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Developing an Instrument to Assess Organizational Readiness for a Sustainable E-Learning in the New Normal

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Abstract

E-learning is aptly a practical response to continuous learning given the surge in the use of information technology, and economic disruptions impinging on the schools. The need to shift to e-learning has been exacerbated by the COVID-19 pandemic. In this regard, we sought to develop an organizational assessment instrument to internally ascertain the level of readiness of the school for sustainable e- learning in the new normal. This assessment instrument was primarily developed for the use of the Mendiola Consortium member schools in their pursuit to conduct e-learning. We intended that as an internal self-assessment it can diminish the threat of failure and provide some assurance of the successful implementation of e-learning. We noted that many survey instruments had been made to assess organizational readiness as a construct for e-learning. However, it revealed that these instruments have varying limitations in validity and reliability to establish the domains of organizational readiness for e-learning. We anchored our study on the organizational readiness model developed by Schreurs and Al-Huneidi (2012) and Mercado (2002). From our review of related literature, we were able to generate seven basic

dimensions of our model, namely: teacher, student, curriculum, technology, administrative support, financial support, and learning environment. We used a mixed method of qualitative and quantitative approach to come up with a validated instrument. We conducted a three-phase approach in developing the instrument. The final instrument yielded 45 items to be rated on a five-point Likert scale. For its content validity, the Item-Content Validity Index ranged from 0.91 to 0.96, while the Scale-Content Validity Index was 0.94. It has a Cronbach alpha of .975 for its reliability.

Keywords: organizational readiness; instrument development; e-learning; online distance learning; assessment tool

Background of the Study

The whole world was astonished and caught unprepared when COVID-19 came and quickly became a pandemic. It affected the lives of millions of people globally, including the Filipinos. This deadly disruptor seriously impinged on the business and economy of the nations. The education sector was one of the utterly affected sectors because schools were closed which led to the cancellation of all campus events, especially the face-to-face classes, to protect the teachers, students, and other personnel from COVID-19.

However, the COVID-19 pandemic cannot abate the major role and functions of education in society. Schools' top administrators found ways and means to continue providing education at all levels. Although not completely prepared and without any systematic and extensive assessment of its readiness, schools immediately shifted to online distance learning. The approach is either fully online or blended classes with the use of a reliable Learning Management System or another online platform. But this time is done in a more innovative and sustainable approach. Sustainable means it meets the needs of the present without compromising the ability of future batches of school stakeholders to meet their own needs (adapted from Brundtland Report, 1987).

E-learning is an alternative way of teaching, but its success happens by recognizing the demands as well as the readiness of key actors in the online learning environment (Mercado, 2002). A systematic process of planning, designing, developing, implementing, and evaluating an e-learning environment; where teaching and learning are vigorously nurtured and maintained, are necessary for an effective e-learning effort (Mercado, 2008). Moreover, e-learning is a great chance for organizations to upskill their people to address the challenges of lifelong learning, but it requires adequate preparations and management in its implementation since it frequently necessitates big investment costs (Schreurs and Moreau, 2008).

For many years, different assessment models have been suggested by practitioners and academicians. An early model was developed by Chapnick (2000) to evaluate organizational readiness for e-learning. She identified 66 factors and classified them into eight categories. These categories include psychological, sociological, environmental, human resource, financial, technological skill, equipment, and content readiness.

Another previous model was proposed by Haney (2002). It has 70 questions and is grouped into seven classifications, namely: human resources; learning management system; learners; content; information technology; finance; and vendor (Haney, 2002).

Subsequently, Fetaji, B. and Fetaji, M. (2009) proposed a framework also using seven e-learning indicators to measure organizational e-learning readiness. These indicators comprise learners' education and cultural background; learners' computing skills; learners' learning preferences; the quality of e-learning content; viable learning environment; and its e-learning logistics. There was also a model that was developed by Li-An Ho (2009). The model is composed of four core groupings that consist of e-learning system quality; technology readiness; learning behavior; and learning outcome.

