

ISSUES AND CHALLENGES IN ONLINE LEARNING: A CASE STUDY IN MALAYSIA

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ABSTRACT

This paper focused on exploring the secondary school teachers' perceptions toward online learning program which developed during COVID-19 pandemic in Malaysia. To evaluate teachers' perceptions of teaching and learning engagement, a quantitative survey was conducted. Therefore, teachers' understanding of teaching and the relation to their engagement in learning are explored in this survey. Hence, there are factors which determined the success of implementing online learning in Malaysia during COVID-19 pandemic such as the readiness of technology which in line with the national humanist curriculum, support and collaboration from all stakeholders including government, teachers, parents, schools, and community. The findings in this paper highlight the teachers' good sense of teaching and strong correlations between teachers' perceptions and students' engagement are significantly influence the online teaching and learning process. Teachers are also suggested to apply more appropriate types of learning tools during classes and pay attention to the nature of the student. The results may assist in advocating for a paradigm shift in online education. The research underscores the need for innovative approaches that leverage the power of technology to inspire online learners and educators thereby contributing to the ongoing improvement of online education.

Keywords: *Technology, Personalize Learning, Online Learning, Higher Education*

1. INTRODUCTION

Over 87 percent of students from more than 160 different nations around the world were reportedly affected by the lockdown, according to UNESCO [1]. Social and physical distance are suggested standards of World Health Organization's which need to be executed and challenging to be done for each nation in this whole world [2]. During the COVID-19 pandemic spread, there were permanent closure of academic institutions including schools,

colleges, and even universities. This situation inadvertently shifted online education to be the only remaining option, along with the rapid growth toward online learning, flexible learning, wide-open online courses, and external studies [3], [4]. The coronavirus is causing life to change [5], making teaching and learning process more challenging each day and display continual warning to the academic sector from the low-level institutions to the higher education level. Some people planned to use their

entrepreneurial skills to create opportunities for profit outside of charitable endeavors [6].

The Covid-19 pandemic not only affected human life, but also education. This circumstance has been affecting and putting the education system globally as it enforced instructors and teachers to shift into online mode of teaching and learning process. This impacted numerous academic institutions worldwide who are not able to modify their conventional pedagogical style to switch the teaching and learning process into online. [9] claims that pandemic has unquestionably impacting instructors, students, and educational organizations worldwide significantly. Hence, in-person instruction or conventional educational system have stopped to be offered to a great number of schools, colleges, and universities. The chance to expand online learning for roughly 5 million school kids and 1.2 million university students has been made possible by Malaysia's exceptional crisis [10].

As a result of the sudden closure of schools, colleges, and institutions due to the epidemic, new teaching and learning delivery strategies have had to be developed. In order to maintain students' educational continuity throughout the COVID-19 pandemic, e-learning programs, including digital and distance learning options, have been established, according to the Centers for Disease Control and Prevention. According to a World Bank report from 2020, as a result of closing physical schools due to COVID-19, there are many countries who embraced more type of learning packages. For instance, in order to ensure that students' education was uninterrupted, China launched an online learning system in the first few days of February 2020.

Most Malaysian schools, colleges, and universities use online learning platforms to facilitate student learning and act as a conduit between students and teachers. Numerous online technologies are accessible for learning, including (i) Learning Management System (Google Classroom, Moodle, Edmodo, Schoology); (ii) Video Conferencing (Google Meet, Webex, Zoom, Microsoft Team); (iii) Social Network Site (Facebook, Instagram) and (iv) Web 2.0 tools [7]. Despite advancements in technology and the usage of numerous learning aids, there are always issues and difficulties that need to be resolved [8].

