

The Virtual Shift: Investigating Technology Adoption Factors for Remote Learning on Non-Educational Platforms during the COVID-19 Pandemic

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Abstract: In the 21st century, the rapid development of advanced technology has gained popularity. The COVID-19 pandemic has panoramically disturbed and delayed every aspect of human life, with the educational sector being one of the most affected domains. The lockdown situation prompted various institutes to transition to digital platforms for online learning. Despite all efforts, a gap in teacher-student interaction remains to be addressed. To bridge this gap, teachers and students started using online meeting applications such as Zoom, Google Meet, and Microsoft Teams for virtual classes. These applications are user-friendly and support academic workflows. Furthermore, while many students find this mode of learning enjoyable, millions are still adapting to this new learning convention. This study aims to identify and investigate critical success factors influencing the behavioral intention and adoption of these technologies. Drawing on a literature review, the Unified Theory of Acceptance and Use of Technology (UTAUT) model was employed to understand the influence of these factors through a questionnaire-based survey. The Structural Equation Model (SEM) technique, implemented via AMOS/SPSS for data analysis, was used to derive meaningful insights. The findings of this study provide valuable insights into the influencing factors that can enhance the technology acceptance of these meeting platforms among students.

Keywords: E-learning Adoption; UTAUT; Meeting Platforms; Virtual Classrooms; Influencing Factors, Covid-19

1. Introduction

The Coronavirus Disease 2019 has radically restructured the education system of the whole world and ultimately resulted in the paradigm shift. The lockdown during COVID-19 has severely affected all sectors including business and education of the world. Due to this unexpected interruption, the education system has drastically changed. Globally, over 1.6 billion children and youth has affected [1]. To cope with this disruption in the education sector, there is a rapid and distinctive rise in online learning and teaching. Various educational digital platforms are used across the world like Google Classroom and edX, facilitating students to cope with educational deficiencies during this pandemic.

Being a developing country, Pakistan is still going through a series of smart lockdowns to overcome the spread of the virus. Despite all efforts in Pakistan, it is hard to strategically organize the virtual classroom for student-teacher communication and interaction. To cope with poor infrastructure, students and teachers started using Virtual Meeting Applications (VMA) like Zoom, Google Meet and Microsoft Teams for their online classes, assessments, and quizzes.

These VMAs amalgamated in the educational sector to great extent due to their additional features like the recording of meetings, virtual blackboard, screen share, live chat rooms and many more.

However, there is still infancy in adoption and acceptance due to various factors. A qualitative survey conducted for this study which concludes that a lot of students are still in phase of adapting VMAs for online learning. Various factors effects usage of VMAs positively or negatively. Social influence, self-efficacy, affordability and satisfaction are the leading influencing factors for intention to use such platforms [2], [3],[4],[5],[6]. Researchers have identified, analyzed, and presented many critical success factors in the adoption, acceptance and intention to use modern technologies. The adoption of e-learning systems and m-learning systems are influenced by self-efficacy, instructor characteristics, accessibility, user interface, technical support, course management, information and system quality, social support, etc. [7], [8], [9], [10], [11], [6]. To investigate the technology acceptance and influencing factors various user acceptance models had been used in the literature. For this purpose, the Unified theory of acceptance and use of technology (UTAUT) was proposed by Venkatesh [12]. It is a technology acceptance model which has been extensively applied for investigating the intention of the user to use technology usage behavior and technology acceptance. The main contributing factors are 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions.

UTAUT has been widely used to evaluate technology adoption and its usage in various fields such as health care systems, mobile technologies, e-learning, m-learning and many more [13], [14]. UTAUT model can integrate with different other models, thus it contributes substantially to the exploration of technology acceptance and its usage [12]. The study aims to find the critical success factors towards VMAs and their impact on the adoption of non-educational platforms in the educational sector for online classes during the Covid-19 pandemic. The study covers the postgraduate and graduate students of inter disciplines studying in Lahore College for Women University, Lahore (LCWU), Pakistan. The effect will be studied with the help of the technology acceptance model UTAUT. At the end of the study, several implications are led, and critical success are highlighted which will help to improve the adoption of meeting platforms.

2. Literature Review

In this section, we have outlined and presented the literature review in terms of COVID-19 and technology.

