

Assessing Institutional Readiness for Education in Emergency: A Statistical Analysis

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Abstract: The Commission of Academic Accreditation (CAA) in the United Arab Emirates (UAE) has initiated an assessment to evaluate the progress made by higher education institutions in adapting their educational programs to emergency situations. The primary objective of this initiative is to gather information on the state of e-learning practices in UAE institutes using a customized form of criteria called e-LRCF. The aim of this research study is to assess the readiness of UAE institutions to adopt e-learning and online learning. This paper introduces the rationale for e-LRCF, its criteria, and the stages of its development. We compare the e-LRCF with well-known international quality organizations to ensure its validity and reliability. A statistical analysis of survey responses from various stakeholders regarding e-LRCF revealed that learner engagement and assessment significantly predicted institutional readiness ($F(1, 53) = 7.585, p = .008$). However, the assessment of program design and delivery did not significantly predict institutional readiness ($F(1, 53) = 1.332, p = .254$).

Keywords: Institutional Readiness, e-Learning, e-LRCF, COVID, Quality Assurance, A Statistical Analysis, Modelling, Academic Accreditation.

1 Introduction

Given the fast-paced changes in geopolitical, economic, and digital technology, the need for reassessing institutional readiness for responding to urgent situation has become a common interest. For example, during the Pandemic, colleges and universities in the United Arab Emirates (UAE) have responded with energy and skills to engage online learning in their institutions at least until the end of the Academic Year 2019-2020. As part of the Ministry of Education's responsibilities; the Commission of Academic Accreditation (CAA) need to assess progress amongst higher education institutions on changes to the delivery of their educational programs in response to the COVID-19 pandemic [1]. The CAA has been tasked to gather information on the current state of play of e-learning practice across UAE's institutions. To gather the needed information and to investigate the readiness of the institutes to engage distance learning, an e-Learning Readiness Criteria Form (e-LRCF) is designed as shown in the appendix of this paper, it

consists of seven categories of criteria, each criteria contains a set of parameters aims to examine whether a certain institute fulfill this criteria or there are some shortages that are needed to be improved. Every institute should therefore complete the Institutional Evidence column of the designed e-LRCF evaluation form and return it to the CAA, together with supporting documents. The provided information will be reviewed by a team from the CAA to assist the institutes with their readiness of engaging distance learning. The output from the review will be an internal report with evaluation of your institution's e-learning readiness, identification of any gaps, advice, and guidance on further action if needed to empower their performance. The report will be used for the Ministry's planning purposes and to assist institutions in its readiness of the changed delivery of its programs. This paper introduces the experience on UAE's CAA in assessing the readiness of the higher institutions to engage online learning, we present the compatibility of e-LRCF with the concepts of EFQM Model [2]. The EFQM Model is a worldwide recognized management framework which

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allows organizations to achieve success by applying the Model to measure their organization's performance, understand the gaps if any, and possible solutions to improve their performance. Also, we investigate e-LRCF's criteria and compare them with the well-known Quality Assurance Agency (QAA) related criteria and policies. The aims of this comparison are to benchmark this form with an international quality assurance agency. Furthermore, it aims to present the good coverage of e-LRCF's criteria to address the needed information in order to conduct this assessment effectively. Finally, an analytical result of a questionnaire on E-LRCF efficiency to test the readiness of higher educational institutions to conduct distance learning is presented.

2 BACKGROUND AND RELATED WORK

Although COVID-19 has started spreading during the fourth quarter of 2019, the noticeable awareness of the effect of this virus on all sectors started by the beginning of the year 2020. The impact of closure worldwide due to this pandemic was experienced by over 87% of the student population [3]. In addition to the health and economy sectors [4], the education sector was among the most affected by this virus. The Crawford and others in [5] presented the significant challenges for the global higher education community; they also monitored the educational institutes' responses across 20 countries, these responses vary from do nothing to rapid curriculum restructuring for moving to fully online. In [6] Murphy introduced a review of securitization theory; he argues that it is an important tool for educators to apply securitization in educational institutes during and even after COVID-19 crisis. Bao [7] introduced the experience of Peking University of dealing with COVID-19 as a case study by initiating six instructional strategies to address the high impact principles for online education. Zhu and Liu in [8] presented strict measures imposed by the Chinese government over educational institutes to contain the spread of the COVID-19 pandemic; also, the paper suggested a set of recommendations as a vision for the future and the expectation after the pandemic. In [9] a meta-analysis methodology was adopted and literature was reviewed to capture essence of continued learning during the COVID-19 situation, this research paper proposed recommendations to enhance e-learning process during the lock down. On the other hand, many international quality assurance organizations issued guidelines and recommendations to address the quality of learning during COVID-19 crisis. In March 2020, QAA issued an initial guidance for higher educational institutes to guarantee quality and standards [10]. Later; on May 20th; QAA conducted an international forum for its international partners to address the common challenges to higher education quality assurance worldwide brought about COVID-19 pandemic, good practice experiences and future view were shared [11]. Europe and Central

