ABAC ODI JOURNAL Vision. Action. Outcome

ISSN: 2351-0617 (print), ISSN: 2408-2058 (electronic)

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ABAC ODI JOURNAL Vision. Action. Outcome Vol X(X) pp. 162-180

www. http://www.assumptionjournal.au.edu/index.php/odijournal

Published by the

Organization Development Institute

Graduate School of Business and Advanced Technology Management

Assumption University Thailand

ABAC ODI JOURNAL Vision. Action. Outcome

is indexed by the Thai Citation Index and ASEAN Citation Index

Development of E-readiness Scale in Blended Learning in Filmmaking Program for a Private University in Bangladesh – Initial Stage

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Received: 02 August 2021 **Revised:** 11 September 2021 **Accepted:** 19 September 2021

Abstract

Although the Government of Bangladesh is pressuring all educational institutions to go online due to the COVID-19 pandemic, most of the higher educational institutes are finding it difficult to adjust to the new situation. While they have begun discussing the importance of online and blended learning, they are still waiting to return to face-to-face class once the pandemic is over. This is because they are still unprepared to embrace e-learning. This study aims to develop a unified scale to assess the higher education institute's e-readiness in Bangladesh to identify their strengths and weaknesses and formulate a plan for creating an e-learning environment. The findings of this study are based on a quantitative survey, and the study was completed using a sample size of 410 contributors 345 (84.1%) students, 34 (8.3%) teachers, and 31 (7.6%) administrators from the University of Liberal Arts, Bangladesh, a private university in Dhaka. Three separate assessment instruments were developed for the key stakeholders: students, teachers, and administrators. A systematic approach was used to create the institutional e-readiness scale with acceptable validity and reliability. The Scale-level Content Validity Index of the Averaging calculation method (S-CVI/Ave) value was 0.996, and the instruments' reliability coefficient Cronbach's Alpha was 0.949 (students), 0.935 (teachers), and 0.837 (administrators). The alpha values suggest the compiled instruments are good to excellent. This study indicates that the institutional e-readiness scale could assess the e-readiness of other universities in Bangladesh.

Keywords: e-learning in Bangladesh, e-readiness assessment tool, e-learning environment, higher education institution, COVID-19 pandemic

Introduction

Scholars and experts have been talking about the importance of e-learning for quite some time. The majority of advanced countries have taken it seriously and invested in it. According to Motteram (2006) rapid developments in technology have made distance education easy. Many terminologies of the terms online learning, open learning, web-based learning, computer-mediated

learning, blended learning, m-learning, etc. have in shared the ability to use a computer connected to a network, that proposals the possibility to acquire from anywhere, anytime, in any rhythm, with any means (Chang-Tik, 2018). In online learning technique, they can be designated as a tool that can shape the teaching-learning approach more student-centered, more innovative, and even more flexible. Hence, online learning defined as learning abilities in synchronous or asynchronous environments using diverse devices (e.g., tablets, smartphones, notebooks, etc.) with internet access.

Moreover, in e-learning environments, Schmidt et al. (2009) stated that students could be anywhere (independent) to study and interact with lecturers and other students. The synchronous learning atmosphere is structured in the intellect that students attend live lectures, there are real-time connections between educators and learners, and there is a possibility of instant feedback, whereas asynchronous learning environments are not adequately structured. In a learning atmosphere, learning content is unavailable in the form of live lectures or classes; they are available at different learning systems and forums. Prompt feedback and immediate response are not conceivable under such an environment (Littlejohn & Pegler, 2007). Motteram (2006) described that synchronous learning could provide a lot of opportunities for social interaction. During the COVID-19 pandemic spread, such online platforms are needed where (a) video conferencing with students is thinkable, (b) discussions with students can be done to keep classes more virtual reality, (c) internet technologies are good, (d) lectures are available in mobile phones also and not just notebooks, (e) possibility of watching by now recorded lectures, and (f) instant feedback from students can be achieved, and assignments can be taken, these results have been revealed into the study by Barnard et al. (2009).

The world is in separation due to the severe outbreak of this global pandemic COVID-19; hence, many cities in many countries like Bangladesh have turned into ghost cities, and its properties can be realized in schools, colleges, and universities too. In Bangladesh Open University, all this online teaching and learning can be termed as the panacea for the crisis. The COVID-19 crisis has been made institutions go from disconnected mode to online mode of schooling. In this crisis, they will generate the institutions, which were prior hesitant to change, accept modern technology. This disaster will show us the well-paid side of online teaching and learning. With the help of online teaching approaches, lecturers can lecture a huge number of students at any time and in any location of the world. Hence, all institutions must fight different possibilities of online pedagogical approaches, and they must effort to use technology more appropriately. Many universities everywhere in the world have entirely digitalized their actions, understanding the awful need of this current situation. Online learning is emerging as a victory in teaching-learning tools amidst this chaos. Therefore, the quality improvement of online teaching-learning is vital at this stage.