According to World Economic Forum [11], Malaysia needs to adjust 2.68 years of schooling to close gap between actual and learning post

pandemic. A comprehensive strategy for investment in top-notch, future-proof education systems must be a strategic priority for any post-pandemic recovery plan to be efficient and sustainable over the long run. Using teaching methods like blended learning and learning via play could be very beneficial in assisting students to achieve all-encompassing Education 4.0 abilities. Instead of focusing only on the amount of time spent in college or other crude measures of learning, learning metrics should stress the development of both cognitive and non-cognitive skills. A child's growth can benefit from using digital tools. What counts is avoiding circumstances where kids are treated like passive recipients, which leaves less possibility for play, creativity, personal engagement, and contact with others in the real world. A lot of funds should be spent on providing educators with the right kind of training and development. Long-term development should be the primary objective of these initiatives. The importance of focusing on proper online learning and the challenges of remote learning is crucial for the future of education. It is crucial to tackle these issues in order to guarantee fair access to quality education, encourage student involvement and achievement, and adjust to the changing digital environment. Educators and institutions can improve teaching methods, promote inclusive learning environments, and prepare students for a technology-driven world by prioritizing effective online learning strategies and grasping the complexities of remote learning

Therefore, this paper investigates issues and challenges in online learning during the pandemic, particularly in Malaysia. This paper presents the work in five sections: related work, methodology, result and discussion and conclusion. Related work discusses about the issues and challenges, methodology describes the methods to study the issues particularly in Malaysia, result and discussion presents and reveals our discovery and discusses the findings. These issues and challenges will be useful as a post-pandemic recovery plan for long run, particularly in Malaysia.

2. RELATED WORK

Online learning has been gaining compelling recognition in these recent years as convenient and flexible alternative than conventional education done in a classroom. This shift towards digital learning platforms has been

accelerated by internet extensive availability and technology advancement. Online learning or known as e-learning, refers to digital technology usage to deliver educational content outside the setting of traditional classroom. This learning mode provide flexibility, allows students to access course materials, complete assignments remotely, and participate in discussions.

There are numerous benefits that online learning could offer including cost effectiveness, schedule flexibility, and easy access to various courses and programs. Online learning also allows students to learn at their own pace, learn from anywhere including their home, and it eases students or learners to access education despite schedule and geographical constraints. However, there are challenges presented by online learning which needs to be addressed to assure the effectiveness of it.

The usage of online learning is the proof of the fourth industrial revolution, in which there is infinite access to knowledge and online or remote learning is possible. Students able to learn and interact with the teachers or instructors and with other students from anywhere independently in the setting of online learning [12].

The development of several academic works, concepts, prototypes, hypotheses, ethics, and the assessment of benchmark concentrations on top-notch online course design, teaching, and learning are all components of effective online education [13], [14]. Flexibility [15], interactivity [16], [17], self-pacing [18], and opportunity are a few advantages of online learning. Information technology has been more popular since the release of COVID-19. Due to the novel pandemic, remote learning is now required. As a result, schools and universities are under pressure to create an immediate learning environment in a location different from traditional classrooms and to quickly adapt unique tactics in order to make distance learning practicable [19].

Most educational institutions now use online instruction and learning. Numerous difficulties were presented by the swift shift from in-person or traditional classroom engagement to an online connection between teachers and students [20]. Children and young people receive essential instruction at school, and when they stop attending, those opportunities for growth and advancement are lost. For impoverished students who continue to have fewer educational chances outside of school,

these constraints are quite stringent [21]. Progress has been made thanks to the booming novel technologies and learning management systems for teaching, learning, and evaluation since they have given teachers a practical solution and allowed policymakers to implement the usage of information technology for coursework during this time [22]. The disparities between students' performance in traditional classroom settings and online settings worry some teachers [23]. Additionally, the transition from direct instruction to more indirect methods has mandated that schools engage in a dynamic and constrained learning flow.

An online learning environment makes the individual distinctions between pupils clear. Online learning options include timing, duration, interactivity, and material. While some students like to study during the day, others prefer to study at night [23]. While some students prefer a solitary study environment, others join in discussion forums, neighborhood events, or other social networking applications. The study method is a key element that influences how the learner differs from other people in all respects. To put it another way, various students have various patterns of learning [25]. Researchers have made major contributions to the identification and forecasting of learning styles, particularly online learning [26], [27].

