QUALITY EXPERIENCE EVALUATION KIT FOR ONLINE LEARNING

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Abstract

The pandemic has recently impacted the teaching and learning perspectives with the implementation of online learning. Currently, various operating procedures reflect the online learning implementation, which the autonomy provided to the practitioners. However, the implication of the quality of experiences for the online learning implementation shall support the procedures available to enhance and improve the systems to understand the proper execution of online learning. Therefore, we conducted a Quality of Experiences Kit, also known as QeeKIT, as a mechanism to evaluate the online learning experience from the learners' perspective. The instruments include the survey regarding the learners' experiences on the online learning implementation. The tools include the learners' outcome, assessments, delivery, network coverage, network delay and error, devices capabilities, locations, and online resources that collected the learners' experiences to at least discover the implication of the online learning implementation using the proposed kit. We had implemented it for the current and previous computer science students, taking various Computer Science courses in UiTM Pahang. This alternative will adhere to the online learning implementation and for future improvement required for higher learning institutions and practitioners to ponder the endemic and post-covid situation.

Keywords: Implication, Online Learning, Quality of Experience, QeeKIT

Introduction

As the current pandemic continues and transforms to endemic, teaching and learning will exchange the traditional way to an online implementation in total capacity. Therefore, the tremendous changes in pedagogy, method, and implementation of teaching and learning have at least differed the mindset of the instructors and the students to acknowledge the transformation of teaching and learning practices in a new norm. Therefore, various standard operating procedures on teaching and learning have been established and implemented due to the pandemic. This guideline is essential to be a trendsetting mechanism for the teaching and learning implementation that will change the landscape of four square rooms or face-to-face

implementation into the virtual and online mechanism. Various impact studies have acknowledged the positive implementation of online learning through the study and investigations. Almost all impact studies focus on the factors identified to acknowledge the implication of online learning in the factors identified. Devices, network, learning resources, platform (Mohd et al., 2021) has shown the factors involved. It must be considered by the learning institutions and almost all practitioners to acknowledge the correct and acceptable implication of the new norms of learning implementation towards the practitioners and the students.

However, the mechanism to evaluate the online learning implementation has not been aggressively identified. Therefore, we invented the evaluation KIT to establish the novelty in the evaluation mechanism for the online learning implementation for the education that will acknowledge the importance and improvement needed for the online implementation during the pandemic and the endemic. This conceptual paper will briefly discuss the development of Quality of Experiences Evaluation KIT for ODL implementation, also known as QeeKIT. The development will consist of factors involved in the evaluation. Next, the implementation of QeeKIT in the current ODL implementation is merely in UiTM Pahang, Raub Campus for the selected courses in Diploma in Computer Science studies. Finally, future improvements of this mechanism effort will be discussed.

Literature Review

Quality of Experiences

The online learning experience among students is different, unlike the predictable traditional classroom approach (El Said, 2021; Maqableh & Alia, 2021). Quality of experience refers to the analysis of human experience with technology utilization which leads to performance improvements such as effectiveness, efficiency, and satisfaction towards the usage of approaches or products (Memon et al., 2021).

As the COVID-19 pandemic hits, many studies have been conducted in comparing the implementation of conventional classrooms with online distance learning in terms of the quality of the learning experience. For example, a study assessed the learning experience among university students in Public Health Nutrition in the sudden shift to online learning after the closure of university due to the pandemic. The students gave positive feedback that revolved around central quality aspects, such as learning objectives, content, program design, adaptation, teaching methods, supervision, and assessment forms (Almendingen et al., 2021). In a similar study conducted among business management students (B.B.A or M.B.A) in Indian universities, it is suggested that course design, quality of the instructor, prompt feedback, and students' expectations are the four determinants of learning experience and satisfaction among the students during online classes (Gopal et al., 2021).

Another research evaluates the experience among students of higher learning institutions in Malaysia with the implementation of online learning during this pandemic reported that the quality of interaction, instruction, instructor, course management, and technology are the five dimensions that might affect the quality of the learning experience among students (Selvanathan et al., 2020).

Online Distance Learning

Over the last decade, the commercialization of the internet in education has prompted a new method of teaching which is known as electronic learning (e-learning). It is one of the technologies that is widely used nowadays especially in higher learning institutions (Juhaida et al, 2019; Nayak et al, 2020; Kant, 2020; Zazaleena et al, 2012). Gradually, the technologies are becoming more integrated as an invisible and ubiquitous part of a global education system (Nursyahidah et al, 2012; Nor Zalina et al, 2012). Due to its massive growth, e-learning has expanded its capability and is known as online distance learning (ODL).

Online distance learning (ODL) is an extension of electronic learning (e-learning) which was created and developed to have a direct or indirect influence on the teaching and learning environment. ODL focuses on open access to education and training to make the participants free from time and location constraints and offer flexible learning opportunities to individuals and groups of participants. Today, the ODL system is growing fast because of the Internet development and revolution, and in particular the World Wide Web.