In the past, Bangladesh's Government declaration of the Private University Act was approved in 1992, and distance learning has been practiced in this country for a long time. In the 1960s, the e-learning method was used for the first time in distance education (Al-Masum &

Chowdhury, 2013). Numerous institutions in Bangladesh were only familiar with the old version of e-learning like television transmission, CD/DVD, web-based learning, and online learning to incorporate e-learning (Al-Masum & Chowdhury, 2013). Also, some private universities had limited experience with Learning Management Systems (LMS) and online education based on the internet, and these causes led to a matter of survival during the COVID-19 crisis (Jasim, 2020); these institutions can adapt to online learning comparatively faster than public universities in Bangladesh as the result of their varying levels of e-readiness differently as well. Besides, Mahmud (2010) revealed that e-learning would fail if the institutes and students lacked technologically, psychologically, and culturally prepared. Referring to the COVID-19 situation in Bangladesh is very serious in every part of this country. Although the government has forced a lockdown policy to maintain social distancing and try to limit virus outbreaks, most educational institutions in Bangladesh failed to engage students in e-learning. Bangladesh's government requested all educational institutes to continue educational activities using various e-learning methods and techniques ("Why the Digital Classroom Is Stumbling," 2020). Also, the issues of institutional e-readiness in Bangladesh for incorporating e-learning techniques, which are critical to the success of this modern pedagogy, have not been assessed yet. In particular, the universities must take comply with this policy during the COVID-19 crisis; additionally, some universities are not ready to implement e-learning techniques with their teaching style as the result of their lack of e-readiness. Meanwhile, after the post-pandemic educational policy from Bangladesh's Government will consider more incorporating blended learning into teaching-learning techniques referred from "Govt Mulling Blending Learning Newsletter" (2021). The studies by Chowdhury and Khatun (2013) and Hossain et al. (2017) pointed out that the youth adoption of smartphones and the availability of 4G mobile connectivity across Bangladesh is in an excellent position to develop online learning or blended learning. As so far, e-readiness in Bangladesh has to be added to the discussion table. This issue is essential to evaluate institutional e-readiness before implementing a new pedagogical strategy in e-learning and blended learning techniques. This research aims to develop a quality evaluation method that can assess the institutional, teachers', and students' e-readiness of universities for implementing e-learning in the filmmaking program, Bangladesh. At the first stage of this study, the researcher aimed to develop the e-readiness scale for adopting blended learning in the filmmaking program for a private university in Bangladesh as an initial stage.

Research Objectives

1) To develop the e-readiness scale for adopting blended learning in the filmmaking program for a private university in Bangladesh.

Literature Review

Blended Learning

From the time when the Covid-19 outbreak, there was an instantaneous period of regular classrooms into e-classrooms; that force all educators have shifted their entire pedagogical

approach to tackle new market conditions and adapt to the changing situations. During this challenging time, the concern is not about whether online teaching-learning methods can provide quality education; it is instead how academic institutions will be able to adopt online learning and e-readiness in such a massive manner (Carbonell et al., 2013). The result of technological advancements has made online learning increasingly popular. Blended learning techniques are also advancing skill-based or practical courses. These two techniques are the most common e-learning methods nowadays. Several researchers have begun to use the terms e-learning and online learning interchangeably (Moore et al., 2011). Its preparedness or preparation determines any e-learning strategy's effectiveness. Mercado (2008) stated that before any e-learning techniques are implemented, they are essential to recognize and address the factors that can lead to educational deficiencies. In order to understand the needs and preparing key players are essential for the success of online learning and blended learning. Thus, students, teachers, and the institution's readiness to use the electronic learning environment can be measured by defining the characteristics of online students, teachers, and e-learning institutions.