It should be mentioned that both experts and students agree that, when student characteristics are taken into consideration, the effectiveness of the learning process greatly improves [28]. In addition to video, instructional materials were distributed via WhatsApp, YouTube, Zoom, Google Forms, and Worksheets. Through Worksheets, Google Forms, and WhatsApp, teachers delivered instructional materials to the parents of their pupils, who subsequently turned them over to their children. In addition to the media that most parents consume, this educational material was also utilized [3].

According to Horn and Staker [29], by 2019, a quarter of all high school courses will be offered online. Moreover, online delivery is distinct from traditional face-to-face instruction in that student interactions occur with teachers, peers, and technology [30], [31], [32]. Education could undergo a revolution by becoming more inexpensive and individualized [29]. Due to a lack of resources, many people do not use technology to its full potential despite the fact that it is woven into every aspect of daily life [33]. Hasty internet development affects the e-learning platforms to grow and improve as

innovative tools to assist students in developing their talents and skills; and help to achieve the predetermined outcomes of learning [27]. It is a comprehensive strategy that encompasses a wide range of resources, technology, and training to create a productive learning environment. For the current technology used, most online learning classrooms are using tools as instant chats, text messages, and chat rooms to interact and communicate [34].

Through online learning, a wide variety of programs are accessible. It is easily available; one does not need to travel or keep a certain schedule in order to learn or teach from anywhere in the world. It enables a more personalized learning environment [35]. There is easy access to a variety of content, including pictures, videos, and eBooks. Teachers or instructors are able to utilize other formats to enhance their lectures such as forums or conversations. [12] define online teaching and learning as learning experiences in synchronous or asynchronous contexts using a variety of devices with internet connectivity, such as smartphones, laptops, and other devices. Throughout this procedure, the learner can be anywhere and still engaging in conversation with the teacher and other students. [36] claim that extensive instructional design, preparation, and a systematic design and development approach are necessary for effective online learning. The instruction consistency mostly influenced by the in-depth consideration of numerous design decisions and the design process.

However, in the bulk of these emergency revisions, this meticulous design procedure would be disregarded [13]. Therefore, the study of issues and challenges of online learning is respectively significant as preparation for a post-pandemic recovery plan so that in a long run, Malaysia is able to close the gap of adjusted learning in the future, especially for endemic.

3. ISSUES AND CHALLENGES

Malaysia has witnessed a significant growth in online learning platforms and programs in recent years. With the government's emphasis on digital education and the increasing demand for flexible learning options, many universities and institutions in Malaysia have started offering online courses to cater to a diverse student population.

The problem is that the quick adoption of online learning in higher education has distracted educators' focus from identifying significant

challenges in instructing online courses and creating a thorough analysis based on prior research [37]. It will take some time to make the switch from a standard educational setting to a remote and interactive learning environment. This quick transformation is currently linked to several obstacles and challenges [38]. [8] also highlighted a few challenges in online learning. Numerous research has revealed a variety of concerns, but they have not been put into any topical classification to give online educators an organized assessment of the issues [39].

This paper classifies the issues in online learning in threefold: 1) cost for internet and online learning tool, 2) instructors, and 3) students. The cost of purchasing pricey data packages and the provision of school infrastructure, such as an internet network that not all schools previously had, particularly in rural areas, have been problems [40]. The bulk of online courses uses prepared content that instructors use to teach [41]. One of the most crucial factors to consider when evaluating the development of e-learning in both developing and developed countries is access to the necessary information and communication (ICT) tools [19], [42]. ICT is the integration of technology tools into the social sectors of education and other industries.

Instructors in these courses struggle with a lack of empowerment. Other problems include those that are personal, such as apprehension about utilizing technology, discomfort with unfamiliar situations, perceived evaluations, particularly about assignments, and incapacity or difficulty with peer interaction, particularly regarding presentations.

In the end, one thing is driving the momentum behind all these problems. It is the mounting pressure and stress on the students. They are concerned that a lack of internet will prevent them from finishing their duties in a timely manner. Losing marks or grades is a possibility [43]. This will exacerbate due to lack of communication with the teacher, reaction time, and a lack of customary classroom interaction, technical and financial difficulties [44]. Despite these issues, according to [45], most students preferred online learning to other formats because it offers greater flexibility in terms of learning, better time management, and a wider range of course alternatives.

