Secondary School Teachers' Adoption of e-learning Platforms in Post Covid-19: A Unified Theory of Acceptance and Use of Technology (UTAUT) Perspective

Rakshay Verma Ramhith and Muhammad Z. I. Lallmahomed(✉)

Middlesex University, Flic-en-Flac, Mauritius
rr678@live.mdx.ac.uk, z.lallmahomed@mdx.ac.mu

Abstract. Following the Covid-19 pandemic, there have been disruptions in the everyday running of educational institutions specially in secondary schools in Mauritius. In order to minimize the disruptions caused, the learning was shifted to an online system and the use of e-learning platforms was introduced. Given the limited number of studies on e-learning adoption by teachers in secondary schools after the Covid 19 pandemic and the more negative responses to e-learning in secondary schools in Mauritius than positive ones, this study sets out to investigate the adoption predictors of e-learning using the UTAUT through a qualitative lens. It seeks out to better understand the experience of secondary teachers using e-learning plaftforms. In total, 18 secondary school teachers were interviewed and the data were analyzed using NVivo software. Data collected were coded and the codes were gathered under themes and sub-themes through Thematic Analysis. One new theme 'accessibility' emerged in addition to the existing five themes from the UTAUT model. The importance UTAUT predictors and behavioral intention was reiterated. Moreover, accessibility has the potential of easing the adoption of e-learning platforms. The main recommendations for the education sector are to provide managerial support in terms of facilities, continuous training, incentives and to adopt a blended approach where e-learning is used as a support to existing teaching methods so that teachers are always technology-ready to switch to exclusive online teaching at short notice should the need arise.

Keywords: eLearning Adoption · Mauritius · UTAUT · Qualitative · Covid19

1 Introduction

In 2019, a deadly virus named the Coronavirus (Covid-19) was discovered in Wuhan, China and within a short period of time it caused the death of thousands of people in China [1]. The virus then spread around the world in 2020 where it infected and killed many more people [1]. Different governments around the world took immediate actions to stop the spread of the deadly virus. They restricted the movement of people and even closed businesses and schools [2]. This caused major disruptions in the everyday running

A. Seeam et al. (Eds.): InterSol 2023, LNICST 541, pp. 264–277, 2024.
https://doi.org/10.1007/978-3-031-51849-2_18

of educational institutions specially in secondary schools. Teachers and students were unable to attend their educational institutions and therefore, could not continue with their normal academic sessions. In order to minimize the disruptions caused, the learning was shifted to an online system and the use of e-learning platforms was introduced [2]. The disruption caused by the Covid 19 virus in the education sector has affected both students and teachers worldwide. Educational institutions have been forced to use and implement online teaching or e-learning systems due to the breakdown in traditional teaching methods caused by the Coronavirus.

In Mauritius, the Government has implemented a series of policies with regards to online teaching and e-learning. They have also provided guidelines for teachers to follow [3]. The implementation of e-learning has changed the way teaching is done. In post covid 19 times, e-learning is being favored instead of face-to-face teaching. The increase in the number of students and teachers using e-learning platforms, has simultaneously increased the use of the internet. This has prompted the Mauritian government to improve the existing network of infrastructures and to implement more e-services. Since the covid 19 outbreak, the use of e-learning platforms has become more and more popular amongst students and teachers specially at the secondary level. Teachers in secondary schools have been preferring the use of e-learning platforms even post covid 19 [4].

Teachers' adoption of e-learning platforms is considered as one of the main factors responsible for successful implementation of e-learning platforms for teaching. There are many studies and models [5–7] that have shown that e-learning has been positively received in the education sector. Studies have discussed about the adoption of e-learning in the education sector by secondary school teachers but only a limited number have focused on its adoption by teachers in secondary schools after the Covid 19 pandemic. Depp and Jeste [8] argued that there have been more negative responses to elearning in secondary schools in Mauritius than positive ones. He stated that this was mainly because of lack of connectivity amongst students and teachers, low level of IT literacy among teachers and a general lack of quality in the contents of courses being delivered through e-learning [8]. The adoption of e-learning platforms by secondary school teachers is an area that has been subjected to limited investigations in recent studies. In this paper we are going to investigate the influence of acceptance predictors on e-learning platforms adoption by secondary school teachers in one secondary school in Mauritius through the use of the Unified Theory of Acceptance and Use of Technology (UTAUT). This study aims to provide clues for easing the implementation of e-learning platform again in the future in other situations for the benefit of students and teachers.