According to Bowyer and Chambers (2017), blended learning is often described as a mix of traditional teaching methods, such as face-to-face teaching and online teaching. This is possibly the most common meaning of blended learning used in a higher education context. By helping identify the degree of blending which may happen within these two approaches, a reference can be made to provide a classification based on the level of online resources used. Moreover, Jones et al. (2009) incorporate a continuum of blended learning, which initiates with no information and communications technology (ICT) use. After that, then growths through the basic level of information and communication technology (ICT) used to backing face-to-face teaching, to rigorous use, whereby the entire module is delivered online with slight or no face-to-face collaboration (Jones, 2006). At private universities in Bangladesh focusing on filmmaking programs, the variety of blended learning remained that it was supposed as a way in which institutions may possibly move from traditional approaches (face-to-face) to an "e-intensive" method by progressively introducing information and communications technology (ICT) as part of the delivery. The range of blended learning could also be observed in another way. Many educators draw together the tools for a blended learning package, and they possibly will "pick" from different selections across the range (e.g., a learning module) may comprise the use of presentation software in lectures, online discussions (LMS-forum), and traditional tutorials that involve no ICT use. The perception of applying ICT to promote traditional methods is obviously not new.

Additionally, Demirer and Sahin (2013), the study emphasized that analyzing whether a hybrid, elastic teaching method, in association with traditional (face-to-face) lectures, improved learning outcomes. Their results from the study recommended that a positive change in student grades when a mixture of the conventional method and widespread use of multimedia resources was operated in teaching. A study by Dunbar (2004) explained and analyzed the conversion of a traditional (face-to-face) course to an online course using an online learning stage, "digital learning

platform" (e.g., Google Classroom, LMS, Moodle, MOOC). The survey was asked students about their favorite to have an actual instructor or to have the class online. The mainstream of students answered that they would rather have the online course.

E-readiness

E-readiness describes a country's scopes and state of preparedness to link in the electronic creation. The national development is normally measured by the country's information and communications technology (ICT) arrangement which is the capability of its government and people to use the encouraging influences of ICT for supportable development. An e-readiness, or readiness as it is sometimes referred to, be assessed at several levels. Meanwhile, Dakduk et al. (2018) illustrated that e-readiness is defined as a measure of the degree to which a country, nation, or economy may be ready, willing, or prepared to obtain benefits that arise from information and communications technologies. Moreover, Rizk (2004) pointed out that e-readiness usually is reflected to be an assessment of several attributes, e.g., levels of connectivity, shared business environment, existing infrastructure, existing human resources, and so on.

Anthony et al. (2019) and Whelan (2008) inspected that 'e-learning readiness' in Malaysia, according to a number of criteria, consists of (1) content readiness, availability of suitable materials; (2) cultural readiness, readiness to accept e-learning; (3) environmental readiness, the readiness of the society and nation to accept e-learning; (4) financial readiness, willingness to spend the required funds; (5) learner readiness, level of time commitment, discipline and interest in e-learning; (6) management readiness: support of the institution for e-learning; (7) personnel readiness, the existence of staff to support e-learning technical resources; and (8) technical readiness, the existence of necessary infrastructure. These criteria are assessed more at the institution level in education than the general e-readiness assessments. Also, Machado (2007) established a framework for evaluating e-readiness in higher education institutions. This framework discriminated between the roles of administrators who provide the necessary infrastructure but also facilitate in building capacity for e-learning, instructors, and students as well.

Institutions' Readiness for Blended Learning

An institutional assurance involving leadership at each level in the organization must include senior executives, college deans, department chairs, faculty, and support staff to develop a successful blended learning initiative. Orientation of missions is also necessary for existing and emerging support units to achieve expected desired outcomes such as improving access and retention. As a result of incorporated leadership, support, and synchronization, an institutionally presented blended learning program can gain benefits that effect face-to-face teaching and learning across departments. Institution investments may be required in the following areas to build, deliver, and assess blended learning: (a) technology infrastructure; (b) special funding; (c) incentives; (d) special awards; (e) release time; (f) professional development; (g) evaluation

support; (h) instructional design; (i) media production services; (j) technical help desks; and (k) learning management systems or other learning technologies.

According to the study by Dziuban et al. (2011) institutions' readiness indicators contain: (1) A usually understood definition between stakeholders for blended learning; (2) A blended learning approach that line up with institutional goals; (3) A real organizational model to support the blended learning inventiveness; (4) Qualified staff skillful to provision various faculty needs and lifecycle of courses; (5) Online student support facilities to support blended learning; (6) A vigorous planning process to identify blended learning faculty/courses to develop; (7) A faculty development program to build faculty to explain blended learning courses, including motivations and rewards as part of the program; (8) Learner support resources to prepare students to learn in blended learning courses; (9) The capability to identify blended learning courses in the course schedule; (10) Blended learning strategies advanced around accessibility, copyright, and intellectual property; (11) An assessment program to assess the impact of the blended learning edge; (12) The return on investment (ROI) computed based on resources dedicated to the blended learning initiative; and (13) Reusable courses and materials joint within departments engaged in blended learning. Excerpted from "Blended Courses as Drivers of Institutional Transformation" in Blended Learning Across Disciplines: Models for Implementation (quoted from Dziuban et al., 2011):