2.1. COVID-19 & Education

Covid-19 has drastically changed lifestyles all over the world. The outbreak of this virus was first reported in December 2019 in China. It rapidly spread around various countries and turned into a “global pandemic”. To control the spread of this virus, social distancing has been advised due to which many countries have imposed the lockdown. The deadly virus has almost affected every sector of the world and economic conditions. Safety measures are also followed in the educational sector to avoid virus spread.

Pakistan with a population of 204.65 million was on the verge of a high rate spread of this viral transmission as Pakistan shares its border with China and Iran, who were already fighting with the massive spread of pandemic [15]. Due to ongoing travel and trade, Pakistan confirmed its first novel coronavirus case on 26 Feb 2020. To the control rapid outbreak of the corona virus wave, authorities imposed a countrywide lockdown on May 8, 2020. The government took some serious mitigation strategies which resulted in the closure of education systems, cancellation of exams, restrictions in public places and a travel ban [16]. According to the statistics taken on 19 May 2021, the confirmed cases of Pakistan are 886,184. The pandemic has just shaken up the economy, tourism & education department of Pakistan. The closure of education systems has impacted millions of students and educators in Pakistan.

According to United Nations Educational, Scientific and Cultural Organization (UNESCO), almost 190 countries mandated the closure of education systems, due to which more than 1.6 billion children and youth has been affected globally [1]. In developing countries, the closure of education institutes has almost disturbed 94% of the country’s population [17]. Due to prominent economic stability, many students would drop out of their institute, this year or next [17]. However, UNESCO urged the continuation of education through digital means using different tools and techniques. Universities were forced to utilize all resources in digital learning. Despite the challenging situations, institutes around the world are transiting from conventional to online learning. Many of the technologically advanced countries have been successful due to resource availability. While many under-developed countries are still struggling to manage uncertain situations. Poor infrastructure is a vital concern in online education. Students who are taking online classes are facing difficulties and online classes are not effective due to poor access to internet, lack of digital resources and traditional designed pedagogical methods [17].

Universities have been following face-to-face traditional learning along with daily interaction. However, significant improvements have been made in the last few years. There is a smaller number of institutes that follow blended and online mode of learning. Despite this, most of the students are unaware of the use of digital learning. Students are not comfortable, specifically the students of Arts and Humanities [16]. In spite of all efforts, technological advancement in the education sector is infancy in Pakistan. The education sector is struggling hard to cope and improve online learning.

Higher Education Commission (HEC) in Pakistan has enforced the institutes to conduct all teaching and learning activities online. The shifting of the paradigm from traditional to online has been very challenging for all the institutes. This crisis needs a quick acceptance & adoption of modern technologies. Many universities have developed their Learning Management Systems (LMS) and digital course directories. Online learning is the only solution in substitution of face-to-face learning [18]. It is accessible to everyone and an easy approach to adapt regardless of location issues [19]. While taking account of positive characteristics of online classes, several studies also have shown that online classes have an adverse effect on student engagement. During online classes, students can face technical problems (i.e., internet issues, device problems), could be distracted during the online class by using social media, get engaged in activities that are not class related. These problems highly affect the experience of online classes [18]. Pedagogical methods and experience of online classes vary from subject to subject. There is no single pedagogy that fits all subjects [20]. Moreover, during the online assessment, students are facing technical and internet issues due to which teachers are uncertain about their competency for a certain subject. Students with disabilities such as hearing impairment, visual impairment need special support in regard to online classes [20]. [17]. Due to non-availability or limited availability of LMS in Pakistan the online classes have been conducted through various non-educational platforms like Zoom, Google Meet and Microsoft Teams [20]. In this pandemic situation, non-educational video conferencing platforms helped institutes to shift traditional mode to online learning. These meeting platforms have been proved simple and powerful solutions to replicate face-to-face class to virtual mode. This solution meets all the needs of a classroom like delivering a lecture to several students at a time, two-way interaction through video and microphone, screen sharing, virtual white-board, meeting recordings and on top of that is privacy. With a screen, microphone and quality internet, students are just one click away from their fully interactive online classes.

The main concern is not whether either virtual classroom provides better engagement and productivity or not, the actual challenge is whether the students and teachers will be able to adapt and accept this sudden shift of online learning. The shift of teaching mode from on-campus to online requires content designing and delivering as well as the development of cognitive skills among students [21]. Acceptance and adoption of online classes for both teachers and students are becoming difficult as they do not have any planned course design which fulfills the need of online classes [18]. Students are facing emotional, psychological, health and financial issues due to the fear of Covid-19 and lockdown. All these factors lead to lower productivity and engagement in online classes [20].