Hence we ask the following question:

Q. How do adoption predictors influence the acceptance of e-learning by secondary school teachers in Mauritius?

2 Literature Review

2.1 E-Learning

Although the term's beginnings are unknown, it is believed that e-learning most likely occurred in the 1980s, around the same time as other online learning delivery methods [9]. Andrews & Haythornthwaite [10] define e-learning as a technology-enhanced learning

opportunities, including online and flexible learning, as well as the use of ICT as a tool for group and individual communication and delivery, all serving to support students and enhance learning management. E-learning also includes audio, text, images, and videos. Today's e-learning does not require any specialized hardware or networking. All that is required to access e-learning apps is Internet access and a computer that can run a Web browser [11].

Information Technology has taken up more importance in our daily life during the 21st century and this translates to education also [12]. Information and communication technology (ICT) has become widely employed in education over the past ten years, and as network technologies have proliferated, e-learning techniques have undergone significant change [13]. A classroom with computer terminals connected and where students could listen to recorded lessons of a particular course was developed by the University of Illinois during the 1960's [12]. In the 1990's the internet started to grow, and this gave rise to many distance learning schools with the first online high school being opened in 1994 [12]. Online learning has been growing rapidly in recent years with more students enrolling in online courses provided by educational institutions [13].

Online learning or e-learning has many advantages. E-learning improves the relationship between students and teachers through synchronous and asynchronous communication technologies [13]. E-learning has reduced the hassle in travel and other expenses associated with traditional learning [14]. Teachers and students no longer need to travel by bus or car to school. The time spent in travelling can be used in making longer classes where students and teachers have more interaction [14]. This in turn improves the learning process and increases the enthusiasm, proficiency, intellectual effectiveness and encourages different learning styles [15]. Furthermore, e-learning gives more opportunities to teachers in making their classes more interactive and to increase the engagement levels of their students. When learning becomes more interactive, it changes the focal point to a more active and learner centered approach instead of a passive teacher centered one [15]. Increased interactivity helps students to be more interested in classes and allows them to have more specific practice [15]. The teaching materials provided through e-learning can be easily retrieved from everywhere and at any time [16]. E-learning homogenizes the content and delivery of courses. It prevents situations where teachers explain the same topic to different classes of the same course but there are variations in the way the subject matter is explained [15].

E-learning has many advantages, but it also has its disadvantages. One major disadvantage is that teachers are not able to give practical exercises to students in order for them to apply the theoretical knowledge they have acquired [14]. There are subjects where practical need to be done in school laboratories but with e-learning this cannot be done [14]. In subjects like Biology and Chemistry there are many practical experiments that have to be carried out for better understanding of students but with e-learning it is difficult to do so [16]. Teachers have often complained that they do not have much control through e-learning. They cannot control what the student is doing when they have online classes since they are not physically present to overlook on the educational process [16]. Furthermore, it is very difficult for teachers to make sure that students are actually learning specially when they are given homework. Students may copy and paste answers from the internet without any understanding of the questions [16]. There

is the risk of students cheating during online assessments. They may try to work in groups through the use of other applications to find the answers or they may try to look for answers on the net [16]. This can result in students having bad attitudes towards education or their teachers and in a breach of educational values [16].

2.2 Adoption Theories

Important elements that drive people to engage in particular behaviors are described by adoption theories. An adoption theory is employed to look at people and the decisions they make while embracing or rejecting innovation [17]. There have been many adoption models which have emerged during the past years. The Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB) and Unified Theory of Acceptance and Use of Technology (UTAUT), are the most popular theories [18].

Theory of Reasoned Action (TRA)
According to Taherdoost [44], TRA was established in 1975 by Fishbein and Ajzen where it was initially used in sociology and psychology. In recent years it has become an important aspect in the investigation of behavior patterns when individuals use Information Technology (IT). The National Institute of Mental Health (NIMH) found that there were 8 variables for an individual to engage in a specific behavior. The researchers at the NIMH agreed that only 3 variables were significant in yielding behavior [19] namely:"1. The person has formed a strong positive intention (or made a commitment) to perform the behavior. 2. There are no environmental constraints that make it impossible for the behavior to occur. 3. The person has the skills necessary to perform the behavior" [19]. The Theory of Reasoned Action specifies that behavioral intention is a function of two determinants: a personal factor termed "attitude toward behavior", and a person's perception of social pressures termed "subjective norm" [20]. Attitude refers to the person's own performance of the behavior, rather than his or her performance in general [21]. Subjective norm is a function of a set of beliefs termed normative beliefs. According to Ajzen and Madden [22], normative beliefs "are concerned with the likelihood that important referent individuals or groups would approve or disapprove of performing the behavior". According to the Theory of Reasoned Action, to obtain an estimate of a subjective norm, each normative belief of an individual is first multiplied by motivation to comply with the referent and the cross-product is summed for all salient referents [20].

