

Teachers' Continuance Intention Towards Using Madrasati Platform: A Conceptual Framework

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Abstract—With the rapid spread of the COVID-19 pandemic, the Saudi government suspended students from going to school to combat the outbreak. As e-learning was not applied at all in schools, online teaching and learning have been revived in Saudi Arabia by providing a new platform called 'Madrasati'. The Decomposed Theory of Planned Behaviour (DTPB) is used to examine individuals' intention behaviour in many fields. Nevertheless, the factors that affect teachers' continuance intention of the Madrasati platform have not yet been investigated. The purpose of this paper is to present a conceptual model in light with DTPB. To enhance the predictability of the model, the study incorporates other variables including learning content quality and interactivity as sub-factors under the perceived usefulness, students and government influences under the subjective norms, and technical support and prior e-learning experience under the perceived behavioural control. The model will be further validated using a mixed methods approach. Such findings would help administrators and stakeholders to understand teachers' needs and develop new methods that might encourage teachers to continue using Madrasati effectively in their teaching.

Keywords—Madrasati, Decomposed Theory of Planned Behaviour, continuance intention, attitude, subjective norms, perceived behavioural control.

I. INTRODUCTION

DURING the rapid spread of the COVID-19 pandemic, the vast majority of the affected countries enforced lockdown and the policy of stay-home, which resulted in distance working. The process of online education has been used significantly by many schools to replace face-to-face education. Therefore, educational organizations across the world have been switched to 100% online teaching and learning (at least temporary). As reported by the Global Education Coalition [1], roughly 1.57 billion students have been taught remotely during the COVID-19 pandemic. Accordingly, e-learning was not considered a luxury option anymore; it was an essential opportunity to carry on the educational process [2].

Saudi Arabia was one of the most affected countries by the pandemic. Therefore, e-learning was introduced suddenly as it was not applied effectively earlier. Accordingly, the Ministry of Education (MoE) has initiated a new platform named 'Madrasati' to carry on the educational process online. The platform has served over six million students and more than 400,000 teachers between males and females [3]. At present, it will be important to study the factors that will lead teachers' decisions to continue using the platform to support their traditional teaching in the future.

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A. Reasons behind This Study

Similar to any electronic platform used to enhance learning, Madrasati cannot be fully integrated and used unless it is being useful for students' learning [4]. Furthermore, success and long-term practicality are associated with post-acceptance (continuous usage) rather than first-time use [5], [6]. Currently, the ongoing use of Madrasati is optional and teachers have the choice to either employ it or not. Although the Ministry of Education is encouraging teachers to keep using it [7], some teachers are still hesitant to integrate Madrasati into their teaching process. However, various studies around Madrasati have shown conflicting findings regarding teachers' willingness to continue using it in their future classrooms [8], [9]. Consequently, defining the factors that would shape the continuance use of Madrasati would be significant to understanding teachers' perceptions and needs.

B. Significance of This Study

This study is one of the first investigations set out to understand the factors that are indicative of teachers' intention to continue using Madrasati. The goal of this study is to increase the power of DTPB, taking into consideration pedagogical, social, technological, and personal influences. The findings of such research will contribute to the literature on technology's continued use within the pedagogical context. Moreover, there is a lack of studies around Madrasati in terms of acceptance and continued use after the pandemic. Research on e-learning adoption in Saudi Arabia is still limited, and the majority of studies that explore the implementation of e-learning focus on higher education. Therefore, it is anticipated that the final findings of this study will provide useful insight for future studies on Madrasati, especially for empowering distance learning in secondary schools in Saudi Arabia. The paper seeks to answer the following question: What is the appropriate model to investigate secondary school teachers' continuance intention towards using Madrasati platform?