2.2. Technology Acceptance Models

Various models have been used previously for studying the adoption and acceptance of technology. The most commonly used among them are the technology acceptance model (TAM), the theory of planned behavior (TPB), and the unified theory of use and acceptance of technology (UTAUT) [13]. However, out of these models, various studies have confirmed the importance and effectiveness of UTAUT for predicting the behavioral intention and actual use of technology [13]. Many researchers have evaluated e-learning systems using UTAUT to evaluate their adoption & acceptance and found successful results [4], [13], [22], [14], [2]. UTAUT is an integrated theoretical model developed by Venkatesh in 2003 [12]. Researchers have found UTAUT one of the most updated, accurate and relevant technology acceptance models [14]. The utilization of UTAUT in our research is justified by its recognized status pertinent technology acceptance model [14]. This model, widely acknowledged for its comprehensive coverage, offers a robust framework to investigate the factors influencing technology adoption. UTAUT has the capability of explaining 70% variance in predicting behavioral intention [12]. The variance of UTAUT is higher among previously defined models to only 17-53% variance [14].

UTAUT is formed with four major constructs: (1) performance expectancy (PE), (2) effort expectancy (EE), (3) social influence (SI), and (4) facilitating conditions (FC) to evaluate the behavioral intention (BI) and system actual usage. It has been used in various research contexts, but it's observed that UTAUT is more effective in the e-learning context in comparison to others [13].

Performance expectancy is defined as the extent to which students believe that using a particular technology will help them to perform better in a certain task [12]. Many studies have confirmed that performance expectancy has a direct influence on behavioral intention [2]. Several researchers have used UTAUT and analyzed the impact of PE on BI in the context of distance learning adoption [13], [14]. Thus, on basis of previous studies, it is assumed that students can adopt meeting platforms for virtual classes and distance learning.

H1: PE positively influences BI of using meeting platforms for online classes.

Effort expectancy is defined as the level of ease associated with using a system for performing a certain task [12]. It is one of the most influential factors of UTAUT and an intrinsic element [14]. It is the level of effort perceived by a student to perform a task in an e-learning environment. It has shown a direct impact on BI in distant learning in various researches which confirms that BI and EE are closely related [4], [22]. With the help of previous studies, it can be postulated that:

H2: EE positively influences BI of using meeting platforms for online classes.

Social influence is defined as the degree to which a person perceives the opinion of others as important in using a system [22]. Their decisions of using a certain system might influence the opinion of the people whom they believe like their friends, family, and peers. The impact of SI on BI has remained significant in various studies but on the other hand, sometimes SI has shown no impact on BI. It is observed that the impact of social influence might vary from country to country and culture to culture [13]. Various studies have observed the positive impact of SI on BI towards adopting an e-learning system [2]. A recent study observed the positive impact of SI on BI in an e-learning system during Covid-19 [14]. While another study's results show that SI has no significant impact on BI [13]. Based on different perspectives about SI in literature, the study proposed the following hypothesis:

H3: SI positively influences BI of using meeting platforms for online classes.

Facilitating Condition is defined as the availability of resources and support required for the proper use of technology [14]. It includes technical support, organizational infrastructure, training and accessibility [14]. In the original model of UTAUT, the impact of facilitating conditions was not significant. In many pieces of research in the context of e-learning adoption, the effect of FC on BI was not prominent [22], [14]. On contrary, studies also showed the direct effect of FC on BI towards the adoption of e-learning systems [13], [4]. There are mixed views on the impact of this construct, however, during Covid-19 it is possible that students have faced problems in the availability of facilities, and it may impact BI towards the adoption of meeting platforms for virtual classes. Therefore, the study formulated the following hypothesis:

H4: FC positively influences BI of using meeting platforms for online classes

2.3 Critical Success Factors

There are certain Critical Success Factors (CSF) that impact the adoption of virtual classrooms using non-educational platforms along with the predefined constructs of UTAUT. The CSF are analyzed and evaluated for the in-depth analysis and predict the behavior towards technology use. The study has been made to analyze those critical factors. To identify CSF, a literature review was conducted. The following CSF towards virtual classrooms through meeting platforms are identified. The most prominent of them are:

- Learner's Competence
- Teaching pedagogical method
- Technology Infrastructure
- Course Management

2.3.1. Learner's Competence (LC)

Self-learning is one of main the factors that affect the process of student learning and its experiences [23]. Self-efficacy is defined as an individual's belief in his competencies and ability to perform and complete a certain task. Those beliefs are the confidence, which is required to do an activity [6]. The words self-efficacy and self-competence are often used interchangeably and sometimes they have different meanings according to the context. The concept of self-efficacy was first introduced by Albert Bandura, according to him, self-efficacy is comprised of a person's ability to do the task, attitudes towards that task and cognitive skills [24]. It is the confidence that makes the tasks, not a threat but a challenge. If someone has belief in his abilities and experiences, then by the confidence he will drive towards his goal.

Researchers believe that self-efficacy is a very important factor for online learning. On the other side, it is not necessary for online learning but there is nothing in between [6]. There are mixed opinions of researchers over the importance of self-efficacy. It has been observed in-depth review of self-efficacy that

students' self-efficacy for technology has been evolving over the years [6]. Technological advancement has made students more confident while using general technology and now it's easy for them to interact with cross-platform applications [23]. Their exposure to technology is increasing and they are comfortable while using it.

Instead of focusing on students' efficacy towards technology, it is the need to focus on the competencies of students. How much a student is competent to use an online learning system; how eager a student is to seek information. As students are already familiar with technology, however unable to maintain pace in online learning classes. Moreover, students are proficient in using technology for educational purposes. So, it's online learning self-efficacy that is affecting students' behavior in online learning systems. Sometimes, students are very much familiar with online learning systems and courses flow in such an environment but are not enough competent to seek required or desired information. For acceptance and adoption of online classes through meeting platforms, this study has concluded Learner's Competence that is composed of students' online learning self-efficacy and information-seeking self-efficacy. A learner's competence could be a significant factor towards the adoption of online classes through meeting platforms. On basis of the literature review study has postulated the following hypothesis:

H5: Learner's competence has a positive effect on performance expectancy.

H6: Learner's competence has a positive effect on social influence.

2.3.2. Teaching Pedagogical Methods (TPM)

Student's adoption & acceptance of online classes is also affected by the teaching pedagogical approach. Each course demands an entirely different teaching pedagogical method. While taking online classes, in the crises where the students are already facing fear, pressure, anxiety and lack of resources, methods of teaching can directly affect student's attitude towards learning. Teaching method can be organized on basis of two parameters: teacher-centered approach and student-centered approach [25]. Teacher-centered approach is the formal method of teaching which is often being observed in traditional classrooms. From learning to assessment, everything revolves around the teacher. However, teachers can adopt different teaching styles and methods which mainly involved flipped classroom, direct instruction, and kinesthetic learning. In online learning environment, only flipped classroom method can be adopted as it is the only high-tech approach towards learning. Flipped classroom method is designed to create more student engagement in learning. In student- a centered approach, student plays an active role in the process of learning. A student uses previous learning and experiences to create, observe and learn more knowledge [26]. Teachers adopt various pedagogical methods, mainly personalized learning, game-based learning, inquiry-based learning, expeditionary learning and differentiated instruction. Among them, personalized learning, game-based learning, and inquiry-based learning are high-tech-based approaches and can be implemented in online learning. Game-based learning models are student-centered, but everything needs to be well designed along with high-tech equipment & resource availability. Implementation of personalized learning courses becomes difficult for those who are shifting from traditional to online learning [27],[28]. However, inquiry-based learning can be easily implemented in online classes to enhance student engagement and interest. Inquiry-based online learning is the best strategy to implement for engaging students in online classes. Inquiry-based learning is a student-centered pedagogical method that engages students actively throughout the learning phase. It is a teaching method that engages students and develops their critical thinking by combining curiosity and scientific methods [29]. Students are given the task to solve problems after observation, analysis, experimentation and creating the solution [30]. Students remain engaged in thought-provoking activities that enhance their cognitive and technical skills. It is becoming popular due to technological advancement as many platforms and their features are helping to promote such learning environments [31].