Technology Acceptance Model (TAM)
According to the Technology Acceptance Model (TAM), user attitudes regarding technological features such as perceived usefulness and perceived ease of use determine behavior intention [23]. The TAM is built on the idea that a user's own ideas, attitudes, and intentions can be used to explain technology acceptance and use. This idea is based on the notion of reasoned action [24]. Numerous studies [25–27] demonstrate that TAM has undergone substantial modification and extension and has demonstrated strength in the adoption of management information systems, information systems, and information technologies. According to Marangunić & Granić [28], a lot of studies have discovered

statistically significant results for the strong influence of perceived utility on behavioral intention to utilize a particular technology. Strong evidence is provided to support TAM as a model for predicting user behaviors in adopting an innovation. A brief, multiple item questionnaire is commonly used to measure the TAM factors [24].

Although TAM has shown success, this paradigm has some flaws. One of TAM's most notable flaws is its inability to identify the factors that influence its independent variables (perceived utility and perceived ease-of-use) [29]. TAM's concentration on information systems that have been implemented in voluntary environments, with little regard for mandatory-use situations, is another flaw. Additionally, rather than from underdeveloped nations like Uganda, studies employing TAM as their theoretical foundation have primarily been conducted from rich nations like Northern America. Assuming that adoption models or theories for information technology will work equally effectively in various cultural contexts without adjustments would be a grave error. Despite the fact that TAM has been used to explain why students are adopting technology-enhanced learning, extended models like UTAUT and UTAUT2 have shown how social and physical context, as well as consumer judgment, play a part in how students use educational technology [23].

Unified Theory of the Acceptance and Use of Technology (UTAUT)

One of the most recognized and developed areas of information systems (IS) study is on how individuals accept and use information technology (IT) [30]. The idea that one must first use a technology before one can obtain desired outcomes, including an increase in employee productivity and task or job performance in businesses, is also supported by studies on technology adoption by groups and organizations. The Unified Theory of the Acceptance and Use of Technology (UTAUT and UTAUT2), which boosted the explanatory power of earlier technology acceptance models, was created by [30] after empirically comparing and condensing the acceptance literature [23]. Venkatesh, et al. [30] combined these theories around ten years ago to create the Unified Theory of the Acceptance and Use of Technology (UTAUT). Specifically in organisational contexts, UTAUT identifies four key factors performance expectancy, effort expectancy, social influence, and facilitating conditions—as well as four moderators—age, gender, experience, and voluntariness. Performance expectancy can be defined as the extent to which a person thinks that utilizing the system will enable him or her to advance in a career. [31] Effort expectancy can be defined as the perceived ease of use of a system. Social Influence is the extent to which a user believes that influential people consider using technology to be important. Facilitating conditions is the extent to which a person assumes that the system's technological and organizational foundations are in place to facilitate use of the system. These factors are related to predicting behavioral intention to use a technology and actual technology use. UTAUT postulates that performance expectancy, effort expectancy, and social influence have an impact on behavioral intention to use a technology whereas social intent and facilitating circumstances affect technology use [30].

UTAUT based research has flourished even if some believe it has reached its limits in terms of describing individual technology acceptance and use decisions in businesses. Research has specifically used UTAUT to explore a range of technologies in organisational and non-organisational settings, combined it with other theories, or utilized it as

is. The propagation and distribution of new ITs, such as enterprise systems, collaboration technology in knowledge-intensive firms, mobile Internet for consumers, agile IS, e-government for citizens, and health IS in the healthcare industry, in organizations and society have contributed to the continued growth of UTAUT-based research [32]. Nearly every part of society has been affected by IT, and many people utilize it in a variety of settings [32]. Routinely assessing the accomplishments of the current studies based on UTAUT can highlight the value of UTAUT and the limits of earlier studies based on UTAUT which one might then utilize to create a new framework for the adoption and use of technology with a view to identifying intriguing areas for future research [30].

2.3 Chosen Underlying Theory

Amongst the different theories discussed above, the Unified Theory of the Acceptance and Use of Technology (UTAUT) has been chosen for this study. It will help in understanding secondary school teacher's approach and purpose in using e-learning platforms after the Covid-19 pandemic. The UTAUT model will likewise help to understand how secondary school teachers have implemented e-learning platforms in their classes. UTAUT was initially developed to better comprehend the elements that affect employees' adoption of and utilization of information technology. However, it has been used in a number of research in an educational setting. In this area, UTAUT has been utilized in technologies including web 2.0, e-learning, computer-based assessment, and mobile learning and also in different countries worldwide [33]. UTAUT synthesizes eight theoretical concepts from psychology and sociological theories that have been utilized in the literature to describe the intention to utilize a technology. TRA and TAM are models that focus more on human behavior in a broad sense whereas UTAUT is more specific in measuring technology acceptance [34]. UTAUT has a better approach to the use of factors such as performance expectancy, effort expectancy, and social influence [35].