The model by Schreurs and Al-Huneidi (2012) to gauge organizational readiness for e-learning has 21 specific item indicators containing five focal categories. These categories are facilities and infrastructure for e-learning; management; organization of e-learning function/ department; learners characteristics; and e-learning course and process. More recently, Piña (2017) used the model with three broad categories: *inputs; design components; and outputs* to assess higher education institutional capacity and readiness for establishing or expanding online education.

These models that were developed to assess organizational readiness for e-learning comprise specific critical elements or factors or indicators that should be present to measure each dimension particularly on students, teachers, curriculum, technology, administrative support, financial support, and learning environment.

The critical elements or factors that should be present in the online readiness student/learner dimension are metacognitive skills, self-motivation, self-regulation, satisfaction, and computer access and competence (Goh et.al., 2017; El-Seoud et.al., 2014; Tularan & Machisella, 2018; Hussein, 2016; S. Eom et al., 2006); Yukselturk and Bulut, 2007); Yu & Richardson, 2015); Doe, Castillo, & Musyoka, 2015); Atkinson, Blankenship, & Bourassa, 2012); Mercado, 2008); Watkins, Leigh, & Triner, 2004). Meanwhile, the critical elements or factors that should be present in the online readiness faculty/teacher dimension are computer access and competence, self-efficacy, and teaching experience (McQuiggan

(2007); Shea, et al., (2005); Makarenko and Andrews (2017); Kearsley (2008); Keengwe and Kidd (2010); Coppola, et al., (2002); Yang (2020); C. B. Andoh (2012); Villar and Alegre (2006); Zee, M., & Koomen, H. M. Y. (2016); Santagata, R., & Sandholtz, J. H. (2019); Mercado (2008)

The critical elements or factors that should be present in the online readiness curriculum/content dimension are course objective and course infrastructure (S. Eom, et al., 2006); J. Sun and Y. Wang, 2014); S. Ruth, 2006); S. Eom et al., 2006); M. Kenzig, 2015); W. Journell (2012); Masoumi, 2006). While the critical elements or factors that should be present in the online readiness technology dimension are connectivity, Learning Mnagement System, and technical skill and support (Al-Fadhli (2008); Sife, et al., (2007); Olufunmilola, et al., (2016); Rogers (2000); Hrastinski (2008); R. Salac and Y. Kim (2016); A. S. Sife et al (2007); A. Tubaishat et al., (2006); B. Saunders and P. Quirke (2002); Masoumi (2006)

The critical elements or factors that should be present in the online readiness administrative support dimension are policy, maintenance, and leadership commitment (Sife, et al., 2007); (Comeaux and Byington, 2003); (Meyer and Barefield, 2010); (Marek, 2009); (Holt and Challis, 2007); (Hilliard, 2015); (Mercado, 2008). On the other hand, the critical elements or factors that should be present in the online readiness financial support dimension are financial planning, financial policy, and financial control (A. S. Sife, et al., (2007); Hammond (2018); Ruth (2006); Kearsley (2004); C.A. Twigg (2011); Aronen and Dierssen (2001); Masoumi (2006)

The critical elements or factors that should be present in the online readiness learning/organizational environment dimension are culture difference, ICT infrastructure, and support services (Aldowah, et al., 2015); Al-Fadhli, 2008); McLoughlin and Oliver, 2000); Collis and Remmers, 1997); Zhu, 2012);Mohammed and Mohan, 2011); cited in Zhu, Valcke and Schellens, 2008); Hameed, et al. , 2016); Al-Hunaiyyan, 2008);Mulwa and Kyalo, 2011); Mercado, 2008).

It is this context on the surge in the mainstreaming of e-learning and an alternative option to deliver education in schools due to the exponential growth of information technology and the sudden occurrence of the COVID-19 pandemic. Specifically, the Mendiola Consortium represents a microcosm of the education sector in Philippine society which was not spared by COVID-19. The schools' immediate reaction is to adopt online

distance learning to continue providing education to its students in a sustainable development paradigm. These are the primordial reasons that warrant the need for assessing organizational readiness to use e-learning. The various models and critical elements or factors that should be present in the online readiness per dimension as shown from previous studies are the pillars of this research.

Statement of Research Problem

In this paper, we answered the focal question: What is a functional assessment instrument that can measure the organizational readiness of schools for sustainable e-learning in the new normal, that can be adopted by the Mendiola Consortium member-schools?