> *"…where blended courses (also known as hybrid or mixed-mode courses) have succeeded, they have most often done so when strategically aligned with an institution's mission and goals. The development and delivery of blended courses can be used to address a variety of institutional, faculty, and student needs…."*

Moreover, blended courses can be a technique to infuse new engagement chances into established courses, programs, curricula, or, for some, such as filmmaking programs in Bangladesh, which provide a transitional opportunity between fully face-to-face and fully online instruction. In terms of students, blended courses offer the conveniences of online learning combined with the social and instructional interactions (Dziuban et al., 2011) that may not lend themselves to distance delivery (e.g., learning in lab sections). An institution's blended learning strategy can be considered to address the needs and subtleties of all three constituencies (institution, faculty, and student) simultaneously, then the three constituencies can become a powerful force for transformation.

Teachers' Readiness for Blended Learning

Currently, enormous opportunities are provided by most educational institutions across Bangladesh through webinars or workshops or faculty development programs or refresher courses that were previously conducted by traditional teaching (face-to-face). During the COVID-19 situation, they are now operating online education on several online platforms, for educators at all levels who are a part of a scholastic member to train and become accustomed themselves to new

teachings of teaching and learning techniques that would be useful post-pandemic, once the institutions reopen. During the time of lockdown since 2020, the crisis has rotated the tables on teachers by building the teachers as learners in Bangladesh. The teachers, during the COVID-19, who have joined or conducted these online training programs and seminars have not just knowledgeable the use of online gear and software as these teachers but also have had any experience (ICT infrastructure as technologies based for online teaching-learning techniques) with these. Moreover, the blended learning method for teachers is applied to join lectures or training courses online as per the established content, keeping in mind the objective of the course. This will inspire teachers to share in these programs at a higher rate as they will not have to travel or stop over the location during the course. This will also take into reflection the health and safety measures required to combat the pandemic. Many things may not be as they were formerly, not just for students but also for educators as learners who wish to appear in these training programs. The prevailing pandemic has auxiliary fuel to fire by leaving no option than to adopt blended learning as one of the best-fit educations to be adopted once things get back to normal. Hence, this study places emphasis on the development of the e-readiness scale in blended learning in filmmaking programs for a private university in Bangladesh - the initial stage. The analysis of teachers' readiness scales, students' readiness scales, and institutions' readiness scales have and have not appeared or conducted online training programs toward blended learning and its scopes as one of the frameworks that could be adopted in the post-COIVD-19 period for the sustainability of education. A lot of research studies specifically abroad focus on flipped classrooms and distance learning, but very few Bangladesh studies have focused on blended learning. Before embedding the blended learning model as the best-fit model post-pandemic, it is crucial to know the attitude of teachers toward embracing this approach. Understanding the perspective will enable the researchers, policymakers, and management to yield a step onward in implementing this pedagogy, which is supposed to be the new normal post-crisis.

Students' Readiness for Blended Learning

A study conducted by Moftakhari (2013) revealed that only 12% of students opted for e-learning, while 20% preferred the old-style form of learning. These results indicate that even though students were advocates of technology, many of them were unwilling to abandon the face-to-face learning experience. In another study, Hwang and Arbaugh (2006) showed that in e-learning modules, students missed the face-to-face interaction with their lecturers and classmates. Schmidt et al. (2009) found that students faced a significant challenge working with each other in an online environment; moreover, students might struggle in adapting to this initiative as they now must lead their learning process. Also, Tuparova and Tuparov (2011) pointed out that other students might find it difficult to adjust to the online course structure. The findings by Lopez-Perez et al. (2011) illustrated that tertiary students seemed to prefer online learning to complement traditional modes of classroom teaching. The study by Schmidt et al. (2009) pointed out that while blended learning creates flexible learning for students. Student's readiness for blended learning can be studied by assessing students' knowledge, technology skills, technology availability, self-

directed learning, computer and internet efficacy, and attitude in e-learning. Moreover, Anthony et al. (2019) explored the roles of technical infrastructure, organizational factors (organizational rules and culture), and social readiness issues (governmental directions and administrative instructions). Students' readiness is one more powerful factor in implementing online learning successfully (Rainsbury & Malcolm, 2003). The mixture of both e-learning and face-to-face learning environments may not be entirely accepted by students in Bangladesh. Park et al. (2016) suggested that higher education institutions need to assess their students' readiness for blended learning to embrace the blended learning environment successfully. Holton et al. (2006) further reiterated this importance by highlighting students' perspectives as the most vital component in blended learning. A review of the literature suggests that students' readiness for blended learning can be categorized into six main aspects: (a) Technology skills; (b) Technology usage; (c) Technology accessibility; (d) Self-directed learning; (e) Computer and internet usefulness, and (f) Students' attitude towards blended learning.