We classify and present the challenges in six-fold as tabulated in Table 1 namely: 1) passive students, 2) internet connections, 3) unfamiliar

technology, 4) attitude, 5) language, and 6) limited resources. The six-fold classification of challenges in education encompasses a comprehensive spectrum crucial for addressing the complexities of remote learning. Passive students may struggle with engagement, internet connectivity issues hinder access to resources, unfamiliar technology poses barriers to learning, attitudes towards online education impact participation, language barriers can impede comprehension, and limited resources exacerbate inequalities. This breakdown highlights key obstacles that educators and policymakers must tackle to ensure effective and inclusive remote learning environments.

Table 1: Challenges in six-fold

Challenges	Source
Passive Students	[6], [44], [46]
Internet Connections	[3], [33], [47], [48], [49]
Unfamiliar Technology	[3], [46]
Attitude	[19], [45]
Language	[37]
Limited Resources	[56]

3.1 Passive Students

The participation of student in group activities would tend to be challenging. Regardless of method nor process, the online environment for isolated or external student will most likely be faced with issues which specifically focused on terms of support, engagement, community, and access. The lack of face-to-face interactions and peer support can lead to feelings of isolation and disengagement, affecting students' motivation to complete their courses successfully. Concentrating on pedagogical methods for assisting students through the design and facilitation of interactive group presentation learning activities, as perceived from a teacher's perspective [46]. Students will be most likely tend to be a passive viewers in online training without careful and proper planning.

Despite that disinterested students able to understand and comprehend the class materials, they are inadequate to practice what they have learned outside the classroom. Students may take tests and do learning activities, but they do not aim to apply their new information to earlier readings or to instances from the actual world.

To make it practically successful, students are expected to be contributing to the depth, consistency, and breadth of their education. Few main issues which noticed by teachers are including lack of comprehension, lack of mechanical class

behavior, lack of opportunity for innovative instruction, and lack of possibilities for positive connection.

The lack of appropriate instructor interaction in online learning is another significant issue [44]. It was also revealed the evidence where teachers or instructors were facing hard time to read the students' moods and facial expressions, thus, it is nearly impossible to do any modification to the teaching methodology [6].

3.2 Internet Connection

One of the online instruction's hardest aspects is the unstable network connection. Teachers tend to be given the impression of lecturing to a blank wall while the students' audio and cameras are switched off despite making connection more secure [6]. The technical expertise of educators in an online setting affects how well instructional activities go [47], [48]. The adversities which came with modern technology are include installation problem, login issue, audio and visual glitches, and many more [49]. Teachers and instructors which involved in this online teaching discover that it is challenging for them to balance their time between interacting with students and taking care of responsibilities outside of the classroom.

Learning is done synchronously in online classroom which oftentimes makes students feel alienated from both their teacher and their classmates. When teachers are unable to determine whether their students are engaged in learning activities and how well they are understanding the course material, online instruction can be challenging. Some students, however, had issues with the online course.

The lack of reliable internet at home was the most prevalent issue [33]. Teachers stated that not all students have access to internet or even computers at home. They also think that the Malaysian government should pay attention and settle the fundamental needs before starting to implement e-learning into the educational system. However, it is an adverse reality that Malaysia's rural district would require more time to implement the e-learning [50].

Nevertheless, different priorities could be imposed to those who have limited choices in delivery mode due to family commitments or extra jobs which avert them from participating in it and possibly preferred hybrid enrolment or face-to-face

mode [51]. Technical issues occurrence caused the teachers and instructors to face diverse challenges. There are still numerous people who have issues in accessing computers, internet, books, personal computer, and even supportive families. Some appear to be. In addition, not all family have smart phones or laptops and in most cases the internet transmissions are quite weak especially in the suburbs area. These limitations and challenges tend to be the main factor to define the educational activity types which can be conducted [3].