Statement of Specific Objectives

More specifically, we aimed to achieve these objectives:

1. Determine the basic dimensions of organizational readiness for sustainable e-learning in the new normal.
2. Identify the critical elements that must be present for each dimension to measure organization readiness for sustainable e-learning in the new normal.
3. Develop a validated instrument to assess the readiness of the Mendiola Consortium member-schools for sustainable e-learning in the new normal.

Significance of the Study

It is always prudent for school administrators to gauge its capability and lessen the risk to engage or pursue any new strategy in the delivery of its educational mission. Given the pandemic that leads to a new normal in providing education to people, online distance learning strategy requires a big investment both in technological and social infrastructures.

It is therefore advisable to have an instrument that can serve as a guide to know the level of readiness of teacher, student, curriculum, technology, support services, and administrators for the school to continue offering online learning. The information and standards of sustainable practices will help administrators to prepare more adequately in the areas

they assess that they are weak at. This will enable top administrators to prioritize programs and allocate properly their limited resources to areas of concern that will create the most value in the online delivery of their education programs.

In particular, the Mendiola Consortium school administrators will have a better appreciation of the characteristics and qualities that make an effective online teaching and learning. The developed validated instrument can be useful to school administrators to conduct internal self-assessment of their readiness to offer and continue offering online courses even after the COVID pandemic. This kind of internal self-assessment can also be beneficial to schools in different stages of e-learning implementation, even though they have a system in place.

Framework

Conceptual Framework

Among the array of readiness measurement models on e-learning that are available, we found that the model of Schreurs and Al-Huneidi (2012) is the best fit to include the many dimensions needed to assess institutional readiness for online teaching and learning. Therefore, we adopted the framework developed by Schreurs and Al-Huneidi (2012). Their model has 21 specific item indicators containing five focal criteria. These criteria are:

> *(1)* ***facilities and infrastructure for e-learning*** *which includes the user ICT infrastructure, Internet connectivity, Learning management system, and E-learning room; (2)* ***management*** *which encompass willingness to invest in e-learning implementation, Learning time for staff); (3)* ***organization of e-learning function/ department*** *which includes informing about available e-learning courses , Organization of the e-learning activity, Preparatory training in the use of computers, Preparatory training in the use of e-learning system; (4)* ***learners characteristics*** *which cover learners have ICT skills, Learners have internet experience, Learners are motivated to take e-learning courses, Learners prefer*

> *their own learning style ; and (5)* ***e-learning course and process*** *which focuses on E-learning course content, E-learning course presentation, Progress in the course, Level of personalization, Support and help, Evaluation of the learning results, Tracking of the participation in the e-learning course* (p.2).

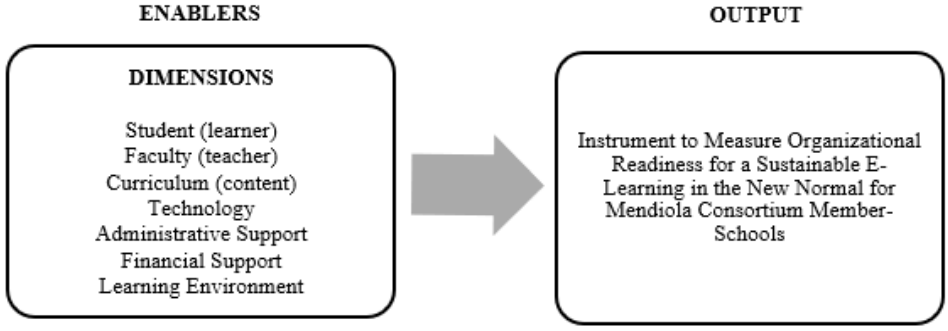
Since we realized that some aspects are missing in the Schreurs and Al-Huneidi (2012) model, we also utilized part of the model proposed by Mercado (2008) as a supplement. Her model identified three critical factors that are highly noticeable and can be conveniently measured. These are: (1) student; (2)faculty; and (3) the institution (administration). By nurturing these online learning factors, the success of implementing an online learning ready environment is expected to be achieved. (Mercado, 2008). Therefore, these combined models rightly fit our proposed operational framework.