II. MADRASATI AND RELATED WORK

Madrasati is defined as a digital environment system including interactive tools and features that facilitate the teaching and learning process for all educational levels from 1st to 12th grade [10], [11]. Despite the novelty of Madrasati platform, it was professionally designed in a usable manner to meet all the educational requirements. Moreover, it contains many features and characteristics of autonomous learning systems such as synchronous virtual classes, e-books, test

banks, virtual labs, reports, and statistics. It also incorporates Microsoft Office (365) which comprises an email client, Teams, and a variety of networks that supports interaction and communication among teachers, students, and parents [9], [10].

As the MoE reported in November 2020 [3], over 6 million students, a total of around 99% of all grades, had accessed Madrasati. A total of 4.8 billion visits has been reported in just less than a year. Moreover, 63 million synchronous virtual class sessions had been delivered, with more than 1.2 million class sessions carried out daily.

Madrasati has gained scholars' attention since schools have adopted it. A couple of recent studies have investigated Madrasati platform from different perspectives [12]-[14]. The sudden adoption of Madrasati instead of face-to-face classes has resulted in various challenges. Thus, some studies investigated the most challenges that have been encountered by teachers or students during the COVID-19 period [15]-[17]. Teachers' difficulties in rapidly adjusting to this new way of e-learning have emerged due to the lack of technical experience, skills, and preparation. It is found that the most significant challenges were referred to technical reasons and teachers' skills [18]. Moreover, teachers reported some technical difficulties such as failure to upload extra resources or assignments that did not appear to some students [13]. This implies that some teachers were not attending the induction training program that was offered by the MoE in the first months with regard to Madrasati [11]. Consequently, they were not fully aware of Madrasati tools, especially its features [16]. These findings concur with Alubthane, as she highlighted that training programmes are very important for teachers in order to prepare them to deliver successful e-learning [15].

Various studies devoted their efforts in examining Madrasati usability as it is one of the most important aspects of any newly introduced e-learning system. Shishah has examined Madrasati usability perceptions for secondary school teachers. The findings show that Madrasati usability is considered low and should be improved further. Moreover, teachers reported a variety of usability concerns regarding Madrasati including navigation, broken features, the platform's failure to avoid user errors, message error issues, compatibility issues, and content accessibility issues for disabled users [8]. This could be explained by the study time as it was conducted at the beginning of using Madrasati and teachers were unfamiliar enough with the platform. This confirmed what [11] found that due to the complicated registration procedure, teachers were hesitant to use the platform. Furthermore, Shisha indicated that usage might be improved when teachers get more familiar with the platform [8]. However, [9] evaluated the effectiveness, usability, and adoption of Madrasati from teachers' perspectives in Saudi Arabia and found the opposite. The study examined the important factors that affect the acceptance of Madrasati among 200 teachers selected randomly from different levels. The obtained findings show that the teachers were highly satisfied with the Madrasati platform, and it is technically effective and well developed. The findings also revealed that Madrasati is adequate and usable in the teaching under the current situation, and it has a beneficial impact on

teaching quality.

In brief, it could be argued that teachers' experience in adopting e-learning is growing by their extensive usage. It also implies that teachers' perceptions towards mandatory e-learning might affect their adoption of e-learning when it turns out to be an optional choice.

Another stream of literature was concerning the obstacles that have faced by school teachers while using Madrasati platform during the COVID-19 period. The results exposed that the main challenges were difficulties in implementing the platform to primary school students specifically as well as the weak internet connection [16]. Furthermore, a lack of ability to deal with new technology was another barrier that prevents primary school teachers to use Madrasati effectively. The findings also reveal that most primary school teachers show an unwillingness to continue using Madrasati in the future [16]. This suggests that secondary school teachers are more likely interested in developing their abilities and skills and may have more the willingness to continue using e-learning in the future to support conventional approaches.

Despite the acceptance among most teachers for the platform [11], we could claim that the culture of e-learning still presents a considerable challenge in public schools in Saudi Arabia. For example, Alsalam found that some teachers are concerned that their essential role in the teaching process would be underestimated by the community [16]. Interestingly, students' parents are not convinced that e-learning would be a reliable choice for the educational process [20]. Consequently, community culture towards the implementation of e-learning would have an impact on how teachers could shape their strategies to adopt e-learning in their teaching.