3.3 Unfamiliar Technology

Teachers try to gauge when and how much their pupils participate in their lessons. Some students, however, find online course difficult. The absence of reliable internet at home was the most frequent issue. In order to get outstanding online learning outcomes, student participation is essential. This can be challenging if the students are anxious because they are stepping outside of their comfort zone, which is made worse by technology challenges [46]. Student engagement in academic activities is constrained by issues with ownership of mobile devices or laptops, data packages, as well as student love for studying. Teachers need to develop techniques to keep students engaged in the same way that students need to be conditioned [3].

3.4 Attitude

It is crucial to consider how individuals feel about online education. However, information technology still not considered to be a great tool for educational purposes including teaching and learning process. Additionally, it is viewed as inferior and not "as good as" traditional face-to-face training. This could pose a substantial hurdle when the implementation of online learning is not sufficient. There would be lack of advantages in allowing and implementing a learner-centered pedagogical culture or even reaching students at a distance when the utilization of available technologies not maximized. Although it seems possible that future generations of schoolchildren will implement technology as a necessary teaching tool in traditional, virtual, or hybrid classroom settings. In the future, platform usability and accessibility attitudes will be crucial in the creation of instructional strategies [19].

3.5 Language

Language proficiency can be a significant barrier for students participating in online courses, especially for non-native English speakers. Providing multilingual support and resources can help address language barriers and improve the inclusivity of online learning platforms [37]. The course is preferably taught in the student's native tongue is another factor that would be beneficial. The provision of bilingual information and guidance, such as technical support, study guides, and other services, should be attempted even if the material is in English. However, this issue would not always be applicable in a nation with various official languages or global education systems.

3.6 Limited Resources

Preparing the students to be ready for online instruction would be one of the additional challenges for teachers and instructors. These challenges are mainly obtained by internal and external influences that mostly can be separated. The internal factors are challenges that students have in their home environment, for example, interference from relatives or between siblings [3]. The study materials presented by the teachers often become challenging for independent study which is acknowledged by quite some students. Thus, parents are presented with additional roles as they need to assist as teachers at home, such as continuous supervision, homework assignment, and also understanding the value of learning at home [52].

4. METHODOLOGY

The study focused on exploring and investigating issues and challenges in online learning, and issues that arose during COVID-19 which experienced by 31 secondary school teachers who participated in this study. These educators come from various backgrounds and study a variety of math, additional math, and physics subjects. The curriculum encourages pupils to cultivate a lifelong love of learning and a knowing curiosity while it prepares them for adulthood.

The worldwide standard is established by international educational programs and credentials. It is made up of experts, is grounded in academic rigor, and represents current educational research. Lessons were taught with a teacher and student-centered learning approach. The system was

organized with lessons typically based on PowerPoint graphics for teachers. The theoretical portion of the subject was covered in the 40 minutes of instruction by the teacher using slides that included definitions, facts, and examples. Assignments are given to the students in many forms such as individual discussion, group discussion, case study, project presentation, or forum.

5. RESULT AND DISCUSSION

To indicate a correlation index between engagement in teaching and teachers' perception, descriptive analysis was performed in this paper. Table 2 shows the summary of the demographic profile of the teachers involved in this study. The results show that female teachers are having higher percentage at 65% compared to male teachers at 35%.

Table 2: Demographic Profile of Teachers

Teacher	Frequency	Percent (%)
Male	11	35
Female	20	65
Total	31	100

Table 3 shows the results of the frequency of teaching hours. Teachers mainly consider that teaching would contribute positively in many aspects such as developing communication skills and growing the interest in learning. Data gathered from Table 3 shows that respondents are mainly teaching the subject for 3 to 4 hours a day which is 74.2% of the total percentage. Meanwhile, only 4 respondents taught for more than 4 hours a day. However, the rest of the respondents with the lowest percentage chose to teach around 2 to 3 hours a day or even less.