3 Methodology

3.1 Data Collection

In this study, a qualitative research method is being used. In order to gather data and acquire understanding of ideas, attitudes, experiences, processes, behaviors, or forecasts [36], a semi structured interviews was carried out. Semi-structured interviews allow the in-depth examination of the use of e-learning platforms by secondary school teachers. The interviews were carried out online and through the phone due to the covid-19 situation which was prevailing in the country at that moment in time where sanitary precautions were taken. Through online phone interviews respondents have been characterized as laid-back and eager to speak freely and openly. Rich, colorful, detailed, and good quality data can be collected with telephone interviews [37]. A pre-test interview was carried out in order to identify mistakes, make sure that questions are in keeping with the main objectives of the study and identify any issues which can be amended before collecting data from the main participants [38] by reviewing the framing of some of the questions. The pre-test was carried out with a limited number of participants (4

teachers). Based on their feedback, interview questions were restructured/rephrased and even merged to allow for simplicity. A few unwarranted mistakes regarding grammar or typing were identified and corrected.

The interviews were carried out online and individually through the phone due to the Covid-19 which was prevailing in the country at that moment in time where sanitary precautions were still being taken. Different sessions of about 30 to 45 min were set up with each respondent at a time that was convenient for both the interviewer and the interviewee. Twenty (20) teachers were contacted for the interview. Eighteen (18) of them responded favorably. Prior to embarking on the interview, the participants were formally invited and were informed of the purpose of the study/project, why they were chosen, free decision to participate and quit at any time, possible risks, data protection and confidentiality clause, the hereafter of the results from this re-search study and the need for consent. Answers to the interview questions were noted down and recorded in the Qualtrics through a link provided. The questions were open ended so as to allow the respondent to expand as much as possible and not be influenced by the interviewer [39]. Through the use of open-ended questions, it is possible to learn from people's spontaneous reactions, avoiding any potential bias that could arise from offering people answers [39].

The data which was collected through interviews was transcribed and analyzed thoroughly so as to gain a comprehensive understanding about research topic. NVivo software was used to perform the analysis. After this process, patterns were identified in the data collected and were categorized into main themes through Thematic Analysis (TA). Thematic analysis (TA), a commonly applied qualitative technique, focuses on the content of participants' remarks by "finding, analyzing and reporting patterns (themes) within data" [40]. A key ability in conducting qualitative data analysis is recognizing recurrent and significant themes, which are found when data are methodically analyzed to uncover trends in order to provide an insightful description of a phenomenon [41]. The main advantage of thematic analysis is that it is an effective technique for data analysis that enables researchers to summarize, highlight, and understand a variety of data sets. Furthermore, it is very accessible to less experienced researchers because there are published descriptions and examples of its use [42].

4 Findings and Discussion

4.1 Performance Expectancy

There were some questions related to how teacher's approach to teaching has changed since the use of e-learning. Most of the respondents have stated that there was a change in their teaching approach. A vast majority of them have said that their teaching has shifted from traditional blackboards to the inclusion of more visual aids through the use of e-learning platforms.

One of the respondents can be quoted as saying: "I had to make more use of visual aids while teaching compared to traditional method. It was more fun, and students enjoyed more!" Another respondent working with science students said: "It has changed my approach towards teaching of science as students are more interested by the tools used and the videos on practical experiments and animations are lively and interactive

with visual aids." Some teachers also stated that e-learning platforms have shifted their approach from content based to skill based where students are much more involved in the classes. They added that e-learning has helped students to develop more skills. One teacher said: "The focus of my approach to teaching changed from content-based to skill-based. Through flipped learning, I have been able to switch from teacher-led to student-led lesson, allowing students to develop holistically. For instance, as they are guided through their learning experience, they also develop their self-management skill, communication skill research skill etc."

The interviews have shown that most of the teachers used e-learning alongside traditional teaching to improve the engagement levels in their classes and to help them in the teaching process. The use of a blended approach has had a significantly positive impact on the performance of teachers. There were also more questions asked about how and why e-learning is beneficial to teachers and also about how do teachers perceive that e-learning is beneficial to their teaching. The results from the interviews have shown that there was a significant number of respondents that have said that e-learning was not completely beneficial to them. It saves them time in travelling and they have some level of comfort as they carry out their classes at home, but they added that it will be more beneficial if it is used as an addition to existing teaching methods rather than using it on its own.