Further to the above, many studies remarked on some advantages of Madrasati adoption. As reported by Aldossry, there are several positive points to embracing the Madrasati platform, including ease of use, different online assessments, and digital delivery of results and feedback. The platform is also convenient in terms of time and effort, while also increasing students' self-motivated learning [11]. Additionally, Madrasati facilitates communication regardless of location or time [16]. Furthermore, findings indicate that Madrasati might be an effective complement to traditional education in future classrooms [4], [11], [21].

The recent studies around Madrasati show discrepancies in teachers' perceptions and experience in employing the e-learning approach in public schools [18], [22]. It has been proven that negative attitudes about a certain technology have a negative impact on the implementation of e-learning in Saudi schools [23]. Hence, it is important to have more studies to deeply investigate the problem. To be more specific, as e-learning has been currently an optional choice for teachers after the pandemic, it will be important to explore the factors that will affect teachers' continuance intention to use e-learning to enhance the conventional approaches.

III. THE PROPOSED FRAMEWORK

As Madrasati platform is identified as an end-to-end electronic LMS (Learning Management System), where ICT

(Information Communication Technology) is utilized for the whole e-learning process [10], so teaching and learning using Madrasati are delivered through technology. Consequently, the models and theories that examine users' attitudes and behaviour of ICT can predict the factors that may affect teachers' continuance intention to use e-learning in secondary schools. The proposed theoretical model has been built by combining significant factors, which have a substantial impact on e-learning from theories that investigate human behaviour, specifically technology adoption, and from other studies. To

improve the predictability of the proposed model, DTPB will be extended, and elements relevant to teachers' intention to continue using Madrasati will be introduced. The purpose of that is to provide a comprehensive model to determine relevant factors influencing teachers' intention to continue using Madrasati in Saudi Arabia. The following section demonstrates the factors and sub-factors which are obtained from users' behaviour in ICT models and other literature. Fig. 1 depicts the proposed conceptual model.