Operational Framework

Our review of the literature and the conceptual frameworks led us to propose an operational framework shown in Figure 1 to develop an instrument to measure the organizational readiness of schools for e-learning in the new normal.

Figure 1.

Operational Framework for Organizational Readiness in E-Learning



In this operational framework, we considered seven basic dimensions for a sustainable e-learning in an educational institution. These dimensions are (1) teacher; (2) learner; (3) curriculum; (4) technology; (5) administrative support; (6) financial support; and (7) learning environment. Each dimension will be comprised of critical elements or factors to measure readiness per dimension to be generated from the review of related literature.

Assumptions

We assumed the following to support the research design that led us to develop an institutional readiness assessment instrument for the Mendiola Consortium member schools:

1. The COVID-19 pandemic brought about a new normal environment and a new culture in educational institutions.
2. Schools must adopt innovative and flexible educational approaches to flourish amid the pandemic and even beyond.
3. Online education is a viable/feasible context and medium for learning.
4. Sustainable practices for online teaching and learning need to be aligned with the vision-mission, values, priorities, and culture of the entire institution.
5. The e-learning environment must be significant to all the key players of the organization which include the students, faculty, support personnel, and the institution. Its success constantly entails an organized process of planning, designing, developing, implementing, and evaluating an e-learning environment where learning and teaching are vigorously stimulated and encouraged (Mercado, 2008).

Methodology

Research Design and Approach

We primarily utilized the descriptive research design to determine the basic dimensions, critical elements in delivering e-learning, and challenges encountered in the shift to this new approach in education. We also used a mixed sequential qualitative and quantitative research approach (Creswell, J., 2009) to seek answers to the focal research question and

specific objectives we framed rooted in our conceptual and operational models.

The Instrument Development Process

Our research followed a three-phase approach in developing an instrument to measure organizational readiness for e-learning that can be adopted by the Mendiola Consortium member schools. Phases 1 and 2 focused on translation (content) validity, while Phase 3 addressed reliability.

In content validity, it ensured that the measure included an adequate and representative set of items that utilized the concept which is dependent on the rigor of delineating the dimensions and elements of a concept (Sekaran & Bougie, 2016). Specifically, in face validity, it considered the fundamental and lowest index of content validity which indicated that the items look or appear like they measure what they intended to measure as a concept (Sekaran & Bougie, 2016).

On the other hand, the reliability of a measure ensured coherent measurement across time and throughout the different items in the instrument that showed the extent to which it is without bias (Sekaran & Bougie, 2016). Therefore, the reliability of a measure shows the stability and consistency with which the instrument gauged the concept and aided to evaluate the "goodness" of a measure (Sekaran & Bougie, 2016). According to Coakes (2013), reliability test has several different models, but the most commonly used is the Cronbach's Alpha. This is a test for internal consistency, which is based on the average correlation of items within a test (Coakes, 2013). It can be explained as a correlation coefficient, the value of which ranges from 0.00 to 1.00. Alpha values ranging from 0.70 or higher are considered acceptable (Coakes (2013).

Method of Data Collection for Phase 1: Archival Research

We started doing archival research where we referred to recent as well as historical documents (Saunders, Lewis & Thornhill, 2019) by reviewing thoroughly the available literature to answer objectives one, two, and four. We then used thematic content analysis of the data to determine the basic dimensions, critical elements, and challenges in delivering e-learning.

Our archival research enabled us to generate seven basic dimensions, 22 sub-dimensions and 114 elements-items. These basic dimensions and their sub-dimensions are shown below.

Table 1.

Basic Dimensions, Sub-dimensions, and Specific Elements for the Instrument

Dimensions	Sub-Dimensions	Elements-Items
Student (Learner)	Metacognitive Skills	9
	Self-Motivation	5
	Self-regulation	6
	Satisfaction	7
	Computer Access and competence	6
Teacher (Faculty)	Computer access and competence	6
	Self-Efficacy	5
	Teaching Experience	8
Curriculum (Content)	Course Objective	4
	Course Infrastructure	6
Technology	Connectivity	6
	Learning Management System	4
	Technical Skills & Support	6
Administrative Support	Policy	2
	Maintenance	7
	Leadership Commitment	6
Financial Support	Financial Planning	1
	Financial control	4
	Financial Policy	5
Learning Environment	Culture Difference	5
	ICT Infrastructure	3
	Support Services	8
Total: Dimensions = 7	Sub-Dimensions = 22	Elements-indicators/items: 114

Method of Data Collection for Phase 2: Scale Construction and Pilot testing

We constructed 114 items for our initial questionnaire. We utilized a 5-point Likert scale using these descriptors: 1- not relevant at all; 2- slightly relevant; 3- moderately relevant; 4 - relevant; 5- to very relevant.