Due to the COVID-19 pandemic, the implementation of ODL has been tremendous throughout the world. It has become one of the most rapidly growing fields of education today and has an extensive impact on all education delivery systems (Nayak et al, 2020; Kant, 2020). In the university education context, ODL offers vast flexibility. Lecturers and students need not be present either at the same place or same time and are flexible in regard to modalities and timing of teaching and learning. This adoption of technology has enriched the popularity of ODL among students as it offers immense flexibility and accessibility.

QeeKIT development

The development of QeeKITis based on several factors on quality of experiences, ODL implementation, network facilities as well as the other factors that determine the ODL implementations such as costing and devices. The development of QeeKIT is illustrated in Figure 1.

The QeeKIT Factors

As discussed in the literature review, quality of experiences mainly focuses on the subjective perception of the individuals regarding the communication and services provided. In education, the implementation of quality of experiences in ODL implementation may focus on the teaching and learning implementation, online resources, learning platforms, and many other aspects.

The QeeKIT consists of several factors that have been determined according to the ODL implementation. The factors include the users' experiences, outcome, implementation as well other factors needed to be considered in the ODL implementation. Users' experiences play an important role in QeeKIT's development. It consists of subjective evaluation from the users' feelings and perceptions after the ODL implementation. The experiences factors selected include the outcomes, implementation, network, devices, costing, facilities, and location as we believe that the list of experiences factors will navigate the real perception of the learners' at the end of the ODL session implementation.

The Learning Outcome

As we know, the learning outcome is the indicator of the practitioners to ensure the output of the learning for each ODL implementation. In the ODL implementation, measuring the ODL is crucial and almost difficult to determine as the ODL implementation is purely dedicated in an online environment. This is different from the traditional way of learning implementation, in which face-to-face interaction is involved between the practitioners and learners. Therefore, to justify the outcome of the ODL implementation, the outcome for before and after ODL implementation should be determined. Therefore, we had to indicate the outcome as one of the factors of experiences needed for the QeeKIT development.

The ODL Implementation

The crucial implementation of ODL is implementation wise. As we experience the face-to-face learning implementation, the total dependency on the learning materials, location is easy to determine. Unfortunately, the ODL implementation is totally depending on the networks, devices, and the learners' location. As for now, with the ODL implementation, the network coverage is totally dependency on the ODL implementation. The various network coverage i.e. 3G, 4G, LTE, and currently 5G, was crucial to allocate enough resources for the ODL implementations. As for the experiences is concepts, the acceptance of the level of users' experiences will mostly determine by the network coverage. Therefore, it's crucial to understand the users' experiences on the ODL based on the network availability that or may support the successful implementation of the ODL during the pandemic. On the other hand, devices capabilities and requirements are also important to be seen in the ODL implementation. Various devices capabilities that support the network, applications, and environments of the learning resources are crucial to determine. Therefore, we have considered the devices used in the ODL implementation and insist to see the users' experiences on the devices used in the ODL implementation. The cost of preparing the ODL consists of devices, network and learning resources are also important for the QeeKIT. As ODL implementation is a concern, the cost might depend on the learners' ODL experiences. Without sufficient costing to prepare and embark on the ODL, learners' will affect the overall ODL implementation, outcome and might be a failure to get involved in the ODL implementation. This situation is also crucial to be determined. Therefore, we have to include the costing factors in QeeKIT development.

In the facilities, it will include learning facilities i.e software, learning resources provided for the learners to implement the ODL. This is because. most of the programs can be categorized as technical and non-technical programs. Therefore, for the technical ODL implementation, the dependency of the software is important to be explored. As for our implementation in the real situation of ODL, we have adopted the QeeKIT into our technical program, Diploma in Computer Sciences which cater the programming subjects to see the learners' experiences in these factors that will affect the outcome and also the ODL implementation. Finally, the location is also important to be observed as the location will penetrate crucial experiences of learners' in ODL implementation. In Malaysia for example, not all areas are in good coverage and it actually depends on the provider services. Various providers will provide according to the services but we shall also consider the fault and error services that happen during the ODL implementation that may affect the learners' concentration on the ODL implementation.
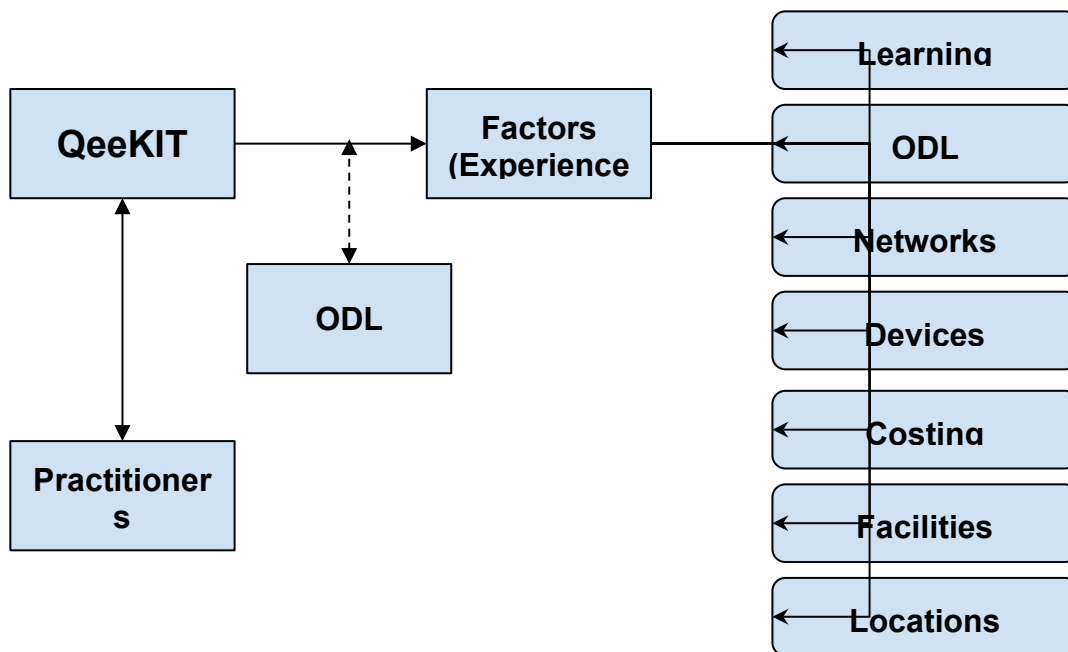
Figure 1: The QeeKIT development