Technology Acceptance Model (TAM)

According to Al-Masum and Chowdhury (2013), the significant challenges in implementing e-learning in Bangladesh's higher education are a lack of qualified teachers, ICT infrastructure, and a lack of a quality assurance management system. They also made several recommendations to fix the problems. Their top recommendations include establishing a national repository for high-quality e-content, increasing accessibility and connectivity, mandating digital literacy at the secondary and higher secondary levels. They also recommended addressing technical, psychological, sociocultural, and economic barriers to e-learning implementation in Bangladesh. Karmakar and Wahid (2000) attempted to assess Bangladesh's e-readiness on a national level. They also provided a list of recommendations for the government, the ICT industry, the community, and the education sector. Amin et al. (2016) used a Technology Acceptance Model (TAM) to determine if students in Bangladesh embrace different e-learning platforms. They concluded that students studying in a private university in Bangladesh have a positive attitude toward e-learning platforms, but they have difficulty adopting it. However, the course curriculum should be redesigned to promote e-learning platforms at the institutional level and provide engaging opportunities for teachers and students. Teachers who participate actively in e-learning should receive commendations or promotions, and students who participate actively in e-learning should also receive grade allocations (Sarker et al., 2018).

E-learning in Bangladesh

In order to determine the efficacy of e-learning, Ali et al. (2018) conducted a survey of 667 students from six public and 34 private universities in Bangladesh. According to their report, nearly 95% of students participate in some e-learning activities. They also conclude that e-learning is highly efficient, takes less time, is simple to use, and is inexpensive. Progga et al. (2020), on the other hand, collected data from students at five private Bangladeshi universities and observed that students shifted to online learning during the COVID-19 pandemic. However, the study discovered

that although students' success in online classes was admirable, their acceptance of the online platform was low. However, 42% of students reported that the class attendance recording feature of the online courses was the most useful, followed by assignment submission (26%), screen sharing (24%), and flexibility (13%). Nevertheless, according to the researchers, the situation could be improved if the teachers had adequate training in web-based educational applications and continuous Internet access.

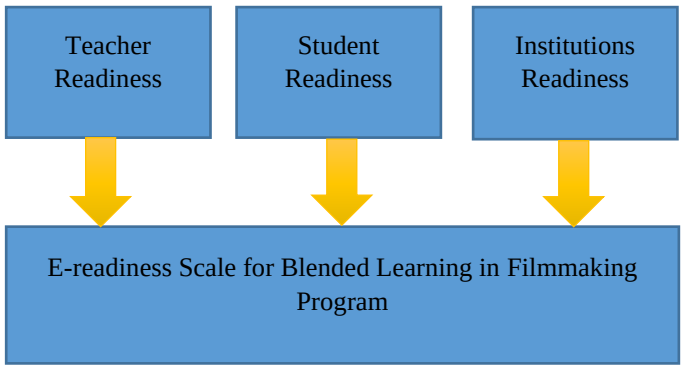
According to Monem and Baniamin (2010), private universities in Bangladesh differ from public universities in structure and function. Private universities are financed by the Board of Trustees and follow a distinctly American educational model. In contrast, the government provided 95% of the funding for public universities. The course instructor is the sole and final assessor in the American system, unlike the public university system. Nonetheless, private universities play an important role in nation-building and education reform by providing quality education (Islam & Salma, 2016). Consistent with Akareem and Hossain (2012), they illustrated that administrative, faculty, institutional, and student characteristics contribute to the educational quality. The current status and socioeconomic background affect students' perceptions of academic quality. Quality online education could be confirmed by addressing the issues found by the e-readiness assessment tool. Hung et al. (2010) developed an Online Learning Readiness Scale (OLRS) where 18 items were grouped into five categories: self-directed learning, motivation for learning, computer/internet self-efficacy, learner control, and online communication self-efficacy. Yurdugül and Sirakaya (2013) suggested a Turkish version of the OLRS based on this scale, which had a high validity and reliability score. Gülbahar (2012), another Turkish researcher, conducted a study to establish the students' e-readiness scale and the e-satisfaction scale. The e-readiness scale reliability coefficients ranged from 0.77 to 0.80, while the e-satisfaction scale values stretched from 0.91 to 0.96, indicating that the scales are reliable. Using her scale, Ilgaz and Gülbahar (2015) attempted to determine the students' e-readiness, e-satisfaction, and expectations of different e-learning programs at Ankara University. İbili (2020) found that the level of e-readiness varied by gender, learning style, device type, and income level. These scales include a student viewpoint, while Mercado (2008) proposed an institutional e-readiness tool that considers all stakeholders-student, teacher, and the administrative policy. These three groups are also assessed in terms of technology access, technical skills, and attitude. In another study, Parkes et al. (2015) discovered a substantial difference in perceptions of preparedness between staff (faculty and admin) and students. Lastly, Gay (2018) indicated that students' e-readiness is determined by technical ability, lifestyle aptitude, and learning preferences which also determine a student's academic performance. Moreover, as a result of the study by Gay (2018), keened on the student's characteristics, level of students' e-readiness and suggested that readiness be measured at different stages of the course- at course orientation, throughout the course delivery, and at the very end.