We pre-tested our initial questionnaire to faculty and administrators from other schools who possess the same characteristics of the intended respondents. Our pilot test determined the language suitability, comprehensibility of the items, and length of answering the instrument, among other considerations. (1) student; (2) faculty; and (3) the institution (administration). A total of 21 experts composed of Academic Administrators, Support Services and Faculty (teachers) from non-Mendiola Consortium member-schools/major colleges and universities in the NCR, i.e Far Eastern University, University of the East, De La Salle-CSB, San Sebastian College, Letran College, Jose Rizal University. Arellano University, University of Santo Tomas, University of Asia and the Pacific, and Philippine Women's University. participated in answering the initial Survey Instrument.

We conducted an item analysis to determine if the items belong to the particular dimension or not. We then examined each item for its ability to discriminate. This was done when we compared between those respondents whose total scores were high and those with low scores. We used the *means* (averages) to detect significant differences for our item analysis. Using the simple mean of each indicator-item, we established a threshold mean of 3.5 for the first iteration and 4.0 for the second iteration and arrived at the 55 question-items categorized and distributed among the seven dimensions.

To triangulate our content validity, we also consulted experts from colleges/universities to ensure that trimmed down item indicators of the theoretical constructs directly related to the major concepts of the study were well established. We were also able to get suggestions from the experts to improve the revised questionnaire for final validation. As a result, there are still seven basic dimensions, only 16 sub-dimensions, and 45 specific elements indicators remained. They are shown in the table below:

Table 2.

Basic Dimensions, Sub-dimensions, and Specific Elements for the Instrument

Dimensions	Sub-Dimensions/Areas	Elements-Items
Student (Learner)	Metacognitive Skills	
	Self-Motivation	
	Self-regulation	Sub-total for Dimension=10
Teacher (Faculty)	Computer access and competence	
	Self-Efficacy	
	Teaching Experience	Sub-total for Dimension= 10
Curriculum (Content)	Course Objective	
	Course Infrastructure	Sub-total for Dimension = 5
Technology	Connectivity	
	Technical Skills & Support	Sub-total for Dimension = 5
Administrative Support	Policy	
	Leadership Commitment	Sub-total for Dimension =5
Financial Support	Faculty Resources/Laboring	
	Equipment Buying	Sub-total for Dimension= 5
Learning Environment	Culture Differences	
	ICT Infrastructure	Sub-total for Dimension= 5
Total: Dimensions = 7	Total Sub-Dimensions = 16	TotalElements-indicators: 45

Phase 3: Survey Validation and Reliability Test

We organized the 45- item Organizational Readiness for E-Learning Questionnaire using Google Survey Form and emailed it to Mendiola Consortium member-schools' qualified faculty and administrator respondents.

We used purposive sampling to select our target respondents from the MC member schools. We used the following criteria to choose a sample: a) online class experience for faculty/teachers; b) engagement in e-learning module design and development and teaching for academic heads/administrators in a certain official LMS or alternative platform ; and c) involved in the management of flexible learning modalities and support services for administrators such as Director for Information Technology,

Director –E-Learning Center, Academic Heads-Coordinators, Team Heads, Program Chairperson, Associate Dean, Dean and/or VP for Academics.