QeeKIT Implementation

As for our case study, we had adopted QeeKIT in UiTM Pahang, Raub Campus, and tested the implementation in our Diploma Computer Science students. The flow of the QeeKIT implementation is illustrated in Figure 2. The dataset is collected regularly for almost three-semester since Semester 2019/2020. The details on the dataset and survey form were developed using the Google Sheet and Google Form as illustrated in Figure 3.
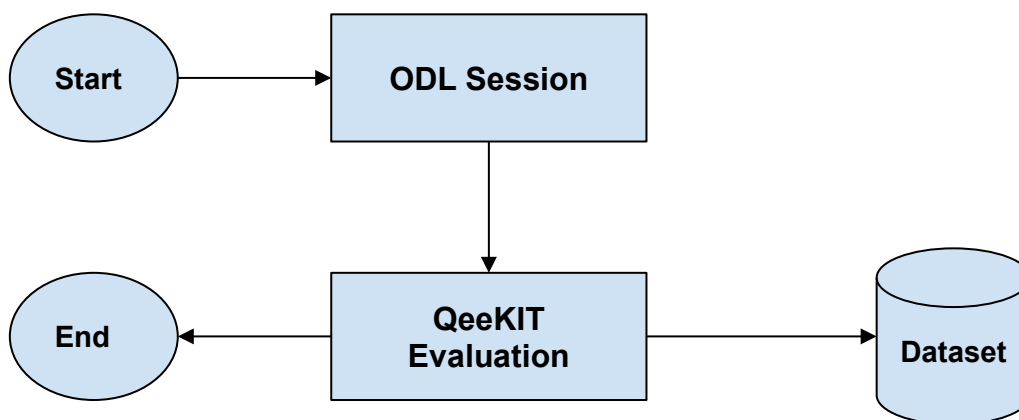

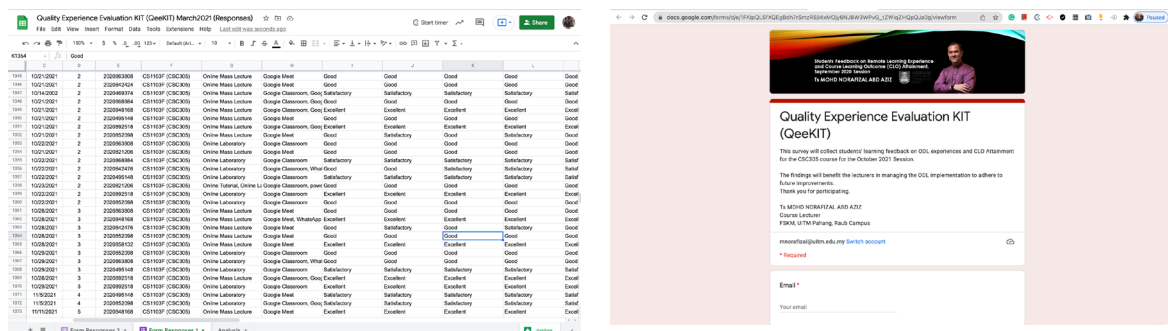**Figure 2**: The QeeKIT flow of Implementation

Figure 3: QeeKIT Dataset and Survey Form

Conclusion

QeeKIT, as described, has shown the impact of the ODL implementation as one of the evaluation mechanisms merely to evaluate and observe the users' experiences in the ODL implementation. We strongly believe that QeeKIT will empower the ODL more smartly with the dataset available to measure the ODL implementation, with strong support from the users' experiences. It will also embark on the practitioners' improvement skills needed for the ODL implementation, mainly for the young and new practitioners involved. QeeKIT is also flexible to be used in most educational environments with the dataset's input, can be transformed into analytical and statistical analysis forms to observe the impactful and improvements needed as the pandemic will become endemic. Therefore, the QeeKIT implementation must be one of the mechanisms available to penetrate the ODL implementation and research purposes for the endemic year ahead.

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