

A Discussion of Applicant of Digital Learning Tools for Universities

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Abstract: Following level of digitization, the growth of online tools is currently rapid and it benefits a lot to education system. However, several barriers and challenges are holding it back which demands to be overcome. This paper aim to identify potential barriers and push factors to offer solutions, indicating to implications for future improvement. Secondary research and mix of qualitative-quantitative approach will be applied to proceed this research, including comparison of secondary findings through literatures to identify the most representative factors. It is resulted that low level of popularity and unwelcomeness of academics' have caused ignorance to learning technologists and online educational tools. Additionally, rise of engagement shows as the most useful benefit among push factors except the impact of pandemic. Current identified barriers can hardly be overcome, adaptation with digital learning technology is recommended and should further improve educators' perceptions about learning assistance technique.

Keywords: Universities; Digitization; Learning tools; Applications

1. Introduction

As the modern world is developing and being digitized rapidly, a lot of modern technologies have appeared with the formation of Web 2.0 generation, including online educational tools. When people are discovering the functions and opportunities of network based on electronic devices, educators have also found its capacity of assisting education. Additionally, this tool had even be able to occupy the area of main teaching method under the influence of severe pandemic (Asare et al., 2021). To evaluate which method would be the best way to proceed to use online tools by leverage their most useful part.

2. Current situation of educational online tools

The online tools introduced in this review will particularly focus on the software tools created for teaching assistance in recent 10 years, instead of common searching tools or multi-functions tools. They have developed significantly to support students and teachers. Their usefulness has been acknowledged helpful in ways contributing active classes, simplifying the process of feedback, and improving teaching processes. Reading and writing skills are identified to be linked with each other, but they are always separated when practicing. Online tools are proved to be successful to resolve this problem. In the learning activities for first-college year students, Li and Mak (2022) have examined how does it works by applying OneNote as an online tool to connect writing skills and reading skills. The tools can support not only teaching, but also assessment and evaluation after every class. An online tool for video recording has been applied by Ritchie (2016) to establish a peer assessment system helping students enhance their presentation skill. A technical tool provided by Day, Saab and Admiraal (2022) allows peers to mark specific moments of students' work which improves the effect of feedback by referring more exact parts of submitted records. As more and more researchers and educators evaluating the value and viability of online tools, the role of them shall be clarified, and recent challenges

of using online tools should be identified.

2.1 Evaluating potential advantages of online learning tool

There are a variety of literatures that have analysed effect of online tools with relevant data. Basically, building an efficient process of checking assessment is a common but useful function revealed by most online tools. They are always been installed for offering instant feedback (Li et al., 2022). Online tool can be inserted between trial assessment and final assessment with quick response from tutors which makes the comments more specific, and it shortens the length of waiting reflection (Day, Saab & Admiraal, 2022). In the study of Lucas, Gibson and Shum (2019) and study of Gillespie et al. (2022), online tools also revealed the ability of offering high-efficient response. They give immediate feedback with particular tags and constructive suggestions which is much faster than traditional evaluation. However, their studies provide a limitation that students with high score benefit a little from quick reflection. This consequence may be answered by ceiling effect (Day, Saab & Admiraal, 2022).

With the assistance of computer and internet information, online tools were declared to be able to reduce the difficulty of checking, learning and understanding (Segeč, Kubina & Palúch, 2014). Their study showed that complex processes can be easier detected, and more comfortable to be edited by students through the modification of online tool. As certain teaching goals are complicated to be achieved by traditional face-to-face classes. Li and Mak (2022) stated that hard for common class to combine both writing and reading while online tool may fix this gap, which means to overcome the problems of human's limitations. Basal (2019) deemed a similar idea that introduction of technologies may resolve the challenge of collocation studying.

The advantages of technical learning tools are also been found to be connected with students' motivation and engagement. Several studies (Li and Mak, 2022) (Lucas, Gibson & Shum, 2019) have proved that students feel 'fun' when they were doing formative assessment through online tool, especially due to the quick interaction with peers (Li et al., 2022). This is also supported by Lucas, Gibson and Shum (2019) that students were more confident by using tools. Meanwhile, positive effect was reported in other studies. In Casteleyn and Mottart's (2023) results, students admitted the feasibility of online tool, and more willing to participant. Their data claimed a positive correlation between students' engagement and expectation of fulfilling the usage of online tools. Daradounis et al. (2019) agreed with this correlation, because the more students engage, the more they benefit. This opinion is similar with the results of Ave, Beasley and Brogan (2020) that students' attitude was important. Simultaneously, course design and factor of teachers might involve as well (Sun & Chen, 2016).

2.2 Evaluating possible barriers that are holding online tool back

Current limitations of online educational tools may refer to users, which indicate to the perception of students. Their attitudes should be involved into tests of online tools' influence, as Casteleyn and Mottart's (2023) noted that students' emotional factors will strongly affect the efficacy in the duration of using online tools. Kai-Wai Chu and Kennedy (2010) also pointed out students' tendency of changing online tools if current one was not suitable for them to complete the project.