Conceptual Framework

The conceptual framework of the study has shown in Figure 1. The framework mainly focuses on the readiness of three principal stockholders of a higher education institute. The combination of this three readiness will create the institutional e-readiness scale.

Figure 1.

Conceptual Framework of the Study



Source: Constructed by Authors

Research Methodology

The researchers identified three main stakeholders to measure the e-readiness of the selected institute to initiate a blended learning approach of teaching and learning. These are student, teacher, and administration. Based on the e-readiness tool designed by Mercado (2008), the researchers developed a set of e-readiness tools for the private university in Bangladesh to assess their readiness. After reviewing numerous pieces of literature, Mercado identified three main elements for e-readiness: students, faculty (teachers/instructors), and the organization (administration/policy). According to Mercado (2008), student's and teacher's e-readiness depends on access to technology, technology skills, and attitude. She devised 68 questions for students and 86 questions for teachers to assess institutional e-readiness, mostly dichotomous (yes/no), except for the attitude section. A five-point Likert scale was used to measure teachers' and students' attitudes toward online teaching and learning.

The current study has adapted most of her, Mercado (2008) questions and rephrased them. A five-point Likert scale was used in all questions for a more robust statistical analysis. Some of the questions have also been merged, and a few have been added based on new technological developments. The students' and teachers' questionnaires are divided into three parts. Part A: Technological Access and Skills, Part B: Online Teaching and Learning Attitudes, and Part C:

Institutional Competency. The questions are the same for both students and teachers except in Part B, where students' attitudes toward online learning and teachers' attitudes toward online teaching have been grouped separately. A separate tool was designed for administrative staff combining Part A and Part C and removing some teaching-learning questions. University of Liberal Arts Bangladesh (ULAB) has chosen to implement the quantitative study.

The three e-readiness assessment tools were first presented to a six-member expert panel for feedback, where all of them were selected from the ULAB faculties. The expert panel accommodated two e-learning, two communication, and two film studies experts. Then, the Content Validity Index (CVI) was calculated to measure the validity. After that, a pilot survey was conducted with 45 samples in Summer 2020. Based on the input of experts and the results of the pilot survey, some of the items from the instruments were removed. Finally, the questionnaire consisted of 48 items: students' e-readiness assessment contains 33 items, teachers' e-readiness assessment contains 38 items, and Administrators' e- readiness assessment includes 21 items. The structure of the Institutional e-Readiness Scale (IeRS) is shown in Table 1.

Table 1

Structure of Institutional e-Readiness Scale (IeRS)

<table>
<tr><th colspan="2">Introduction, Consent and Respondent's Profile</th></tr>
<tr><td colspan="2">Part A: Technological Access and Skills (TAS)
Device and Connectivity (TAS 1 – 2)
Basic Computer Skills (TAS 3 – 4)
Basic Application Software Skills (TAS 5 – 6)
Basic Internet Skills (TAS 7 – 9)
*Online Teaching Learning Skills (TAS 10 – 11)</td></tr>
<tr><td>*Part B: Students Attitude Towards Online Learning (SATOL)
Pro Active Students (SATOL 1 – 3)
Self-Management (SATOL 4 – 7)
Time Management (SATOL 8 – 10)</td><td>*Part B: Teachers Attitude Towards Online Teaching (TATOT)
Pedagogical Approach (TATOT 1 – 4)
Student Engagement (TATOT 5 – 8)
Self-Motivation (TATOT 9 – 13)
Time Management (TATOT 14 – 15)</td></tr>
<tr><td colspan="2">Part C: Institutional Competency (IC)
Institution Policy (IC 1 – 6)
Institution Infrastructure (IC 7 – 12)</td></tr>
</table>

* Items are not applicable for Administrators.

Note. Adapted from Mercado, (2008) and updated by the authors.