Asia (ECA) published a paper to address the impact and mitigation strategies in the ECA region, potential solutions were presented too [?]. Last but not least, The Institute for college access & success (TICAS) is a trusted source of research, design, and advocacy for student-centred public policies published guidance on how to monitor the risks of online education due to the situation of COVID-19 and its consequences on higher education [13]. In fact, the transition from face-to-face to online/e-learning depends on the university readiness. The readiness of universities to make this transition has been crucial in determining their success. Several studies [14,?] have shown that universities that had a strong digital infrastructure in place before the pandemic were able to make transmission smoothly. In addition, universities that were offering online courses before the pandemic, were better equipped to adapt to the new reality, as they have the necessary resources and experience to make the transition more seamless. [16]

3 THE E-LRCF FORM

As mentioned earlier, e-learning Readiness Criteria Form; e-LRCF; is a form prepared by CAA in UAE. The purpose of this form is to examine the readiness of educational institutes in UAE to engage distance learning using e-learning methodology. Every institute should therefore complete the Institutional Evidence column of the designed e-LRCF evaluation form and return it to the CAA, together with the supporting documents. The provided information will be reviewed by a team from the CAA to assist the institutes about their readiness to engage distance learning. The complete e-LRCF form is stated in the Appendix of this paper. The form consists of seven categories; each category has a set of criteria that shall examine the institute's readiness in every aspect of these categories. The categories and their criteria are described as follows:

1. Technology: This category contains criteria related to technology readiness such as policies, guidelines, appropriate equipment, proper software applications for e-learning and communication, reliable backup systems for the database and online learning resources, digital libraries, procedures for e-learning activities, and reliable e-learning management system to support delivery of learning and interactions.
2. Faculty and Staff: This category contains related criteria such as guidelines and procedures governing the role of faculty and staff, procedures for training on e-learning systems, procedures to set the needed requirements and capability of the faculty member who is teaching or tutoring at distance, policies and procedure for teaching load, development efforts, designing online material, etc.
3. Student Awareness: This category contains related criteria such as guidelines and procedures to inform

and enhance student's IT skills in e-learning, policies and procedures for assuring the authenticity of student's work, training and workshops for students.

4. Logistics: This category contains related criteria such as adequately resourced IT help desk for all stakeholders regardless of their geographical location, financial arrangements related to e-learning programs, procedures for assuring approved course outline/syllabi to meet the e-learning requirements, processes governing e-Learning program, assessments that maintain the integrity, procedures governing the ongoing QA monitoring, a comprehensive e-learning Manual, Academic Advising, appropriate class size for e-learning, and e-learning teaching load.
5. Information Security: This category contains related criteria such as policies and procedures governing the use of copyright and intellectual property of e-learning materials, procedures to protect the integrity of all e-learning data, protect the integrity and confidentiality of its e-learning institutional networks, and procedures governing student attendance and engagement in the e-learning environment.
6. Course Delivery: This category contains related criteria such as ensuring that programs and courses delivered face-to-face or through e-learning/blended learning have the same learning outcomes, and require equivalent rigor and quality of student performance, facilitate interaction among students and between students and faculty in either asynchronous or synchronous modes, maintain an effective and reliable e-learning environment to support this interaction, ensure that all students enrolled in e-learning courses benefit from effective access to learner support including academic advising, maintain appropriate class sizes that ensure the effective participation of all students, and for interaction among students and between students and faculty, and evaluate the effectiveness of e-learning programs and courses according to its program of institutional research.
7. Assessment: This category contains related criteria such as ensuring the integrity of student work in the e-learning environment by demonstrating the steps taken to limit the possibility of fraud and academic dishonesty, ensuring that sites used as examination centres have rigorous measures, and ensuring the authenticity of the test taker, employ up-to-date administrative measures and technological advances to prevent fraud and academic misconduct.