In previous research, it has been observed that inquiry-based online learning has a positive effect on students' academic success and it promotes cognitive skills like self-efficacy, inquiry skills and critical thinking [32][33]. Another study shows that intrinsic motivation was higher in those students who participate in inquiry-based learning, and they take a keen interest in their subjects [34].

Furthermore, motivation affects engagement and academic success positively. In another recent study effects of inquiry-based collaborative learning and inquiry-based online collaborative learning were investigated which concluded that Inquiry-based online collaborative learning significantly affect students' success [33]. Thus, in inquiry-based learning students and teachers are jointly responsible for the progress of course and learning outcomes.

The literature review has shown that online inquiry-based learning has a direct positive effect on students' academic success, performance, the interest that urges them to do effort and personal critical abilities. Inquiry-based learning approach in online classes through meeting platforms could be proved a critical success factor towards the adoption of online classes through meeting platforms. The study has formulated the following hypothesis on basis of the literature review:

H7: The teaching pedagogical method has a direct effect on performance expectancy.

H8: Teaching the pedagogical method has a direct effect on effort expectancy.

On account of online classes and the need of a student-centered approach, teaching pedagogical method is the only an inquiry-based learning method. The cause is its substantial benefits and flexibility of adoption, it would be better to say that study has proposed another critical success factor which is the inquiry-based learning teaching pedagogical method.

2.3.3. Technology Infrastructure (TIS)

Technology infrastructure can be defined as the components, services, or facilities that are the essential part of implementing technology. Technology infrastructure includes hardware, software, network accessibility resources, multimedia services, quality of audios and videos, availability and bandwidth of internet, power backups and other related services [35].

In virtual classes during Covid-19, organizational accessibility was not taken into consideration. The technology infrastructure is categorized as technical resources and platform issues. Students may face internet availability, accessibility and bandwidth problems that directly influence behavioral intention and acceptance of virtual classes. Alongside electricity, backup is another issue during the online classes while staying at home.

Technology infrastructure has great importance for e-learning effectiveness. it has played a crucial role in acceptance. The reliability of computer networks and availability of the internet for an online course influences the student's attitude towards online courses [36]. These two factors directly influence the acceptance of e-learning courses [36]. Internet availability and electricity issues have been a challenge and an influencing factor too in online learning in Pakistan [37]. In another study, infrastructure technology was a priority concern of students and has a positive effect on the success of e-learning [38]. Similarly, speed and network reliability are also considered as most critical factors in online education [39]. E-learning systems can attain desired performance if organizational and technology infrastructure is taken into consideration [40]. It has also been observed that students dropped courses due to technology infrastructure problems.

Students have faced constraints in meeting platforms like free limited time for the meeting that eventually disturbs the lecture flow, voice distortion due to low internet bandwidth and rejoining issues that could affect their performance. On basis of literature review and qualitative analysis, following hypothesis is formed for technology infrastructure:

H9: Technology infrastructure has a direct effect on facilitating conditions.

2.3.4. Course Management (CM)

Course content design is one of the crucial steps. Course information, aligning the course content with the objectives and course assessment to achieve the best learning outcomes are key factors in course management [41]. The design of course content should meet the end objectives of students' perceived learning outcomes. There should be pre-specified methods and procedures for the implementation of theoretical and practical learning. Students should be guided about the detailed planning of the course and approach to teaching [41]. Various studies had confirmed that well-organized and structured course for online learning has a positive impact on students' learning, performance, and engagement. In a recent study, course design has a direct positive impact on students' performance expectancy and actual usage in an online learning environment [13]. The course design, scope and assessment methods are the critical success factor in an online education and effects students' engagement and motivation [9]. Students' satisfaction is directly affected by how the course is designed, structured, organized and how easily they can access and complete their assignments [5]. Poorly designed assessment papers and quizzes can negatively influence the performance of the students [13]. Availability of recorded lectures, reference videos and lecture notes can minimize the student burden and anxiety. The use of multimedia features like animation, video demonstration and audio notes help to engage students effectively and efficiently [13]. Live chat, discussion forums with peers and teachers could enhance students' interest. Course content design, course assessment and course content support all these three factors come under the umbrella of course manage-

ment. The importance of online education systems and their acceptance is undeniable. Based on this discussion it is obvious that course management is an important success factor for the acceptance of online classes through meeting platforms during Covid-19. Therefore, it is proposed that:

H10: Course management has a positive effect on performance expectancy.