Because of the requirement of collecting data to test the specific elements of researched online tools, questionnaire is always been considered as a method of data collection in papers in relation with educational online tools. As a consequence, their questionnaires are only available within each university in one country contributed by small size of samples. Lucas, Gibson and Shum (2019) wrote their results based on reflection from only 39 students from University of Technology Sydney. While the same situation was reported by other researchers (Basal, 2019) (Ave, Beasley & Brogan, 2020). Inaccuracy of results was found by Kai-Wai Chu and Kennedy (2010) due to the fact of probable insufficient samples. The issue regarding samples was also reported by Li et al. (2022), but it referred to the length of survey. Volunteers were not given enough time to fully understand the tool, which overshadowed the complete capacity of software.

Additionally, variation of samples has not been completely controlled. As the online tools are not private for only study, experience of using them exists for a part of volunteers (Ave, Beasley & Brogan, 2020). This might cause unfamiliar contribution to data analysis, while all students involved were not separated into different groups to classify their distinctive experience of using certain online tool. Li and Mak (2022) found similar problem about experience of samples, but it was caused because of different treatment to students.

2.3 Conclusion of current situation

The analysis of recent online tools has reported advantages of applying online tools within or after class. The assistance of digital tools is considered to be able reduce students' time of waiting response. It helps them to get brief response in formative assessment leading to perform better in self-efficacy. Although benefit are main findings included into studies, limitations are found due to investigation. Students' attitude is commonly regarded as a necessary factor in evaluating online tools, but it depends on different circumstances. Additionally, their perceptions will profound affect the efficiency of using tools. Caused by the drawbacks of current technologies in educational tools, there are challenges that have not been resolved. Additionally, educators perceptions and attitudes also matter the promotion of tools which will be discussed. As an useful learning assistance which can not only be treated as an alternative teaching method under severe circumstance, but also can be recognised as a learning helper, barriers should be identified to further improve the development of such a beneficial product.

3. Analysis of improving online learning tools

3.1 Potential advantages of online learning tools

In accordance with the review of relating literatures, evaluation about online tool is mainly collected from students' and teachers' perceptions, and these elements are extracted from analysis of advantages of online tool. Although online tools discussed by researchers differ from their functions, their aims converge and their features are revealed to be similar. To answer the first research question, three aspects are concluded as push factors that can enlarge the benefit of online tool. Two of them refer to target itself, one of them refers to environmental element.

3.1.1 Students' Engagement

As it requires interaction and modification of students to proceed the program running, a majority of online tools are designed to make students easier and willing to learn through assistance of internet. According to relevant findings, main experiences of students show a concentration towards increase of engagement and interest.

In accordance to the overall reflections from participants, Li et al. (2022) exhibitors that students gain a better quality of engagement when using given collaboration tool to learn. Meanwhile, nearly half of 'overall experience' results to the trend of enhancing engagement which means it a vital function for online collaboration tool. Referring to specific responses from students, the online tool performs better in teaching them with fun, making participants more willingly to learn. The finding around this section gives a crucial benefit comparing with common online learning courses. Causing by length of online lecture and lack of control through teachers, online learning is reported that there are unavoidable sacrifice students always make in case of online classes (Dumford & Miller, 2018). Meanwhile, online tool helps students to involve into collaboration without additional requirement of human resource. Thus, as engagement plays an important role in education and online tool has fulfilled its responsibility of this part. Its function of motivating students can be considered as a factor pushing improvement of online tool.

3.1.2 Confidence, self-efficacy

A majority of online tools are currently designed to diagnose without referring to the grade. As a helper proposing instruction and pre-check before assessment submission and examination, it is considered to be able to enhance students' belief for receiving

a better score. Additionally, multiple functions of online tool may offer explanation of concept through creative module. It means a more memorised understanding of knowledge rather than traditional lecture, which drives students' confidence of performing better.

Posttest response exhibits a highest value at students' confidence. It is also reported that students treat this online tool more like a self-evaluation helper rather than a tool developing their ability. From these data, students show an increase of confidence, and their expectation of personal ability rise to a higher level, which means an improvement of self-efficacy.

3.1.3 Impact of pandemic (COVID-19)

Referring to current global situations, COVID-19, which is recently the most severe pandemic, has actually boost the use of online tools. As the influence of COVID-19 grew, amount of distance learning dramatically increased.

Although it cannot be included as an inner push factor, its outer influence is undoubted and significant. Impact of pandemic may be the most influential element among all possible push factors. As traditional educational system has been damaged several times due to variants of COVID-19, it is an emergency to develop online education system further preventing from another pandemic. That is to say, this crisis can be considered as a risk, encouraging educator to revolute current online tools to suit more serious impact towards schools and universities.