The institution needs to provide evidence on each of the items and related documents. Furthermore, separate online meetings shall be conducted with institution's stakeholders such as the president, provost, program coordinators, deans, e-learning coordinator, faculty, students, head of QA, and head of IT. This review requires accessing the Learning Management System (LMS) remotely by a guest account with full monitoring

privileges, to review samples of course delivery, interactions, and assessment.

4 EFQM MODEL AND E-LRCF FORM

EFQM Model development cycle was adopted while designing the e-LRCF. The EFQM concepts of Directions, Execution, and Result (why, how and what) has been utilized. Obviously, the expectation of the e-LRCF form is considered, maintained, and empowered based on the inspiration of these concepts. Due to the emergent circumstances of COVID-19, EFQM introduced an updated Model to help organizations on how to ask the right questions and adapt it to its crisis [2]. Their model is described in 1 which is also been published by EFQM. The model consists of a continuous cycle process where the **Direction** stage focuses on the purpose, vision, and strategy of the organization, also it focuses on the organizational culture and leadership. It concentrates on how to make the organization fit for the future, how to adapt vision, purpose, and strategy considering the pandemic, the needed actions during this crisis, and how to support employees and stakeholder during the crisis.



Fig. 1: EFQM Model

The **Execution** stage focuses on engaging stakeholders, creating sustainable value, and driving performance. It concentrates on how to communicate better among stakeholders, how to utilize limited resources effectively during the pandemic, how to monitor and measure progress. Finally, the **Results** stage focuses on strategic and operational performance, and stakeholder perceptions. To accomplish this stage, it concentrates on the financial implications on any change,

how to ensure sustainability during the crisis, how to deliver commitments, how to ensure stakeholders support, and how to improve based on the feedback. We employed the above Model to audit and make sure that the e-LRCF form fulfills its intended purpose. The three stages of Direction, Execution, and Results were examined against the e-LRCF form. Obviously, the expectation of this form is also considered an inspiration of these concepts

1. During the Directions, we learned how to specify the purpose, the approach, and then to assess the process.
2. In terms of Execution, we considered how to create measures, and how to design and deliver these measures and engage all stakeholders to define and implement the overall form.
3. In terms of Results, the result as an outcome form and the intended result of the form are viewed as what are the stakeholder expectations and the intended operational performance.

To go further in detail, the EFQM RADAR management tool is implemented over the e-LRCF form. RADAR is an acronym of **R**esult, **A**pproach, **D**eployment, **A**ssessment and **R**efinement.

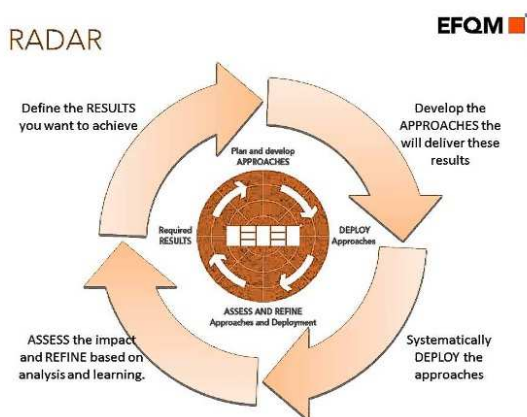


Fig. 2: EFQM RADAR

RADAR can be used to conduct a review of organizational performance, identify the gaps, and improve performance. It inspires the management team to reflect:

- Results: what results do we need, does it fit the purpose, does it meet the stakeholder expectations
- Approach: Are we implementing the relevant approaches effectively and efficiently with flexibility.
- Deployment: Are we using proper indicator measures, do we learn for our experience, do we generate new ideas.
- Assessment and Refinement: Are we making improvements, and do we turn promising ideas into reality.

By performing the EFQM Model and its RADAR management tools, we can confirm that the quality audit of the e-LRCF form is well-thought-of and it is well prepared. The seven categories of criteria elements will fulfill the intended purpose of designing them.