3. Methodology

This section provides a comprehensive methodology. The methodology overview is illustrated in figure 1. A literature review was conducted based on previous studies; four CSF have been identified. To confirm the identified factors a qualitative analysis has been conducted, highlighting the main problems faced by students during virtual classes. Conceptual model was proposed followed by a quantitative survey-based- questionnaire development. The reliability and validity of factors have been evaluated and the SEM approach was adopted to analyze the effect of identified factors. Following the footsteps of recent studies in the online education sector, results were being conducted.

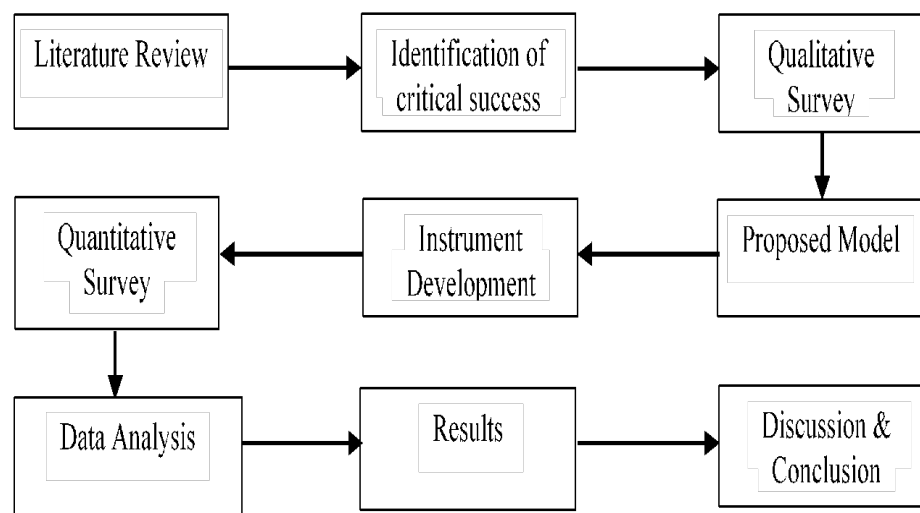


Figure 1. Research Methodology

This study incorporated UTAUT with four external CSF: learner's competence, course management, teaching pedagogical method and technology infrastructure. Table 1 depicts the CSF appended with the base model of UTAUT to evaluate the intention of non-educational virtual meeting platforms in an educational setting.

Table 1. Critical Success Factors

CSF	Constructs
Learner's Competence	Student online learning and information seeking competence during virtual classes
Course Management	Course content design, course assessment and course content support during online classes
Teaching Pedagogical Method	Inquiry based-learning pedagogical method
Technology Infrastructure	Internet availability issues, electricity backup and platform problems i.e., meeting time limit and voice distortion

Figure 2 depicts a modified conceptual model based on UTAUT to measure the student's intention towards the acceptance of virtual classes through non-educational meeting platforms.

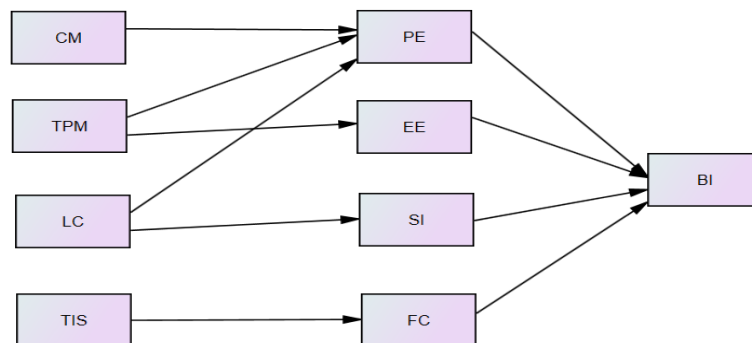


Figure 2. Proposed Conceptual Model

3.1. Research Design

This study has adopted a sequential explanatory mixed-methods approach. It involves the combination of two phases: qualitative and quantitative data collection. In this approach, qualitative analysis is followed by quantitative analysis in a defined sequence. This mixed-method approach helps to explain the phenomenon and to correlate the results of both approaches in explaining the research problem [42]. The results of qualitative analyses direct the quantitative method [43]. A questionnaire was developed based on the findings of prior literature and qualitative analysis towards the adoption of non-educational meeting platforms. The questionnaire was divided into 3 parts. The first part collects demographic information, the second part measures data related to an external variable (student competence, course management, teaching pedagogy and infrastructure support) whereas third part was composed of the UTAUT model constructs. The questionnaire items for UTAUT constructs were adapted from [12]. The scale for measuring constructs ranged from strongly disagree to strongly agree based on a five-point Likert scale. A questionnaire was developed on Google Forms. The data was collected online when students were taking online classes from home.