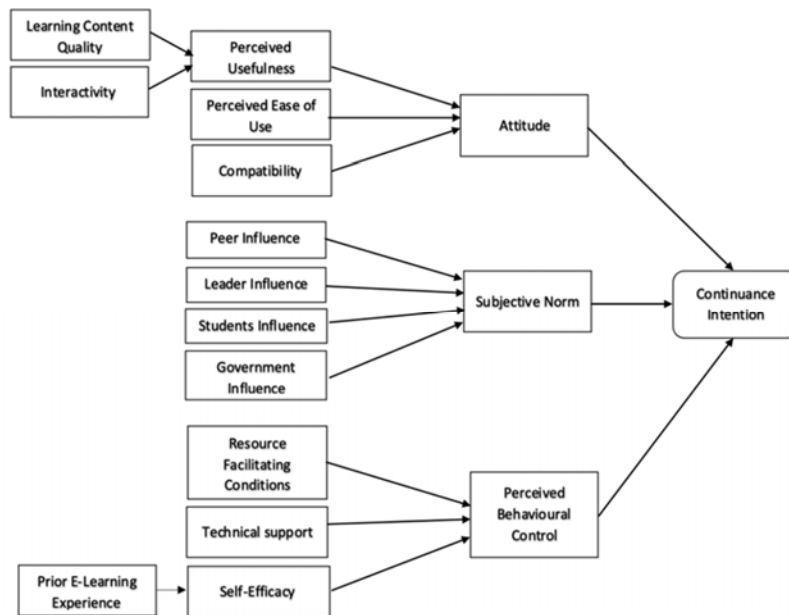


Fig. 1 The Proposed Conceptual Model

The proposed model comprises the attitude factor and its associated sub-factors: perceived ease of use (PEU), perceived usefulness (PU), and compatibility (C). However, Learning Content Quality (LCQ) and Interactivity (INT) have been drawn under the PU as pedagogical sub-factors. The subjective norm (SN) factor, with its variables, is used to examine the social impact factors: students influence (SI), peer influence (PI), leader influence (LI), and government influence (GI). Moreover, the perceived behavioural control (PBC) factor has resource facilitating conditions (RFC), technical support (TS), self-efficacy (SE), and prior e-learning experience (PEE). Due to the fact that technology is one of the facilitating resources [24], the technology facilitating conditions have been added under the RFC as a sub-factor. TS is included under the PBC as a factor. This is because some studies have highlighted the value of technical services to help students and teachers while using Madrasati [9], [11], [25]. Because of the mandatory use of Madrasati during the COVID-19 period which enforced teachers to use Madrasati, PEE has been included as a sub-factor under the SE. The following sections describe each construct with the incorporation of its inclusion in this study.

A. Continuance Intention (CI)

Behavioural intention is defined as the degree to which a user

performs or does not perform a certain behaviour [24], [26], [27]. Many studies have used this construct to examine a user's intention to accept technology such as [27] "The Theory of Planned Behavior;" [26] "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology;" or [24] Taylor and Todd's "Decomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions". According to [28], behavioural intention is an instrument that can be used to measure a user's acceptance of technology and various studies have examined user's acceptance/continuance by this indicator [29]-[31]. It is worth mentioning that some studies have indicated that users' continuance decisions are the same as acceptance decisions [32], [33]. In the development of this study, behavioural intention is therefore used as an indicator of teachers' continuance intention towards using Madrasati platform.

Continuance intention might be impacted by three factors: attitude, SN, and PBC.

B. Attitude (A)

It is defined as the positive or negative assessment indicated by a user to engage in a certain behaviour [24], [26], [27]. The majority of studies that examine users' acceptance/continuance use of ICT have used attitude as a factor in their models [24],

[26], [27], [34]. According to [35], attitude is a very important element that affected the use of Web 2.0. Also, [36] discovered that teachers' attitude towards using computers has a significantly positive impact on their behavioural intention. Furthermore, [9] found that teachers have a substantial positive attitude regarding the Madrasati platform. Thus, the attitude factor is particularly important to examine teachers' intention to continue using Madrasati. Attitude refers in this study to the perceived teachers' beliefs about continuing to use Madrasati to support conventional education. Therefore, it is expected that teachers' favourable attitude to continue using Madrasati positively influences their intentions to use Madrasati.

1. Perceived Usefulness (PU)

This is the extent to which a user believes that using a certain system will improve his/her job performance [24], [26]. PU is one of the most important and widely used factors in the acceptance and adoption of new technology [37]. In this study, it means the degree to which teachers believe that continuing using Madrasati will lead to an improvement in their performance as well as enhance their effectiveness. It is anticipated that if teachers find Madrasati useful for teaching and learning, they are likely to use it. The purpose of employing e-learning platforms in the classrooms is to improve teaching and learning by using specific features of its tools such as resources, chat, forums, and activities [37]. Therefore, to facilitate and improve learning with these tools, LCQ and INT need to be considered when a platform is implemented in the classrooms. Thus, they have been included in the model as sub-factors under the PU.

a. Learning Content Quality (LCQ)

Learning content is defined as digital resources including courses, assignments, quizzes, and educational videos, whereas content quality refers to the suitability of the content concerning correctness, appropriateness, and reliability [37]. In this case, content in Madrasati should be valuable and applicable in the context of secondary schools. Furthermore, the contents and how they are presented in Madrasati might be different depending on the subject and schools' levels. In comparison with traditional methods, rich content and available activities in Madrasati might increase the PU for teachers [16]. According to Almaiah et al., LCQ has been indicated a significant factor on the adoption of the Madrasati platform among students in Saudi Arabia during the COVID-19 period [14]. Some of the prior studies have found that LCQ has a positive influence on PU [37]-[39]. Therefore, it is reasonable to assume that if teachers find the contents of Madrasati useful and suitable for their courses, they are likely to use it to enhance the traditional approaches.

