detailed definition.

First, higher order thinking skills (HOTS) are the ability to apply knowledge, skills and value in making reasoning and reflection of the problem, make decisions, innovate and able to create something (KPM, 2014). Second, according Onosko and Newamann (1994) in Musliha (2010) noted that the Higher Order Thinking Skills (HOTS) in define was a widely used mindset to meet new challenges. Hence, the study would have to see the HOTS still continue to be practiced during PdPc by using all opportunities which could not occur physically due to an outbreak of Covid-19.

4. LANDSCAPE OF THE ICT ORIENTED TEACHING AND FACILITATION (PdPc)

COVID-19 pandemic which has hit the country has given great implication to the education sector be it elementary, secondary or tertiary. Therefore, an online learning platform namely *Google Classroom* has been introduced by the Ministry of Education and it is proven to assist and allow teachers to interact directly with students. Along this, medium of technology like Whatsapp, Skype, Telegram, WeChat and others have been fully utilized to deliver knowledge, information, instructions and exercises. This initiative is taken to make sure that the learning process of students throughout the MCO period can still take place. UNESCO also has proposed the use of learning technology applications to ensure the continuation of learning even during the quarantine period. Hence, teachers are responsible to make use of available online learning platforms to teach, communicate with students and provide learning materials. This initiative is possible because majority of the students have access to technology tools at home.

The approach of implementing ICT in the teaching process that is used throughout this MCO period has transformed the landscape of teaching and facilitation (PdPc) among teachers. The role and readiness of teachers not only to impart knowledge and skills but also to develop the ability to diversify teaching strategies to cater the current needs. The obvious change that can be seen is the transformation of teaching method from traditional to fully integrating ICT applications (Joo, Park, & Lim, 2018; Lailiyah & Cahyono, 2017). The application of ICT in PdPc is a method and strategy that helps teachers to conduct tutorial, exploration, using technology as an application and a communication tool.

Generally, the implementation of educational technology not only ease the PdPc process but it also increases students' interest to study. Teachers and students have much more flexible time to teach and understand a lesson. In addition, the PdPc process can be done repetitively without depending on teachers, for example multimedia (video recording). Other than that, the learning process can take place anywhere as long as stable internet connection is available. Besides, teachers are given the flexibility in guiding, evaluating and assessing students' exercises/assignments/homework. Hence, the chaotic scenario caused by the pandemic has transformed the revolution of technology used in education for all levels. In fact, the use of various online learning applications is impactful to teachers and students. As stated by Abdul Halim (2016), the use of various ICT applications as a teaching and learning medium helps to increase students' knowledge with different experiences besides upgrading their talents in various disciplines. Students also utilize various learning sources and materials such as texts, pictures, video, visual audio and so on. Moreover, students also can discover numerous learning styles besides exploiting learning sources according to their own capability and this indirectly enhances their understanding and performance.

The integration of ICT applications in the learning process also promotes active, interactive and effective online learning environment between teachers and students. ICT-facilitated learning also allows sharing of interactive learning materials and feedback can be obtained immediately. Schoenfeld *et al.*, (2001), is also in favor that the use of ICT encourages students to be more attentive when communicating and solving the tasks given online. Majority of the students including those with special needs and various intelligence admit that the use of ICT applications in learning makes it easy for them to do tasks given by their teachers. Virtual learning environment also promotes effective communication between teachers and students when performing group activities. This indirectly gives positive impact to the teaching and learning process (Kargiban & Siraj, 2009). Application such as *Google Classroom* which is widely used by teachers as an alternative to transfer knowledge between teachers, students and parents takes place interactively without involving PdPc in the classrooms. This application encourages students to communicate interactively and creates active learning environment and more enjoyable (Iftakhar, 2016; Mai & Ghaneshwary, 2018). For this reason, the alternative of using virtual technology by teachers promotes active participation among the students in the learning process. Thus, the gap between teachers and students can be narrowed through teaching and learning process using the ICT applications (Lailiyah & Cahyono, 2017).

On the other hand, a different context shows the implementation of ICT-facilitated learning namely multimedia, website and software become the main medium for teachers to carry out continuous effective teaching despite being in a social distancing situation. Clement (2012) claims the use of ICT applications offers a variety of alternative methods to assist teachers conducting lifelong education regardless of situations and this indirectly enhances professionalism. Syahrul Ahmar *et al.*, (2019) states that the 21st-century teachers must be competent to face all the current demands and challenges to enable students experience educational technology-based learning. This is important for teachers when confronting student generation who grows up with all these technological advances and easy accessibility to information from various sources. In fact, they are more inclined to use technology as a medium for discussion and learning with teachers and friends. Therefore, teachers need to master the latest educational technology applications to fulfil the current needs and demands especially in a situation that requires the teaching and learning process be carried out virtually and interactively.