One teacher stated that: "E-learning in my opinion cannot be used to wholly replace teaching at school. It can however be used for students who cannot attend school for a long period of time or to catch up with lessons missed." Another teacher has agreed that e-learning has improved performance but had some reservations: "Yes, to some extent as we are in the comfort of our house, no time wasted traveling. If students had been regular and all resources provided, it would have been an excellent way to continue teaching and learning process." On the other hand, some of the teachers have agreed that e-learning can be beneficial to them. A teacher in the English department stated "Yes! I can be more creative and innovative with my teaching! Makes the subject more interesting." A teacher in the science department stated: "Yes, it benefits as it's a new way of teaching with the young generations. Teaching of science is more interesting as it involves more practical experiments through videos, animations. Prior notes, concept maps, video lessons can be forwarded to students".

A vast majority of the teachers that have been asked about the effectiveness of their teaching using e-learning have stated that it has helped to make their day-to-day teaching more effective. One teacher in the English department said it was subject dependent: "I think it depends on the subject. Being an English teacher, it was beneficial in the sense that we could share some resources with students to facilitate understanding."

Another teacher added: "Yes, we are having different methods of teaching I would say for my subject having a simulative lab or a 3D program would be really helpful." However, a teacher in the mathematics department stated: "E-learning is not completely effective. Class teaching where the teacher and students are in the same environment is more effective". This shows that not all teachers that were interviewed were convinced that e-learning would be more effective for their teaching."

4.2 Effort Expectancy

The teachers were asked questions about how they would describe the usability of e-learning systems for teaching. Majority of the respondents answered that they found the use of e-learning platforms for teaching to be quite easy and that the interface was user friendly. There were also some respondents who said that it would have been more effective if it was integrated with the traditional teaching methods and that more encouragement was needed to boost its use.

A teacher stated: "It can be used as a support to help the learning process and not the only means to teach."

Another teacher supplemented: "Though it can be user friendly, but it cannot replace face to face teaching. Long hours on screen make students tired and bored."

A teacher stated: "It is very useful in a blended classroom, where a mixture of online and face to face teaching takes place."

One teacher agreed: "It can be used as a support to help the learning process and not the only means to teach."

A teacher from the physics department stated: "There is much to be done to promote it! More encouragement to adapt to new methods."

There were some respondents who were of a different view. They said that they did not find the e-learning platforms to be very useful for teaching.

One response was: "It is not very effective as students gets tired being for a long time on screen."

4.3 Facilitating Conditions

The interviewees were asked about what more they thought should be done so that e-learning can be easily used in teaching. There was near unanimity among the respondents who stated that they would like to receive more training on how to use the e-learning platforms for teaching pointing to the fact that they were inadequately trained. They also added that there should be adequate online support so that any issues that might arise can be resolved quickly. Some of the teachers have also suggested that an online portal should be developed where all the course materials and resources are provided to students and teachers.

Another teacher stated: "Train teachers so that we make optimum use of the tool. Provide quick online support in case of troubleshoot".

Some were in favor of blended method. One teacher elaborated: "More training should be provided and there should be access to internet in classes. A blended method of teaching should be used in classes, traditional teaching and use of videos to project in classes." A teacher in the biology department stated: "Full-fledged training workshops should be given to educators on online teaching. Online support to be provided for any troubleshooting. Relevant materials to be put on an education online portal for access by students and teachers."

Another teacher in the same department expressed the following: "Developing online portal where students and teachers can easily access relevant materials (worksheets, videos, simulations) for conducive learning".

They were also asked about how their school has helped or provided support to them for the implementation of e-learning in their classes. Most of the teachers have said that they have received limited support from the school highlighting the need of more involvement of management side for an enabling environment. Many respondents pointed out that they had to use their own devices for classes and that they were not compensated for their internet usage even though they had to use own internet connections. They also stated that the support from the school was limited to providing the contact details of the students and contacting them if they have been irregular to classes. A teacher stated: "Teachers had to manage with their own devices and Internet connection at home. We had to submit weekly reports on the conduct of online classes. Schools were however calling students who were not attending the online classes." Another teacher concurred: "Not much was done. They said they will refund us if we are paying packages of students, but nothing was done. We used our own mobiles, computers, or laptops." One teacher confirmed: "Not much support has been provided to educators. Our own devices and Internet connections were used. Students contact details have been provided to all educators. Students who have been irregular were contacted by the school for immediate action." One teacher added: "We had a platform but there were many issues with it! Both students and educators had connection problems".