3.2. Participants Demographics

The sample was collected from three hundred and fifty undergraduate female students enrolled in different disciplines.

3.3. Data Analysis

SPSS was used to find the reliability and validity of the data. Confirmatory Factor Analysis (CFA) was adopted using AMOS to analyze the validity of the proposed research model. The relationship between external variables and attitude was also evaluated. The maximum likelihood method was adopted to estimate the model based on covariance and variance matrices [44].

4. Results & Discussion

The data analysis in this research is divided into 3 phases: reliability analysis, validity analysis, model and hypothesis testing. The reliability of factors was calculated followed by the validity calculation. High item loadings, confirmatory factor analysis was performed. Furthermore, model fit, and hypothesis were evaluated.

To proceed towards the main results reliability analysis of the instrument was performed. Reliability analysis measures the consistency between the items of a factor [13]. For measuring the reliability items of each factor Cronbach's Alpha is calculated. A threshold of > 0.7 for Cronbach's Alpha was recommended by Hair [45]. Invalidity analysis, convergent and discriminant validity is calculated. The discriminant validity is evaluated through CFA [44]. Convergent validity is evaluated through composite reliability and average variance extracted. Moreover, principal component analysis has been done for getting high factor loadings. Items with an extraction value less than 0.50 are removed, the commonalities table on which bases CMC2, CMA2, LCL2 items are removed. After removing low extracted items, the rotated component matrix was evaluated. Varimax rotation was used. Only those items were used which appeared in the rotated component matrix, as values less than 0.45 were suppressed. For convergent reliability, composite reliability and average variance extracted have been analyzed for each factor. Table 2 depicts the reliability and validity analysis results.

Table 2. Reliability and Validity Analysis

Factor	Cronbach's Alpha (>0.70)	Composite Reliability (>0.60)	Average Variance Extracted (>.50)
Course Management	0.872	0.832	0.510
Teaching Pedagogical Method	0.898	0.883	0.603
Learner's Competence	0.867	0.820	0.479
Technology Infrastructure	0.926	0.921	0.702
Performance Expectance	0.913	0.914	0.780
Effort Expectance	0.890	0.890	0.730
Social Influence	0.872	0.929	0.813
Facilitating Condition	0.882	0.885	0.720
Behavioral Intention	0.897	0.897	0.745

For model testing and hypothesis testing, CFA has been done. For evaluating conceptual proposed model fit indices are calculated shown in table 3.

Table 3. FIT Indices

Fit Indices	Recommended Values	Model values
P CMIN/DF	<5 - <3	1.406
GFI	>0.90	0.898
AGFI	>0.80	0.876
CFI	>0.90	0.974
RMSEA	<0.08	0.034
NFI	>0.90	0.971
PNFI	>0.60	0.798

The structural Equation model (SEM) approach was used to test the proposed model. The fit indices evaluated in the study are fit indices are the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Comparative Fit Index (CFI), the Normed Fit Index (NFI), the Parsimony Normed Fit Index (PNFI), and the Root Mean Square Error of Approximation (RMSEA) [44]. Almost all fit indices are according to the recommended threshold. Only GFI is less than the threshold, however, it is almost near to 0.90. So, it could be stated that the model is a good fit. The next step is confirmatory factor analysis which is done by the software AMOS. In confirmatory analysis, the structure of the model by factors is analyzed. Regression analysis in which regression weight and standardized regression include scale development are estimated through CFA. To improve the fit indices, modification indices of some items were dropped, and co-variances were made. The results of hypothesis testing have been done to analyze the significant relationship among the factors and to predict the proposed hypothesis. The table 4 shows the alpha and beta values against each hypothesis.