The questionnaires were then administered in Fall 2020 at the private university in Dhaka to a total population of 4451, of which 4201 (94%) students, 133 (3%) teachers, and 117 (2.6%) administrative staff. By the end of Fall 2020, more than 567 individuals responded to the survey were 496 students, 36 faculty, and 35 administrators. However, after cleaning up the outlier data, the study was completed using a sample size of 410 contributors 345 (84.1%) students, 34 (8.3%) teachers, and 31 (7.6%) administrators. All data were collected through Google Form by using institutional group email. Finally, Cronbach's Alpha Coefficient was used to test the tools'

reliability, and CVI was calculated again to see the validity. For statistical analysis, Microsoft Excel for Mac, version 16.52, and SPSS for Mac, version 26 software was used.

Results

The study has collected data to check the validity and reliability of the proposed institutional e-readiness scale. The demography of the participants is presented in Table 2. In the student section, first-year students were considered outliers as they may have very little understanding of the institute's policy. When considering the number of students, the School of Business is the largest department followed by the School of Social Science, Arts and Humanities, and Science and Engineering. Therefore, the survey participating number of the different departments represents the number of enrolled students in that department/school.

Table 2

Demographic data of the participants

Student (N=345)	**Variables**	**Frequency**	**Percent**
Sex	Female	188	54
	Male	157	46
	Total	**345**	**100**
Department	School of Arts and Humanities	74	21
	School of Business	145	42
	School of Science and Engineering	47	14
	School of Social Science	79	23
	Total	**345**	**100**
Student Year	Second	97	28
	Third	93	27
	Fourth	155	45
	Total	**345**	**100**
Teacher (N=34)	**Variables**	**Frequency**	**Percent**
Sex	Female	9	26.5
	Male	25	73.5
	Total	**34**	**100**
Position	Lecturer	7	21
	Senior Lecturer	10	29
	Assistant Professor	11	32
	Associate Professor	2	6
	Professor	4	12
	Total	**34**	**100**
Year at ULAB	1-2 years	11	32
	3-5 years	10	29.5
	6-10 years	10	29.5
	More than 10 years	3	9

	Total	**34**	**100**
Admin (N=31)	**Variables**	**Frequency**	**Percent**
Sex	Female	12	39
	Male	19	61
	Total	**31**	**100**
Year at ULAB	1-2 years	3	10
	3-5 years	6	19
	6-10 years	10	32
	More than 10 years	12	39
	Total	**31**	**100**

Source: constructed by the authors

According to Polit and Beck (2006), content validity is primarily a matter of opinion, with two distinct phases: a priori efforts by the scale maker to enhance content validity through proper conceptualization and domain analysis before item generation, and a posteriori attempt by experts to assess the scale's content validity. If the Item Content Validity Index (I-CVI) is less than 0.78, Polit et al. (2007) recommend revising or removing some items. Excellent I-CVI would be 0.83 or higher. They also suggested that if the Scale Content Validity Index (S-CVI) value is 0.90 or higher, the instrument is said to have excellent content validity. In this study, out of 48 items, 47 items I-CVIs is a perfect 1, only one item (TATOT 14: see Table 2) scored 0.83. Furthermore, the S-CVI/Ave (averaging method) has been measured as 0.996, and S-CVI/UA (universal agreement) is 0.979, which indicates the excellent validity of the tools.

According to Connelly (2011), a scale should be tested after establishing it to ensure its reliability. Cronbach's Alpha is a way to measure the instruments' internal precision. In general, the ability of a tool to achieve consistent or accurate results is referred to as reliability. Since reliability evaluation is an estimate rather than a final decision, it should be measured for each entity; this is especially important if different populations are being studied. Internal consistency, also known as Cronbach's Alpha, is a measure of trustworthiness. Furthermore, reliability and validity are inextricably linked.

Table 3

Reliability Coefficient for Subscales

Student (N=345)	**Cronbach's Alpha**	**Number of items**
Technological Access and Skills	.881	11
Students Attitude Towards Online Learning	.901	10
Institutional Competency	.938	12
Total	**.949**	**33**
Teacher (N=34)	**Cronbach's Alpha**	**Number of items**
Technological Access and Skills	.838	11
Teachers Attitude Towards Online Teaching	.880	15
Institutional Competency	.932	12
Total	**.935**	**38**
Admin (N=31)	**Cronbach's Alpha**	**Number of items**

Technological Access and Skills	.720	9
Institutional Competency	.889	12
Total	**.837**	**21**

Source: constructed by the authors

An instrument is unlikely to be valid unless it is trustworthy (Tavakol & Dennick, 2011). In this study, the researcher has measured the reliability coefficient for the scale and each subscale as shown in Table 3.