3.2 Barriers which are draw attention for development

To understand why promotion of online tool is limited under several circumstances, and to further perfect it. Barriers that are holding it back have been identified. They mainly refer to inner disadvantages of online tool, but influence of situation is also involved.

3.2.1 Undeveloped online educational technique

According to findings of Schönwetter and Reynolds (2013), responses from participants indicate to unsatisfaction because of uncompleted program. A majority of functions cannot act as a whole, instead, they are running individually without easy but convenient connections.

Additionally, they also that investigated online tools do not cover enough corresponded learning material and technique support (Schönwetter and Reynolds, 2013), which means they still do not be able offer sufficient resource for learners. The reason of this issue may relate to the short history of online learning technique. It has not spent enough time to develop and there are not plentiful researchers focusing on this project. Thus, this barrier may be concluded as the low popularity of a beginning technique. Online educational tool has just appeared and not yet been widely separated. This causes a consequence including insufficient attention from the public and therefore a low speed of improving it. More surrounding publicity is required to solve this problem and related studies to push this process.

3.2.2 Lack of awareness of online learning tools

As the Table 4 has already shown that there are several limitations drawing online tool back including deficient support, lurking development issues and remaining concern. These matters play a vital role for analyzing barriers, while academics' disagreement and neglect have also severely affected the development of online tool. Data about teachers' perceptions from Watermeyer, Crick and Knight's (2022) study have shown an obvious trend of academics' attitudes. Impact of pandemic has raised their attention of alternative teaching methods, therefore, improving process of learning tool has been boosted for certain reasons. Although they tend to realize the importance of online tool under the influence of pandemic, it still has not been treated as a formal learning material. Academics deem that the status of education related technologists is still peripheral and format of online learning will usually be a liminal tool. This attitude means online education is not regarded as a recognised part for current teaching environment which will

surely be an obstacle on the path of its development. Due to the significant influence of COVID-19, traditional teaching method is limited, demanding assistance of online education. Hence, academics should be more aware of its usefulness to prevent another unacceptable damage to educational system. Moreover, they also need to face current benefits brought by online tools and further improve education quality with the help of modern learning technology instead of contempt.

3.2.3 Lack of ownership of devices in undeveloped areas

For most of students receiving higher education in developed country, owning an electronic device for receiving online learning materials is simple. However, when it comes to a situation that using online learning tools are necessary, this may cause a financial problem for particular students.

In accordance to findings of a university in Namibia (Kadhila & Nyambe, 2021), students in developing country may facing a problem of getting connectivity with online learning material, and around 30 percent of students in that university may not be able to receive digital teaching. This barrier is much harder to be overcome due to a fact of local environment. Under this circumstance, promoting online tool can only be an emergent method assisting traditional on-campus teaching. This demands attention of education from local government instead of academics only. Further support of learning devices is required and university may have to analyze mix of teaching methods in case of another global crisis.

4. Conclusion and recommendation

Currently, digital technology has not developed long enough to build a complete framework of educational system, online learning tool still need a long way to go to finish construction. As a beginner in education area, it has not yet drawn enough attention to support its development, and it did not attract adequate technologists from diverse programmes to enrich the categories of online tools' (Schönwetter & Reynolds, 2013). Although the influence of COVID-19 has profoundly boosted online education in not only frequency of use (Asare et al., 2021) but also the number of different majors, academics' attitude towards learning technologists and online tool is still a barrier stopping them to push further into formal education system. The common recognition of learning technology is to treat it as a liminal tool (Watermeyer, Crick and Knight, 2022), which means promotion of online tool will be limited within a low level. Due to a relatively low popularity and unwelcomeness of academics, development of online educational tool is stuck.

It is unrealistic to overcome these barriers by changing their minds quickly. Thus, identifying current push factors of online tools and therefore enhancing their advantages will probably contribute the promotion of online tool. Evaluation of collaboration tools shows a benefit of improving frequency of interaction, rise of willingness to volunteer and finding classes enjoyable (Li et al., 2022).

In conclusion, several identified barriers relate to direct and indirect resistance from current educational system, involving development of digitization and bias of academics. Instead of attempt to change the recognition, it is wise to adopt current situation and gradually enlarge the influence of online tool. Therefore, further enhancing online tool's ability of improving engagement may be useful to emphasize its position in supporting traditional education. Meanwhile, upgrading online tools should not stop in case of preventing possible severe impact towards face-to-face teaching methods.

An additional issue needs to be mention is the special situations of developing country. As electronic devices are not fully separated among university students, mixed teaching methods may have to be considered to fit local condition. This barrier can hardly be overcome under this circumstance and more financial support is required from local government in the future. This article supposes the development of digital learning technology may boost the reformation of educational policy and this innovation will mutually assist digitalization.

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