b. Interactivity (INT)

It is defined as the interaction between teachers and students, as well as students themselves [37]. According to Cheng, the interaction through e-learning can lead to greater collaboration and exchange of knowledge between teachers and classmates. In Madrasati, teachers should perform several tasks, such as providing a structure for the course, helping students in the

activities, providing feedback to them on tasks and assignments, and supporting them to engage more in the activities [9]. Regardless of the type of learning, the learning process is interactive and technology [37]. In teachers believe that they can communicate effectively with their students, as well as students can ask and require any help, teachers will consider such an approach would be beneficial and helpful for teaching and learning [38], [39]. Various studies have emphasized that interaction influences PU [37]-[39]. In the current study, it is assumed that teachers will continue using Madrasati if they find the perceived interaction is active and useful for learning.

2. Perceived Ease of Use (PEU)

It is the extent to which a person believes that using a certain system will not require an extensive effort [24], [26]. It refers in this study to the degree to which teachers believe that using Madrasati tools would be a free effort. Previous studies indicate the impact of PU [36], [40] and PEU on teachers' intention to use technology [40]. It could be assumed that if Madrasati use does not involve extensive effort and it is easy to use, teachers are likely to continue using it.

3. Compatibility (C)

It is the extent to which the current system fits the task, values, and user's needs [24], [35]. According to Tornatzky and Klein, users like to embrace and use a system that is congruent with his/her current requirements and values [41]. A study by [35] has found that compatibility has a significant impact on attitude towards using Web 2.0. It means in this study the extent to which teachers believe that continuing using Madrasati would be compatible with the subjects that they will be teaching in their classrooms.

C. Subjective Norms (SN)

It is the individual perception, which is affected by social pressure, towards performing a certain behaviour [24], [27], [34]. Various studies have used SN as a factor to investigate social influences [24], [27]. According to [17], in their study regarding Madrasati, social influences are significant predictors of an individual's intention for the adoption of e-learning platforms. Past studies have indicated that SN are a significant factor affecting teachers' intentions to use technology [42], [43]. In this study, SN explore the impacts of opinions and suggestions of other people on teachers' decisions to use Madrasati. SN include four sub-factors:

1. Students Influence (SN)

This refers to the influence of students on teachers to adopt e-learning within the classrooms [44]. According to Sadaf et al., students might influence the successful e-learning implementation when they are interested in using it in their classrooms. In terms of Madrasati, students might be more supportive since their level of acceptance with Madrasati is high [17]. A study by [35] has shown that students have a positive impact on SN towards using Web 2.0. It is included in the model because when students are willing to use Madrasati, it might be expected that teachers will be motivated to use it in their

classroom environment.

2. Peer Influence (PI)

It is defined as the effect of family, friends, and peers on a user's intention to perform a certain behaviour [24]. According to [35], colleagues might feel that continuing using Web 2.0 will improve students' learning. Therefore, other colleagues' impressions towards using Web 2.0 might affect others' intentions. It is used in this study to examine the influences of colleagues' views on teachers' intentions towards using the Madrasati platform in their learning environment.

3. Leader Influence (LI)

This refers to the influence on a user by his/her superior [24]. A study by Ajjan & Hartshorne has indicated the importance of superiors' influences on using Web2.0 to enhance student learning. In this study, it is used to evaluate headteachers' influences to encourage teachers to use the Madrasati platform to improve student learning [4]. It is based on the assumption that if headteachers believe that using Madrasati might enhance student learning, teachers will be supported and motivated by their leaders to use Madrasati.