However, the implementation of teaching process for all school levels will be affected if the use of ICT applications in learning is not utilized especially during the social distancing period to prevent the spread of COVID-19. The academic performance and achievement of students will decline when the learning activities are not conducted as routine. Student-based assessment and evaluation also cannot be conducted continuously if the teaching and evaluation are not carried out. In fact, the learning process can take place in any given situations because the initiative of using of educational technology applications has been planned by KPM long time ago. For this reason, teachers play significant role to carry out the learning process by sharing the teaching and learning materials using the ICT platforms such as *Google Classroom* as virtual classroom.

As a consequence, the spread of COVID-19 pandemic has become an eye opener to all parties about the need to implement educational technology applications. Awareness toward the implementation of virtual learning affects the country today. Due to this, every teacher needs to understand the importance of ICT resources in education so that it does not only benefit them but also their students in any given situations. Teachers also need to eliminate their negative perceptions toward the use of ICT and try to upgrade their technology skills to be applied in the teaching and learning. In conclusion, today's Malaysian education system needs to get ready to change the learning landscape aligned with universal needs and demands.

5. TECHNOLOGY CATALYST FOR HIGHER ORDER THINKING SKILLS (HOTs)

In Malaysia's education system, a student were HOTs when they are able to answer and argue the questions at higher cognitive in apply, analyse, evaluate and create by referring to taxonomy Bloom review (Nagappan Rajendran, 2001). Creating is the highest level. On question and examination papers, it is difficult for teachers to provide questions or activities to assess the ability of students at the creating level. How can the teachers ensure that the students will be able to achieve the highest level of thought during the PdPc process in the current classroom online? One of the How is to use educational technology, which is to respond to the use of computer software. In addition, many previous studies show that the use of computer software, technology is able to generate students in education (Halim, 2016)

The use of the technology will also enhance the ability to know and tell students, and challenge the intellectual capabilities of students (Hariri & Hattami, 2017). We consider two ways to convey a similar concept but involve the use of different student thinking skills. The first way, teachers only convey a formula or knowledge, and then students write and record. The second way is that students are guided to discover their own formulas or a concept by giving exposure in electronic media. In other words, students are not fed up with a concept, principles, formulas, etc., instead of finding themselves the concept. It is definitely a second way to generate students and one of the teaching aids that can be used in this second way is the use of technology. The second way is better known as a discovery learning strategy. A discovery learning strategy has been suggested by the Ministry of Education Malaysia (KPM) for use in the process of PdPc.

According to the Curriculum Development Division (2013), this lesson strategy can further stimulate the environment of teaching and learning in the classroom that is in addition to generating students. This lesson strategy is increasingly effective and easily implemented with the help of technology. This is because to find a concept, students will own their observations. With technology access, students will have more information and info on the subject they have learned. Activities that give students the opportunity to see as many examples as possible within seconds and provide immediate feedback that cannot be obtained from normal traditional learning or face. Learning activities such as this can create a fun learning environment as well as generate HOTs students.

This MCO phase has to be integrated into a contextual learning strategy that can involve hands-on and minds-on activities. The learning strategy is contextual another learning strategy that can generate students. In general, contextual learning is a learning that links the concepts that are learnt with real life activities. Today's current technology is deeply related to today's learning with an individual's daily experience, community and environment. A study has been implemented, a combination of technology usage with digital photographs showing daily life of students has a positive impact on the achievement and retention of students' knowledge.

In conclusion, there are many educational technologies that have been supplied in schools and educational centres. It does not include educational technology for the initiative of its own teacher and innovation. This variety of educational technology should be used to generate students as highlighted by KPM since 2013. However, before technology can be fully utilized, teachers need to have positive perception on the use of technology and not to consider it as a burden.

6. CONCLUSION

The aim of education is to educate individuals and society as well as younger generation to be physically, emotionally, spiritually, intellectually and socially balanced. Thus, the nature of education is continuous and cannot stop. However, a certain condition needs to be adapted to ensure the PdPc process in education can continuously be carried out such as during this COVID-19 pandemic, quarantine order and MCO, by right it should not affect the process of formal education between teachers and students from taking place and as well as integrating the HOTs, because the concept of KBAT has seen much help in the survival of life problems. Nevertheless, only the landscape of teaching must change where it was carried out physically between teachers and students in classrooms before COVID-19, now the process is still conducted face-to-face but virtually. This conceptual paper is hopeful to give better picture of the current education situation and may all the medium of media be fully utilized for the good of education and to generate teachers to be more HOTs.

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