These 470 sample-respondents from the MC-member schools are distributed as follows:

School	Number
Centro Escolar University (CEU)	126
San Beda University (SBU)	243
College of the Holy Spirit Manila (CHSM)	11
La Consolacion College Manila (LCCM)	76
St Jude Catholic School (SJCS)	14
Total Sample-participants	470

We were able to get 470 respondents but only 469 was used as the basis for the reliability test statistical computation using Cronbach's Alpha. This was the actual number processed and accepted by the SPSS Statistical Analysis Software from the data matrix in MS Excel spreadsheet containing the 470 cases , which was the output from Google Survey Form fed into the system for statistical analysis. However, SPSS statistical analysis output generated a sample size (n=469, indicating that one missing data (case) may have been rejected by the system for some reasons such as no-response. We did not anymore request for a re-run or identification of *missing data code*, as we deemed it not having a significant bearing on the statistical results.

Research Ethics Approaches

We secured the consent of those administrators and faculty who participated in the validation phase of our research. For tabulation purposes, the only identifier for each respondent is their school affiliation and sector represented (teacher or administrator).

We stored and retained the filled-up Google Survey Forms in its original form in the computer hard drive and CD of the Research and Development Center of San Beda University. These data will be archived for a minimum of two years, and we will dispose these records subject to established policies and procedures of the RDC ISO Manual of Operations and in compliance with the Data Privacy Act.

Results and Discussion

The Final Instrument

Reliability Analysis

We used Cronbach's alpha as interim consistency reliability test using the 45 question items of our Instrument and measured in a 5-point Likert scale. For its content validity, the Item-Content Validity Index (I-CVI) ranged from 0.91 to 0.96, while the Scale- Content Validity Index (S-CVI) was 0.94. For its reliability, it has a Cronbach's alpha coefficient of .975. Following the hurdle "that the higher (at least .07 to closer to 1.00) the coefficients, the better that the measuring instrument as an adequate index of the interim-item consistency reliability. The summary of the results of the analysis is presented in Table 3.

Table 3

Over-all Cronbach's alpha reliability statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	No of items (variables)
.975	.976	45

Source: SPSS Software

In support of the overall Cronbach's alpha reliability statistics, a per item statistics of the mean and standard deviation (SD) was generated as shown in Table 4. The SD determined the validity of the data based on the number of data points at each level of standard deviation. The higher deviation means less reliable. While a low deviation reveals that the data are huddled closely around the mean, an indication that it is more reliable.

Table 4

The Item Mean and Standard Deviation of the Final Instrument (n=469)

	Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
	STUDENT (LEARNER)				
1.	Every student is clearly aware of their learning objectives in the course.	4.56	0.65	.578	.975
2.	Every student deliberately accomplishes their course requirements (assignments, exercises, projects, exams) to achieve their learning goal.	4.35	0.76	.621	.975
3.	Every student intends to frequently participate throughout the learning process.	4.24	0.80	.603	.975
4.	Every student commits to abide by the policies and guidelines for online learning that the school will promulgate.	4.39	0.72	.629	.975
5.	Every student knows what they want in an online course.	4.15	0.84	.506	.975
6.	Every student carefully performs their tasks in accordance with the course requirements.	4.29	0.74	.660	.975
7.	Every student has access to a computer with adequate software (e.g., Microsoft Word, MS Team, Adobe Acrobat; Excel; Google Chrome, etc.).	4.24	0.89	.683	.975
8.	Every student has access to a computer with a fairly high-speed and reliable Internet connection.	3.87	1.03	.691	.975
9.	Every student understands and can navigate the Learning Management Systems (e. g. CANVAS, MOODLE, SCHOOLOGY, NEO etc.) and other recommended school online platforms.	4.32	0.78	.663	.975

Table 4.

Continued

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
STUDENT (LEARNER)				
10. Every student is confident in using internet and computer-mediated communication for learning.	4.31	0.80	.639	.975
FACULTY/TEACHER				
11. Every teacher has access to a computer with adequate software (e.g., Microsoft Office, MS Team, Adobe Acrobat; Google Chrome, etc.).	4.58	0.65	.639	.975
12. Every teacher has access to a computer with a fairly high-speed and reliable Internet connection.	4.24	0.85	.648	.975
13. Every teacher understands and can navigate the Learning Management Systems (e. g. CANVAS, MOODLE, Schoology, Edmodo, NEO, etc.) and other recommended school online platforms.	4.46	0.70	.643	.975
14. Every teacher is confident in using the internet and computer-mediated communication for learning.	4.43	0.71	.678	.975
15. Every teacher knows how to use asynchronous tools (e.g., discussion board, chat tools) and synchronous tools (e.g., conference, modules, quizzes, etc.) for online teaching.	4.42	0.71	.687	.975
16. Every teacher feels confident to teach online.	4.33	0.78	.687	.975
17. Every teacher provides opportunities that promote student engagement and active learning.	4.49	0.67	.722	.975

Table 4.