4. Government Influence (GI)

This indicates the influence of the MoE in Saudi Arabia in encouraging teachers to use e-learning in their schools [45]. A study by Goh et al. indicated that the MoE has an important role to influence teachers' adoption of e-learning. It means in this study to what extent the MoE and its e-learning policies would impact teachers' continuance use of Madrasati [46]. Because school leaders and the MoE have become important factors for teachers to consider when making decisions to use technology [45], LI and GI have been included in this study to be sub-factors under the SN.

D. Perceived Behavioural Control (PBC)

PBC means users' perceptions of how easy or difficult to perform a task given the resources that are available to them [27]. According to [43], teachers with high skills and available resources are likely to accept modern technology. Reference [48] indicated that PBC is an important factor that affected the use of Web 2.0 (2008). Applied to Madrasati, perceived behavioural control reflects teachers' beliefs in terms of the resources and self-confidence in their ability to carry out the behaviour. It consists of three sub-factors:

1. Resource Facilitating Conditions (RFC)

It refers to the influence including the external factors that affect a user's decision to perform a particular task [24], [49]. According to Taylor & Todd, RFC comprise time, money, and technology, and if one of these resources is insufficient or absent, it will affect the user's decision towards using e-learning. Furthermore, the availability of infrastructure affects the success of e-learning implementation [16], [50]. Teachers will perceive greater control if they have access to required resources such as electronic devices and the internet to use Madrasati. It indicates that teachers need to have facilitating conditions available regarding resources such as time, money,

and suitable technology.

2. Technical Support (TS)

It is the ability of a team to provide online solutions or help for software and hardware issues [51]. In this study it means the IT staff who provide immediate solutions and resolve any issues that teachers would encounter during using the Madrasati platform. It could be argued that the successful implementation of e-learning depends on supporting IT staff to resolve immediate issues as well as the training courses that demonstrate the platform tools [52].

3. Self-Efficacy (SE)

It is defined as the degree to which a user has the ability to perform a certain behaviour [24]. Some studies have shown the importance of SE in user behaviour and attitude towards technology adoption [24], [28]. Moreover, Park et al. have used this element in their model to examine the user adoption of mobile learning [53]. In the current study, it means teachers' ability to use Madrasati tools. This factor indicates that if teachers feel confident and have the ability to use Madrasati tools, we could assume that teachers will continue using Madrasati to support their teaching. SE in this study can be affected by:

Prior E-Learning Experience (PEE)

It is defined as the experience of both being taught with the aid of e-learning technology and employing them in the current learning process [54]. Due to the lack of e-learning practice in secondary schools, most teachers were not willing to accept the Madrasati platform [16]. Also, they were not familiar with the concept of e-learning [8], [19]. Thus, it is important to examine the PEE of secondary school teachers during the pandemic and how that affects their continuous usage. A study by Sulaymani et al. indicates that PEE is a significant predictor of SE [55]. From previous studies, it could be argued that teachers' experience in adopting e-learning is growing by their extensive usage during the COVID-19 period. It also implies that teachers' perceptions towards mandatory e-learning might affect their adoption of e-learning when it became an optional choice. This instrument is not one of the DTPB factors. However, it is included in this study as a sub-factor based on the findings of recent studies such as [9] and [11].

IV. CONCLUSION

This study has employed DTPB as a theoretical basis to develop a framework for better understanding the factors affecting secondary school teachers to continue using Madrasati platform in Saudi Arabia. After a thorough literature review, a conceptual model has been proposed to tackle the research problem. In the present paper, a few variables have also been included to enhance the explanatory power of the framework. In the future work, the model will be further validated using a mixed methods approach through quantitative and qualitative analysis. Such findings will not only enrich existing literature on Madrasati, but will also help the MoE to better understand the main motivators and challenges of adopting Madrasati

platform. Insights will be recommended based on the obtained findings to develop new methods that might encourage teachers to continue using Madrasati effectively in their teaching.

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