Table 3: Frequency of Hours During Teaching Session

Hour	Frequency	Percent (%)
0 to 2 hours	2	6.45
2 to 3 hours	2	6.45
3 to 4 hours	23	74.2
>4 hours	4	12.9
Total	31	100.00

The average use of application tools in e-learning platform reflected in Table 4. The highest percentage of using e-learning tools falls into once a week at 32.3%, while the same percentage also falls into never using e-learning tools. Once a month usage is at 16.1% followed by a few times a day at 12.9% and last was once a day at 6.5%.

Table 4: Average Using Application Tools in e-Learning Platform (N=31)

Item	Frequency	Percent (%)
Once a day	2	6.5
Once a week	10	32.3
Once a month	5	16.1
A few times a day	4	12.9
Unrelated/Never	10	32.3
Total	31	100.00

The result describes the challenges or difficulties in creating teaching and learning activities to stimulate students' engagement in the classroom. An online learning community provides an environment in which students are successfully educated, cognitively and socially [34]. Accessibility has a profound influence on the participation and results of the student and thus has a significant impact on the student's performance [33]. Based on the main results, it is evident that students have a good understanding of the preferences of learning styles while learning. This is especially true when appropriate styles of learning are injected that correspond to the maturity level of the students. Table 5 shows the challenges faced by teachers in creating their learning activities for students.

Table 5: Challenges in Creating Learning Activities (N=31)

Item	Frequency	Percent (%)
Lack of knowledge	5	17
Time management issue	7	22
Limited growth opportunities	4	12
Lack of teaching skill	8	26
Limited sources	5	15
Not interested in technology	2	8
Total	31	100.00

Referring to the data, lack of teaching skill placed number one with the highest percentage as 26% and followed by the time management issue as 22%. Teachers' lack of knowledge comes third at 17% while limited sources is at 15%. Two of the least percentage challenges are limited growth opportunities at 12% and not interested in technology at only 8%. These challenges in creating learning activities are important as to help to improve the online teaching and learning process.

This study suggested, during teaching, teachers apply level of student participation and students are expected to pay full attention and listen more carefully. Key role in social contact between teachers and students is mainly played by emotion. It is believed to enhanced and improved the students' cognitive processing and participation. By resolving teachers' challenges, enhancing learning outcome would be a one step forward for the students [53].

5.1 Strategies to Improve Online Learning

To enhance online learning experiences and address the challenges faced by students and educators, the following strategies can be implemented:

5.1.1 Enhancing Infrastructure and Technology

Investing in robust infrastructure and technology upgrades can improve the delivery of online courses and ensure a seamless learning experience for students. This includes providing reliable internet connectivity, access to necessary devices, and user-friendly platforms.

5.1.2 Promoting Internet Accessibility and Affordability

Ensuring that students have access to affordable internet services and data packages is crucial for promoting inclusivity in online education. Offering subsidies or financial assistance can help bridge the digital divide and make online learning more accessible to underserved communities.

5.1.3 Ensuring Quality Online Education

Maintaining high academic standards and engaging course content is essential for the success of online learning programs. Educators should receive training in online course delivery and instructional design to create interactive and effective learning experiences for students.

5.1.4 Fostering Student Engagement and Motivation

Encouraging active participation, collaboration, and interaction among students can enhance engagement and motivation in online courses. Incorporating group projects, discussions, and multimedia content can make learning more interactive and stimulating.

5.1.5 Supporting Time Management and Self-Discipline

Providing resources and tools for time management, goal setting, and self-regulated learning can help students effectively balance their academic responsibilities with other commitments. Educators can offer guidance on study techniques and organizational skills to promote self-discipline.

5.1.6 Providing Comprehensive Support Services

Establishing comprehensive support services, including academic advising, counseling, technical assistance, and tutoring, can help students navigate challenges and succeed in their online studies. Access to support resources is essential for promoting student well-being and academic success.

5.1.7 Addressing Language Barriers

Offering multilingual support, translation services, and language proficiency courses can help address language barriers for non-native speakers participating in online courses. Clear communication and language resources can enhance understanding and inclusivity in online learning environments.