Continued

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
FACULTY/TEACHER				
18. Every teacher updates and acquires in advance the necessary learning materials for the course that fits online teaching.	4.49	0.64	.710	.975
19. Every teacher is very knowledgeable about the subject matter of the course.	4.71	0.51	.600	.975
20. Every teacher can modify and/or add content, methodology, learning resources, and assessment using the Learning Management System adopted by the school.	4.57	0.59	.648	.975
CURRICULUM (CONTENT)				
21. Every course objective, outcomes, standards, and procedures are clearly communicated.	4.54	0.66	.729	.975
22. Every course contents/topic are organized into concise and manageable scopes and levels of difficulty, considering the course objectives.	4.50	0.65	.742	.975
23. Every course learning outcome is aligned to the School's and Program's expectations from their graduate.	4.60	0.60	.678	.975
24. Every course/lesson note, and additional reading materials are helpful in the student's deeper understanding and application of the lesson.	4.55	0.63	.686	.975
25. Every course material is presented in a format appropriate to the online environment and is easily accessible to and usable to student.	4.54	0.61	.710	.975

Table 4.

Continued

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
TECHNOLOGY				
26. The school has connectivity speeds that are fairly fast for communication and accessing all course materials at home.	4.24	0.86	.697	.975
27. The school has adopted a learning management system or digital technology platforms appropriate to the needs of the teachers and students.	4.49	0.73	.687	.975
28. The school's Learning Management System is functional in many types of computer devices and commonly used software applications.	4.42	0.75	.693	.975
29. The school conducts training for teachers and students to understand and navigate the adopted online platform.	4.51	0.76	.724	.975
30. The school has assigned qualified personnel to manage and maintain the hardware and software of all the digital technology for online classes.	4.51	0.74	.657	.975
ADMINISTRATIVE SUPPORT				
31. The school's online teaching and learning policy is aligned with its vision and mission.	4.61	0.62	.664	.975
32. The school has a policy towards the adoption of a transformative learner-centered instruction or Outcomes-Based Education (OBE).	4.51	0.71	.667	.975
33. The school engages in continuous quality improvement; updating its policies, processes, procedures, and technology in the task of maintaining and improving quality in online education.	4.54	0.72	.705	.975

Table 4.

Continued

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
ADMINISTRATIVE SUPPORT				
34. Every top school administrator ensures that the right technology is in place for the right reasons.	4.37	0.87	.722	.975
35. Every top school administrator guarantees provision of adequate resources to implement online education.	4.36	0.86	.779	.974
FINANCIAL SUPPORT				
36. The Finance Unit prepares a budget to ensure adequate funds to implement the online learning and teaching of strategy.	4.15	1.05	.738	.975
37. The Finance Unit uses standard costing, budgetary control, and cost reduction schemes to efficiently deliver online learning.	4.17	0.98	.731	.975
38. The Finance Unit sources additional financial resources to carry out plans related to online teaching and learning.	4.14	1.01	.730	.975
39. The Finance Unit has provisions for the acquisition of equipment, devices, and software application for online teaching.	4.16	1.02	.688	.975
40. The Finance Unit has provisions for the refurbishing of physical facilities like the audio-visual room and computer rooms matched for online classes.	4.22	0.94	.677	.975

Table 4.