5 INTERNATIONAL BENCHMARKING OF E-LRCF CRITERIA

To ensure that e-LRCF contains effectual criteria elements that cover the required information to be asked about institutes' readiness to move towards e-learning mode of delivery, we benchmark the form content with some international bodies and their related guidelines. QAA announced on March 23, 2020 its "COVID 19: Initial Guidance for Higher Education Providers on Standards and Quality" [10], the main goal of this guidance is to maintain quality and academic standards, and to minimize the effect of possible disruptions and delays through the academic year. QAA addressed the possible outcomes of this disruption and proposed some solutions to tolerate possible effects; mainly it addressed the following keystones:

1. Learning and Teaching: A set of recommendations were mentioned to maintain the delivery of material and how to make sure the main stakeholders of the teaching process are ready to engage online learning, and how to make sure an equal quality of teaching is maintained regardless on the background of students, specially student whom are retaking the course.
2. Credit, Progression, and Graduation: A set of recommendation on how to make sure the learning outcomes are delivered and how to calculate credits and course grades, some suggestions to allow graduation of students without any delay. What should appear in students' transcripts, how to measure the quality assurance of students' progress and experience, and how to handle courses with professional status.
3. Admissions: How do institutes consider admissions, how to handle examinations and grades, international students, foundation courses, new coming students, etc.
4. Assessment and Feedback: How students can be assessed, what about if they cannot take their assessments, to what extent the flexibility of policies, how to conduct substitution exams, marking issues, and consider amending some elements of assessments.
5. Engaging students and external examiners: How to involve external examiners, conducting distance reviews, the effectiveness of student's engagements, and distinct between basic courses and senior courses.

Even though there are many common criteria between e-LRCF and QAA guidance, but it is obvious that

e-LRCF is more dedicated to the quality of delivery, the competence of infrastructure, and the institute's policies and procedures to make sure that the delivery of courses is efficient. On the other hand, QAA guidance concerns more about the outcomes and the logistical aspects and registrations that might be affected by changing the delivery mode. QAA conducted an International Partners' Forum on May 20, 2020 and issued a Summary Report [11]. The main goal of the forum is to discuss the challenges to higher education quality assurance across the world brought about by COVID-19 pandemic. Twenty-two countries participated in the forum to share the experiences of different bodies and stakeholders. They discussed the impact of COVID-19 on higher education institutes, the impact on student's experience, the impact on accreditation agencies and their reviews and responses, the external reviewers, and the 'new normal' after COVID-19. They discussed the same guidance but with a wider view and also, they share the good practices of different bodies. Some aspects were considered to enhance the e-LRCF criteria. Furthermore, The Institute for College Access & Success (TICAS) is a trusted source of research, design, and advocacy for student-centred public policies in North America. TICAS published a report titled "Understanding the Wed: How to monitor the risk of online education" to monitor the changes that happened due COVID-19 and to estimate the risks and challenges to assess the quality of online education [13]. The report recommended a set of actions that the U.S. Department of Education should take to maintain the proper quality of online education. By comparing the recommendations of the report with the e-LRCF criteria, we found that the criteria addressed all the report concerns in terms of quality. The report extends its recommendations to deal with graduation issues, student loans, and institution revenues and financial shortages which is beyond the goals of e-LRCF criteria. The World Bank's Education Global Practice issued its global notes "Tertiary Education and COVID-19" as a subsequent lockdown in many Europe and Central Asia (ECA) countries [?]. The notes contained ten recommendations to policy makers and tertiary education institutions. The ten recommendations are summarized as follows [?]:

1. Ensuring the continuity of teaching and learning is a key task, guidance and counseling are a must to maintain the delivery of education during the crisis.
2. Sharing educational materials and resources among institutions is a must to cover the lack of equipment and resources; provide open-access resources; and make sure they are known and available.
3. Take timely decisions on the academic calendar (exams, admission, and graduation) based on epidemiological guidance and available information. Move ongoing and end-of-year exams online where possible.
4. Make equity a priority during the crisis and beyond. Plan flexible measures to bring students back on

board as soon as possible and help them catch up. Countries are encouraged to ease requirements for course completion.

5. Institutions should consider a freeze on staffing arrangements as long as it is feasible. Staff lost by institutions and academia in some cases might be difficult to bring back.
6. Communicate with current and prospective international staff and students, take care of their specific needs, provide flexibility and facilitate decision making.
7. Work with quality assurance agencies to adjust quality assurance mechanisms to the crisis and the evolving situation. This concerns not only online learning but also established schedules and mechanisms for the accreditation and evaluation of programs and institutions.
8. Liaise with pre-tertiary decision makers to find suitable joint solutions in countries where university access is based on high-stakes exams. To ensure continuity of learning, it might be advisable to replace these exams with continuous assessment or find a suitable online option, where the circumstances allow, and facilitate equitable access to these options.
9. Ringfence public funding for tertiary education. Decreasing funding for teaching and learning, research, and innovation will harm post-crisis economies in a lasting way.
10. Plan for a gradual reopening, prioritizing the areas that would need to be accessed at the earliest opportunity (for example, labs necessary for exams that cannot be conducted in any other mode), and analyzing the precautions (such as masks and number of people in the building), which should apply and could help speed up the process of reopening.