Table 4. Hypothesis Testing

Hypothesis	Path	β	p-Value	Results
H10	CM \rightarrow PE	-0.006	0.893	Not Supported

H9	TIS→FC	0.118	0.026	Supported
H8	TPM→EE	.092	.100	Not Supported
H7	TPM→PE	0.285	***	Supported
H6	LC→SI	0.436	***	Supported
H5	LC→PE	0.264	***	Supported
H4	FC→BI	0.089	0.050	Supported
H3	SI→BI	0.306	***	Supported
H2	EE→BI	0.222	***	Supported
H1	PE→BI	0.239	***	Supported

The model supported 8 out of 10 hypotheses. CM has not shown a significant effect on PE, similarly, TPM also does not show influence on EE. However, TPM has shown a significant effect on PE. FC has shown a positive significant effect on BI. The result of FC is almost near to the result possessed by Venkatesh [12]. The rest of the hypotheses show significant influences.

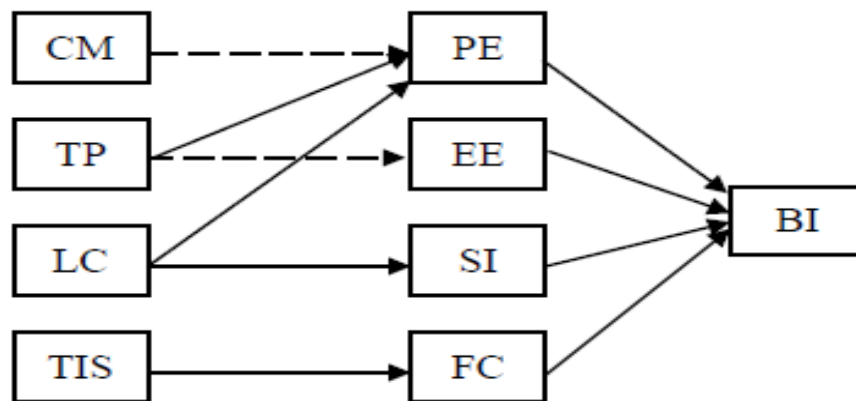


Figure 3. Proposed Conceptual Model

4.1. Implications

Improving these factors can help to elevate the online learning acceptance. By improving the availability of technology resources, imposing inquiry-based learning with different styles and developing more online competence in students at a standard level, we can easily develop an online learning system using meeting platforms along with some other easily available resources.

5. Conclusions

During Covid-19, educators have to face a severe problem as the whole education system was disrupted globally. On top of that universities in Pakistan were not ever prepared for such undesirable circumstances. However, universities have tried their best to maintain the education standards, but still, there is a vertical gap that is need to be filled. Meeting Platforms like Zoom and Microsoft Team was proved to be a blessing in disguise. With the rapid advance in e-learning, online education in Pakistan is now becoming a “new normal”. Meeting platforms are the cheapest and most reliable for conducting the virtual class. To improve their acceptance not only during a pandemic but also in the future. Studies have identified some factors, by working on these factors, the adoption of meeting platforms can be improved. In the teaching pedagogical method, we have only focused on inquiry-based learning. This approach of learning has significantly influenced performance expectance which has a direct effect on behavioral intention. Ultimately behavioral intention predicts actual usage of the application. So, it would be worth stating that inquiry-based learning plays an important role in the acceptance of meeting platforms. Learner’s competence includes information seeking competence and online learning seeking competence. It has shown a positive impact on social influence and performance expectance, thus learner’s competence is also a key

factor in the adaption of meeting platforms for a virtual classroom. Learners' personal urge for learning and getting information is responsible for their intention. Their previous interaction with online learning also considerably affected their intention. Technology Infrastructure (availability of internet, electricity and platform problems) also influences facilitating conditions, which affect behavioral intention to some extent. However, course management has not shown any significant effect. The findings of this study, if integrated into the development of e-learning or remote learning infrastructure, have the potential to significantly enhance its acceptance and usability.

5.1. Limitations & Future Work

The research has been conducted on a very broad concept, thus there are chances of some potential limitations. The targeted audience is only limited to female students, and all were studying at LCWU. The results of factors could vary from university to university or country to country as LCWU has some traditional methods of the education system which are being followed.

In the future, further research can be conducted on this study basis, however, the result could be different if the target audience would not be limited to LCWU. Rather having students from different university sectors could produce significantly different results. Acceptance can vary among those students who are technology savvy and who are not enrolled in technology courses. Each factors sub detailed can be studied as a sole whole factor. However in-depth research is still needed to enhance the adoption of meeting platforms.

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