Continued

Item	Mean	Std. Deviation	Corrected Item-Total Correlation	Cronbach's alpha if Item Deleted
LEARNING (ORGANIZATION) ENVIRONMENT				
41. Provision of holistic and integrated programs and activities geared towards the development of students.	4.47	0.74	.748	.974
42. Assurance that the online learning environment is safe and secure.	4.53	0.70	.719	.975
43. Ensuring the prompt response to teacher and student diverse needs.	4.44	0.73	.751	.974
44. Assurance that the online learning environment is engaging, enjoyable, and meaningful for people interaction.	4.48	0.73	.764	.974
45. Streamlining of work processes and procedures (e.g., enrollment, payment, and tracking of queries) suitable for the delivery of online classes.	4.41	0.77	.693	.975

Source: SPSS Software

The Table on Item statistics: Item Mean and Standard Deviation show a range of standard deviation (SD) from a low .50667- a high SD of .94196, but a majority are on the .6000-.7000 SD "spreading" around the mean ranging from 4.1 to 4.9, lending support to the "reliability" of the over-all 45-item Survey-Instrument which was calculated at 0.975. Three variables (questions –items) which obtained medium *mean* (x) and higher SD, namely variable 8 (x=3.8678; SD =1.03135) and variables 36,37,38,39,40 with *means* higher than 4.1 but SD exceeding than 1.0000 should be recommended for review for possible revision in the final instrument.

Item Analysis

We also conducted an item statistical analysis based on the 45 question-items (variables) categorized according to the seven dimensions (factors) using item *mean* and *standard deviation*, as well as the *Corrected Item Total Correlation* and *Cronbach's alpha if item deleted*. Our initial analysis, based on the SPPS generated data covered inter-item relation, and item-total statistics for item analysis. The Corrected Item-Correlation explains the coherence between an item and the other items in a test. Thus, an ideal range of an average inter-item correlation is 0.15-0.50; less than this, and the items are not well correlated and do not measure the same construct or idea very well (https://methods.agepub.com). SPSS provided an item-total correlation guideline which states that "a correlation value less than 0.20 or 0.30 reveals that the corresponding item does not correlate very well with the scale overall and, thus, it may be dropped" (Coakes, 2013). In our study, the Corrected Item-Total Correlation ranged from 0.578 to 0.779 for all the 45 items and Item *Cronbach's Alpha Coefficient if Item Deleted* ranged from 0.974- 0.975, thereby resolving the reliability of all the 45 items. Refer to Table 4.

Dimension Construct Reliability

When grouped according to their respective dimensions, the data show that all the seven dimensions obtained a very high Cronbach's Alpha Coefficient ranging from 0.880 to 0.956. Specifically, financial support garnered the highest (0.956), while technology had the lowest (0.880). Refer to Table 5.

Table 5.

Item Statistics- Cronbach's Alpha Coefficent of the Seven Dimensions of Online Learning (n=469)

Dimensions	No. of items (Question/Indicators)	Cronbach's alpha Coefficient
Student (learner)	10	0.916
Faculty/teacher	10	0.931
Curriculum (Content)	5	0.921
Technology	5	0.880
Administrative Support	5	0.919
Financial Support	5	0.956
Learning (Organization)	5	0.933
Environment		

Source: SPSS Software

Conclusion and Recommendations

The final instrument has seven dimensions consisting of 45 question-items to be rated on a five-point Likert scale. It can serve as a functional model in determining the institutional readiness for online teaching and learning that can be adopted by the Mendiola Consortium member schools. Given its high content validity and reliability, this organizational readiness instrument for e-learning may also be used by other higher educational institutions (HEIs) in the Philippines in this new normal time.

The significance of this instrument lies in enabling educational institutions to internally assess their readiness or preparedness for online teaching and learning under various approaches (i.e full online or blended) with the aid of technologies (LMS), and capacity and capabilities of the stakeholders. These were identified in this study as primarily the learners (students), faculty (teachers) , academic administrators/heads, and administrative , financial, and technical support services heads.

We identified a limitation in our study which we recommend as an area for further research. This is related to other validity tests. We propose to subject our final instrument to advanced statistical analyses for construct validity tests such as Confirmatory Factor Analysis (CFA), Principal Component Analysis (PCA) and Exploratory Factor Analysis (EFA) as used in the studies of Brown (2009 a & b); Alok,2011; Dray,2011; Soriano,2021. The purpose of these advanced statistical analyses is to reduce data sets containing several variables (components or factors) through a process of rotation to obtain a new set of factor loadings from a given set, thus increasing the validity of the instrument (Dancey & Reidy,2017; Brown,2009a &b).

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