4.4 Social Influence

The respondents were asked about how their colleagues perceived the use of e-learning platforms for teaching. Most of the respondents answered that their colleagues had mixed feelings about the use of e-learning for teaching. They stated that the younger teachers were more at ease with the e-learning platforms while the older ones had a tough time. Some teachers enjoyed the experience while others found it difficult to give feedback on the work students handed in.

One teacher stated: "Many colleagues would not like to revert back to online classes." A teacher in the biology department stated: "Many were reluctant or at a loss as they were not tech-savvy. Some enjoyed the experience as they were able to cover aspects and complete their syllabus. However, giving feedback was not easy and correction was tiring as we had to read on the screen and used tools, we are not familiar with."

Another teacher stated: "Some had difficulties coping with the use of technologies. Some enjoyed it." A teacher added: "Mixed feeling of colleagues. The younger colleagues were more at ease with it. The less young had difficulty mastering this technique. But e-learning is a good support to keep the work going."

4.5 Behavioral Intention

The interviewees were asked whether they intend to adopt e-learning in their everyday teaching. Most of the respondents testified that they would not use e-learning platforms in their day-to-day classes as they preferred face to face classes. They argued that traditional teaching methods allow teachers to better assess the performance and level of understanding of students.

A teacher stated: "Not really, a lot of preparatory work has to be done to make it really effective. And also, students tend to lose focus mostly during afternoon sessions."

Another teacher added: "I prefer the face-to-face classes as I can see the students and gauge their level of performance and understanding."

On the other hand, there were some teachers who said that they would use e-learning in their classes but would be in favor of a blended approach where e-learning is used as a support to existing teaching methods. A teacher stated: "I would rather go for a blended method Face to face as well as online teaching. "Another teacher added: "Mixed with face to face, online teaching helps to reinforce understanding. If proper incentives such as allowance for internet connection, allowance for compensating family/social life disturbance etc. are provided, the educators will be encouraged to use online teaching."

4.6 New Construct - Accessibility

The interviewees were asked about what they would improve or add to the e-learning approach. Most of the respondents stated that they like the platform to be more accessible. They added that if tablets and internet access was provided to all students and teachers, it would help making e-learning platforms more accessible. Some of the teachers also said that it would be better if there could be resources provided online and more training was provided as the training they received were of a short duration and mainly as a matter of expediency mainly to familiarize with e-learning platforms.

For improving accessibility, one teacher suggested: "Providing access of internet and tablet to all students. A monitor to check attendance so that teachers do not waste time doing it."

Another teacher from the science department added: "A lighter version so that it is accessible to everyone no matter the data usage. Online resources could have been already uploaded on the platform such as textbook, notes, videos, charts, explanation, anything that can facilitate teaching and learning." A teacher from the French department stated: "More training in terms of psychological approach for students! Having an ongoing of blended method for teaching both online and face to face sessions."

A teacher from the biology department expanded further: "Internet access and tablet facilities provided to all students. Online resources made available and uploaded on the platform."

The study shows that the teachers have some personal benefits from the use of e-learning platforms. The most common personal benefit was that it saves them a lot of time as they don't have to travel to school, and they can teach in the comfort of their own house. They would rather use that time to better prepare for the classes which they have for the day. The second most common benefit was that the available resources could be shared with students for either classwork or homework. However, it was also found that almost all of the teachers agreed that they would use a blended approach to teaching where they combine the use of traditional teaching methods with e-learning methods. It was observed that most teachers were more willing to use e-learning platforms as they were user friendly. This made it easy for them to navigate through the system as they were carrying out their classes. However, it was found that many teachers noticed high fatigue levels in students after spending long hours behind the screen. The teachers almost unanimously agreed that there was a lack of training on how to use the e-learning platforms for teaching and that there was not much online support to resolve issues that arise. They suggested that if an online portal was developed and the appropriate

resources provided, they would be more encouraged to use e-learning platforms fully. Another finding was that there was not enough support from the school management to facilitate the use of e-learning platforms. Many of the teachers complained that the management limited themselves to providing contact details of students and contacting them when needed.

5 Limitations

The research could have been further expanded to teachers from all over Mauritius and from different types of secondary schools are interviewed as secondary schools that are private grant-aided, private fee paying and state owned could also be investigated separately as three distinct groups being given that the infrastructure and management may be different. A second limitation of this study would be that a qualitative research methodology was used. Using this methodology allowed for only a limited number of teachers to be interviewed for data collection. A quantitative research methodology could be used either as an alternative or alongside the current methodology. This would allow for more teachers to be interviewed and for a greater sample to be selected. The results obtained could be used to have a better analysis of the factors which influence the adoption of e-learning amongst secondary school teachers post Covid-19.