Table 4

Correlation Coefficient for Subscales

Student (N=345)	**Mean**	**S.D.**	**TAS**	**SATOL**	**IC**
Technological Access and Skills (TAS)	4.150	0.701	1.000	0.624	0.482
Students Attitude Towards Online Learning (SATOL)	3.942	0.805	0.624	1.000	0.628
Institutional Competency (IC)	3.855	0.807	0.482	0.628	1.000
Teacher (N=34)	**Mean**	**S.D.**	**TAS**	**TATOT**	**IC**
Technological Access and Skills (TAS)	4.428	0.528	1.000	0.723	0.472
Teachers Attitude Towards Online Teaching (TATOT)	4.359	0.453	0.723	1.000	0.390
Institutional Competency (IC)	4.034	0.734	0.472	0.390	1.000
Admin (N=31)	**Mean**	**S.D.**	**TAS**		**IC**
Technological Access and Skills (TAS)	4.258	0.449	1.000		0.186
Institutional Competency (IC)	4.239	0.511	0.186		1.000

*Correlation is significant at the 0.01 level (1-Tailed)

The inter-item correlation matrix, inter-subscale correlation matrix shown in Table 4, and the instruments Cronbach's Alpha were used to determine the internal reliability of the 48 items of the Institutional e-Readiness Scale (IeRS) and the reliability coefficient of each sub-scale. The majority of psychometricians accept that a Cronbach's Alpha value of 0.70 or higher is acceptable. On the other hand, a high reliability-coefficient does not necessarily imply a high internal consistency level. One can achieve a high reliability-coefficient by including many items. Also, the alpha value decreases if the test length is too short (Connelly, 2011; Tavakol & Dennick, 2011). In this study, all Alpha values suggest that the subscales ranging from 0.720 to 0.938 are satisfactory to excellent, and the instruments Cronbach Alpha ranging from 0.837 to 0.949 which is considered good to excellent.

Discussion

University Grants Commission (UGC) of Bangladesh is responsible for ensuring the quality of higher education. Therefore, they provide guidelines and resources to ensure the universities' autonomous nature and quality education from time to time. UGC is guiding continuously in the pandemic situation to enhance online teaching and learning. They are now preparing for the post-pandemic circumstances. A draft policy has been presented to the Ministry of Education to implement blended learning. However, the implementation of blended learning

will not be successful if the institute fails to identify the state of e-readiness. Neither the government, UGC, nor the institutes are considering finding their problems through the e-readiness assessment. It is also important to mention there was no e-readiness scale developed for Bangladeshi institutes. This study wants to fulfill the gap by providing an e-readiness scale with acceptable validity and reliability. This study also intends to evaluate the e-readiness of Bangladesh's higher education institutions to identify their strengths and weaknesses and build a plan for developing an e-learning environment. This study's conclusions are based on a quantitative survey of 410 respondents from the University of Liberal Arts Bangladesh, a private university in Dhaka. For the major stakeholders: students, instructors, and administrators, three assessment tools were devised. The institutional e-readiness measure was developed using a systematic approach with satisfactory validity and reliability.

Recommendation

The COVID-19 pandemic has shifted people's perspectives on traditional pedagogical approaches. Bangladesh's higher education institutions are also using this opportunity to expand their online or blended learning capabilities. This scale can be used to find their strengths and weaknesses in implementing online or blended education. One of the study's limitations is that the scale was validated only at one Dhaka-based private university, which may not represent regional disparities among various universities. More research with regional private and public universities could broaden the reach of this scale. It is also suggested that further research be done to confirm the validity and reliability of this Institutional e-Readiness Scale (IeRS).

Conclusion

An institution's e-readiness is crucial to the success of an online or blended learning implementation. There are three primary variables that determine the e-readiness of an institution: technological access and skills, online teaching and learning attitude, and institutional competency. These factors must be considered when measuring the e-readiness of stakeholders: students, teachers, and administrators. This study aimed to present a collection of standard institutional e-readiness assessment tools for blended learning. The scales were found to be valid and reliable. The results also show that in the private university chosen for this study, S-CVI/Ave is 0.996, and Cronbach's Alpha is 0.949 (for students), 0.935 (for teachers), and 0.837 (for administrators). It means the IeRS can also be used to assess the e-readiness of other private universities in Bangladesh which are similar in nature. The readiness assessment tools would provide education institutions a more comprehensive picture of their ability to incorporate blended learning. This evaluation can also be used for developing a more effective plan for improving the existing e-learning environment.

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