By comparing the above recommendations to the criteria of e-LRCF, the first 9 recommendations are fully addressed in the e-LRCF, while the 10th recommendation is addressed partially since the decision for going back gradually to normal and the needed steps to do that is among the responsibility of the UAE government. Based on the above benchmarking and comparisons, we can state that the e-LRCF is being prepared carefully to fully fulfill the intended goals settled by CAA, and it is following international norms and standards.

6 E-LEARNING AND ACADEMIC DEVELOPMENT

CAA is giving excessive attention to enhancing the professional development of the faculty to better utilize e-learning, on the opposite, e-learning also contributes as an environment to support the faculty with more training and development. this will lead to improved academic development across the institutions. e-Learning is a learning environment and methodology that connects

learners including faculty to the digital world where faculty find massive opportunities for learning, training, and academic development. CAA requires the institutions to provide opportunities for professional development for e-learning faculty and to focus on advances in e-learning pedagogy and technology. This support and training should be conducted prior to the development and launch of e-learning delivery, also to support ongoing development and training. Support includes all elements of course design, particularly assessment design. The e-learning Readiness Criteria Form requires evidences on such development and training in terms of logistics, faculty, staff, policies and procedures, and budget allocation.

7 STATISTICAL ANALYSIS AND STAKEHOLDERS QUESTIONNAIRE

To evaluate the efficiency of e-LRCF criteria, a questionnaire is developed by setting two questions for each criterion of the seven criteria of the e-LRCF. The participation in the questionnaire was voluntary and anonymous. Fourteen statements/questions to rate on Likert Scale regarding distance learning. The Likert Scale was set to “Strongly agree = 5”, “Agree = 4”, “Neutral = 3”, “Disagree = 2”, and “Strongly disagree = 1”. The participants were the stakeholders who are involved in the distance learning process and its quality assurance including faculty, students, institution’s higher management, and external reviewers. The Likert scale response were analyzed, with statistical significance P-value as at $P_1 < 0.05$.

Results:

A customized questionnaire has been distributed among different institutional stakeholders composed of Faculty, Students, Higher Management, and External Reviewers. Out of 70 who received the questionnaire 54 agreed to complete the survey. There were strong contrasting views on the effectiveness of distance learning. External reviewers provided responses that have lower mean ranks and medians than the other institutional stakeholders to most of the statements, ($P_1 < 0.05$). This trend can be triangulated by the fact that external reviewers are more precise in evaluating the criteria in general and answers to the questionnaire in specific. An opposite trend is exhibited by the institution’s higher administration who believe that they facilitated and implemented most of the requirements of the criteria to deliver proper distance learning ($P_1 < 0.05$). The faculty and students were in the middle range between the other two groups. We believe that the outcome of this questionnaire is valid and reflects the nature role and interest of each group of stakeholders. Finally, all stakeholders believe that higher educational institutions took adequate actions to transform to distance learning during COVID-19 pandemic. Table 1 shows questions of the questionnaire,

responses of the stakeholders, External Reviewers (ER), Higher Management (HM), Faculty (F), and Students (S) to the common statements reported in Mean Ratio (MR), Median (MD).