6 Conclusions

This study has investigated the secondary school teachers' adoption of e-learning platforms post Covid-19 through the use of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. E-learning platforms have been in use long before the pandemic, but their use was limited mostly to students. During the Covid 19 pandemic, e-learning platforms have become an integral part of secondary schooling and is still being used in classes post Covid-19. An analysis of the different responses was carried out using the NVivo software. Qualtrics and Momentive tools were used for data collection through interviews. Through this study's analysis and data collection methods, the importance of the five existing factors namely, Performance Expectancy, Effort Expectancy, Facilitating Conditions, Behavioral Intention and Social Influence in promoting the adoption of e-learning post Covid 19 by secondary school teachers were validated. It showed that the above-mentioned factors are crucial in the acceptance of new technology. However, only five factors do not suffice to determine the adoption of e-learning. One additional factor, accessibility, has been identified to be combined to the existing UTAUT model so that there is a more accurate approach. These can provide valuable clues with regards to remedial measures to be proposed for improving the implementation and adoption of e-learning platform by secondary school teachers. It emerged that there was a lack of accessibility to e-learning facilities and even access to the internet. The school did not provide facilities to make the use of e-learning more accessible. It can be argued that if more managerial support was provided and accessibility was eased, it would have helped greatly in the adoption of e-learning platforms by teachers. The main recommendations for the education sec-tor are to provide managerial support in terms of facilities, continuous training, incentives and to adopt a blended

approach where e-learning is used as a support to existing teaching methods so that the teachers are always technology-ready to switch on to exclusive online teaching at short notice, should the need arise such as during the acute phase of an epidemic or a natural calamity.

References

1. WHO, Homepage. https://apps.who.int/iris/bitstream/handle/10665/332197/WHO-2019-nCoV-FAQ-Virus_origin-2020.1-eng.pdf. Accessed 30 June 2022
2. UNESCO, UNESCO. https://www.unesco.org/en/covid-19. Accessed 30 June 2022
3. Govmu.org. https://education.govmu.org/Pages/Main/Online-Platforms.aspx. Accessed 30 June 2022
4. Alhumaid, K., et al.: COVID-19 & e-learning: Perceptions & attitudes of teachers towards E-learning acceptance in the developing countries. Multicult. Educ. **6**(2), 100–115 (2020)
5. Elfaki, N., Abdulraheem, I., Abdulrahim, R.: Impact of e-learning vs traditional learning on student's performance and attitude. Int. J. Med. Res. Health Sci. **10**(8), 76–82 (2019)
6. Harandi, S.R.: Effects of e-learning on students' motivation. Procedia Soc. Behav. Sci. **181**, 423–430 (2015)
7. Cidral, W., Oliveira, T., Di Felice, M., Aparicio, M.E.: E-learning success determinants: Brazilian empirical study. Comput. Educ. **122**(1), 273–290 (2018)
8. Depp, C., Jeste, D.: Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies. Am. J. Geriatr. Psychiatry **14**(1), 6–20 (2006)
9. Moore, J., Dickson-Deane, C., Galyen, K.: E-Learning, online learning, and distance learning environments: are they the same? Internet High. Educ. **14**(2), 129–135 (2011)
10. Andrews, R., Haythornthwaite, C.: The Sage Handbook of E-Learning Research. Sage, California (2007)
11. Piotrowski, M.: What is An E-learning Platform? IGI Global, Pennsylvania (2010)
12. Agarwal, H., Pandey, G.: Impact of E-learning in education. Int. J. Sci. Res. (IJSR) **2**(12), 146–147 (2013)
13. Wei, H., Chou, C.: Online learning performance and satisfaction: do perceptions and readiness matter? Dist. Educ. **41**(1), 48–69 (2020)
14. Maatuk, A., et al.: The COVID-19 pandemic and E-learning: challenges and opportunities from the perspective of students and instructors. J. Comput. High. Educ. **34**(1), 21–38 (2022)
15. Jethro, O., Grace, A., Thomas, A.: E-learning and its effects on teaching and learning in a global age. Int. J. Acad. Res. Bus. Soc. Sci. **2**(1), 203 (2012)
16. Alhomos, M., et al.: Financial obstacles and disadvantages of E-learning from the viewpoint of Dammam teachers. Indian J. Forensic Med. Toxicol. **15**(4), 1815 (2021)
17. Zhang, L., et al.: E-learning adoption intention and its key influence factors based on innovation adoption theory. Math. Comput. Model. **51**(11–12), 1428–1432 (2010)
18. Oliveira, T., Martins, M.: Literature review of information technology adoption models at firm level. Electr. J. Inf. Syst. Eval. **14**(1), 110–121 (2011)
19. Fishbein, M., Ajzen, I.: Predicting and Changing Behavior: The Reasoned Action Approach. Psychology press, New York (2011)
20. Yousafzai, S., Foxall, G., Pallister, J.: Explaining internet banking behavior: theory of reasoned action, theo-ry of planned behavior, or technology acceptance model? J. Appl. Soc. Psychol. **40**(5), 1172–1202 (2010)
21. Ajzen, I., Fishbein, M.: A Bayesian analysis of attribution processes. Psychol. Bull. **82**(2), 261 (1975)