5.1.8 Incorporating Cultural Sensitivity

Recognizing and respecting diverse cultural perspectives and norms is important for creating an inclusive online learning environment. Educators should incorporate culturally relevant content, examples, and activities to promote understanding and diversity among students.

5.1.9 Implementing Interactive and Collaborative Learning

Encouraging collaborative projects, group discussions, and group interactions can foster a sense of community and engagement in online courses. Interactive learning activities promote active participation and knowledge sharing among students.

5.1.10 Utilizing Adaptive Learning Technologies

Integrating adaptive learning technologies, such as personalized learning platforms and AI-driven tools, can cater to individual learning needs

and preferences. Adaptive technologies can provide customized learning experiences and feedback to enhance student outcomes.

5.1.11 Continuous Evaluation and Improvement

Regularly evaluating the effectiveness of online courses, collecting feedback from students, and implementing improvements based on data analysis are essential for enhancing the quality of online education. Continuous evaluation allows educators to identify areas for enhancement and innovation in online learning practices.

Improving online learning requires a holistic approach that addresses infrastructure, technology, accessibility, quality of education, student engagement, support services, language barriers, and cultural sensitivity. By implementing strategies to enhance the online learning experience, educators and institutions can create effective, inclusive, and engaging learning environments for students worldwide.

In order to become lucrative and achieving students, effectively adapting to the new learning environment and continuously explore ways in studying online are needed [33]. The vital step to enhance and improve standard of teaching and learning is to identify the potential challenges in implementing technologies in schools, which is the importance of technology and ICT in the society and for future education [53]. Teachers, expectations, and attitudes are essential for the innovation effectiveness and teachers' outlook on it is important to be determined as it will be beneficial to enhance the learning instrument. Moreover, contribution to the raising of knowledge base of Malaysia's 21st century is to be expected as the use of ICT in education [53].

6. CONCLUSION

Pandemic has been affecting education in many aspects including teachers which involved in online learning and teaching process and tracking student's progress tend to be more challenging for them. Despite online education is apparently quite cheaper compared to the conventional education, still there are questions and doubts regarding online education along with its teaching and learning process. There are quite a number of problems which arose from the questions associated to online education such as learning pedagogy, accessibility,

regulation, versatility, affordability, and life-long learning.

There are several researchers who have identified in an online sense, the way of how learning community looks like and to stresses its value from different point of view. The current technology and facilities which being used as a communication tool for the young generations with skills is quite a challenge, if the teachers and instructors are not able to cope with the new situation in education then they will be always left behind. Therefore, teachers and instructors are expected to be more attentive in studying the nature of the students itself and students are also expected to be engaged and participating more in the classroom.

There are some suggestions for future research to enhance teaching effectiveness in online education including to use of methods and techniques of e-learning to elevate knowledge creation, and student activity such as simulations, dynamic presentations, laboratory tutorials, discussions, and collaborations. Besides the issues and difficulties in online learning, student participation is significantly higher as a result. Online learning will still be acknowledged as a good alternative to help in education excellence, especially during the pandemic.

The limitation of this research work is the research scope is limited to the relationship between teacher and trainee in multidisciplinary engineering education field which can be possible to include students from different major departments including mathematics, arts, and science to have the results. Moreover, teachers are expected to be able to implement humor into the teaching and learning through pedagogical skill and it would also be helpful to implement types and forms strategies.

The strengths of this study offers an opportunity to other researchers to do more in depth study regarding possible challenges in online teaching and learning. Understanding these aspects empowers institutions to leverage technology effectively, promote lifelong learning skills, and equip students with the tools needed to thrive in a digital-centric society. Ultimately, this study enables continuous improvement in educational practices, ensuring that education remains relevant and impactful in an ever-evolving landscape

It is expected to open doors for more studies and offers opportunity for Malaysia to achieve Malaysian 2020 vision and becoming a global leader in ICT. The COVID-19 pandemic may had disrupted

the conventional teaching and learning but it also presented academic field with a new pedagogical approached enriched by technology in an online teaching and learning. As we move forward, it is imperative to continue exploring and refining our online learning in order to achieve things better in the future.

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