22. Ajzen, I., Madden, T.J.: Prediction of goal-directed behavior: attitudes, intentions, and perceived behavioral control. J. Exp. Soc. Psychol. **22**(5), 453–474 (1986)
23. Mehta, A., Morris, N., Swinnerton, B., Homer, M.: The influence of values on E-learning adoption. Comput. Educ. **141**, 103617 (2019)
24. Turner, M., et al.: Does the technology acceptance model predict actual use? A systematic literature review. Inf. Softw. Technol. **52**(5), 463–479 (2010)
25. Mao, E., Palvia, P.: Testing an extended model of IT acceptance in the Chinese cultural context. Database **37**(2&3), 20–32 (2006)
26. Abbad, M.M., Morris, D., De Nahlik, C.: Looking under the bonnet: factors affecting student adoption of e-learning systems in Jordan. Int. Rev. Res. Open Distrib. Learn. **10**(2) (2009)
27. Maleko Munguatosha, G., Birevu Muyinda, P., Thaddeus Lubega, J.: A social networked learning adoption model for higher education institutions in developing countries. On Horizon **19**(4), 307–320 (2011)
28. Marangunić, N., Granić, A.: Technology acceptance model: a literature review from 1986 to 2013. Univ. Access Inf. Soc. **14**, 81–95 (2015)
29. Kimwise, A.: Adoption of e-learning technologies in education institutions/organizations: a literature review. Asian J. Educ. Res. **5**(4), 63–71 (2017)
30. Venkatesh, V., Thong, J.Y.L., Xu, X.: Unified theory of acceptance and use of technology. J. Assoc. Inf. Syst. **17**(5), 328–376 (2016)
31. Chang, A.: UTAUT and UTAUT 2: a review and agenda for future research. Winners **13**(2), 10–114 (2012)
32. Williams, M., Rana, N., Dwivedi, Y.: The unified theory of acceptance and use of technology (UTAUT): a literature review. J. Enterp. Inf. Manag. **28**(3), 444–445 (2015)
33. Escobar-Rodríguez, T., Carvajal-Trujillo, E., Monge-Lozano, P.: Factors that influence the perceived ad-vantages and relevance of Facebook as a learning tool: an extension of the UTAUT. Australas. J. Educ. Technol. **30**(2) (2014)
34. Rahman, M.M., Lesch, M.F., Horrey, W.J., Strawderman, L.: Assessing the utility of TAM, TPB, and UTAUT for advanced driver assistance systems. Accid. Anal. Prev. **108**, 361–373 (2017)
35. AbuShanab, E., Pearson, J.: Internet banking in Jordan: the unified theory of acceptance and use of technology (UTAUT) perspective. J. Syst. Inf. Technol. **9**(1), 78–97 (2007)
36. Rowley, J.: Conducting research interviews. Manag. Res. Rev. **35**(3/4), 260–271 (2012)
37. Novick, G.: Is there a bias against telephone interviews in qualitative research? Res. Nurs. Health **31**(4), 391–398 (2008)
38. Mikuska, E.: The importance of piloting or pre-testing semi-structured interviews and narratives. SAGE Research Methods Cases (2017)
39. Reja, U., Manfreda, K., Hlebec, V., Vehovar, V., Open-ended vs. close-ended questions in web questionnaires. Dev. Appl. Stat. **19**(1), 159–177 (2003)
40. Bennett, D., Barrett, A., Helmich, E.: How to analyse qualitative data in different ways. Clin. Teach. **16**(1), 7–12 (2019)
41. Noble, H., Smith, J.: Qualitative data analysis: a practical example. Evid Based Nurs **17**(1), 2–3 (2014)
42. Kiger, M., Varpio, L.: Thematic analysis of qualitative data: AMEE Guide No. 131. Med. Teacher **42**(8), 846–854 (2020)