Table 1: The Questionnaire and its results

No	Questions		Participants ER (5)	HM (10)	F (15)
1	Proper technology used to facilitate e-Learning operations and activities	MR	62.1	98.2	72.3
2	Clear policies, procedures, and guidelines governing student's activities and interactions on e-Learning	MD	3	5	4
		MR	40.6	80.9	60.2
3	Proper guidelines and procedures identifying roles and responsibilities for students, staff, and faculty within e-Learning	MD	2	4	3
		MR	45.3	92.1	70.4
4	Proper training of faculty and staff involved with e-learning programs and courses in the operation of the e-learning platform	MD	3	4	3
		MR	70.3	88.8	74.7
5	Institution-developed guidelines to inform and enhance IT skills for e-Learning support	MD	3	4	3
		MR	68.8	95.5	69.7
6	Utilization of training methodologies, including workshops, to deliver IT skills for e-Learning	MD	3	4	3
		MR	59.5	95.9	67.4
7	Adequate IT help desk for all stakeholders regardless of geographical location	MD	3	4	4
		MR	50.8	97.8	67.5
8	Policies and procedures governing online Academic Advising, class size, and e-Learning teaching load	MD	2	4	3
		MR	66.4	87.1	77.3
9	Cybersecurity policies and procedures to protect e-Learning data integrity	MD	3	4	3
		MR	80.0	92.7	73.4
10	Policies and procedures governing computer hardware and software upgrades for e-Learning	MD	4	4	3
		MR	66.3	96.02	73.4
11	Proper designs of e-learning courses to facilitate interaction among students and between students and faculty, and maintain an effective and reliable e-learning environment to support this interaction	MD	3	5	3
		MR	69.2	87.7	79.1
12	The institution ensures that a program delivered by e-learning has core faculty and support staff who are resident full-time employees	MD	3	4	4
		MR	68.6	85.18	82.5
13	Adequate integrity of student work in the e-learning environment by demonstrating steps taken to limit the possibility of fraud and academic dishonesty	MD	3	4	3
		MR	73.1	81.4	85.7
14	The institution ensures that sites used as examination centers have rigorous measures to prevent fraud and academic misconduct	MD	4	4	4
		MR	55.4	93.3	65.2
		MD	2	5	3

As shown in the descriptive statistics in Table 2, there were no statistically significant differences between the

Means and standard deviations of institutional readiness, learners' engagement and assessment, and program design and delivery. Additionally, analysis of survey responses from various stakeholders about e-LRCF, as shown in figure 3, tables 3 and 4, showed that learner engagement and assessment was a statistically significant predictor of institutional readiness, $F(1, 53) = 7.585, p = .008$. However, a further analysis of stakeholders' self-reported perceptions of program design and delivery as a predictor of institutional readiness revealed the absence of statistical significance, $F(1, 53) = 1.332, p = .254$.

Table 2: Descriptive Statistics of e-LRCF

	Mean	Std. Deviation	N
Institutional Readiness	3.781	.5331	54
Program Design and Delivery	3.907	.8416	54
Learner Engagement and Assessment	3.963	.6858	54

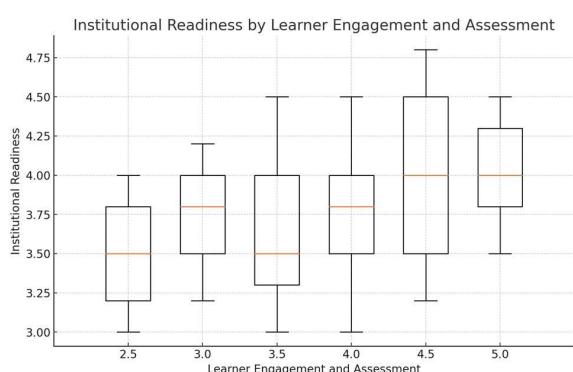


Fig. 3: Learner Engagement and Assessment as a predictor of institutional readiness

The findings presented here about learner engagement and assessment as a predictor of institutional readiness show that academic stakeholders have an interest in, control over, and understanding of institutional readiness from the context of student engagement (i.e., participation in lecture and lab) and how to design and implement authentic assessment strategies.

Table 3: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Learner Engagement and Assessment	.	Stepwise (Criteria: Probability-of-F-to-enter $\leq .050$, Probability-of-F-to-remove $\geq .100$).

a. Dependent Variable: Institutional Readiness

Table 4: ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	1.917	1	1.917	7.585	.008b
Residual	13.144	52	.253		
Total	15.061	53			

a. Dependent Variable: Institutional Readiness

b. Predictors: (Constant), Learner Engagement and Assessment

The absence of correlation between participants' self-reported views about institutional readiness and program design or delivery, as shown in Table 5 and Figure 4, reflects the stakeholders' limited roles in program design or the LMS chosen for content delivery, thus these two aspects of readiness might have been viewed as a lesser determinant or predictor of institutional readiness.

Table 5: ANOVAa

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.376	1	.376	1.332	.254b
Residual	14.685	52	.282		
Total	15.061	53			

a. Dependent Variable: Institutional Readiness

b. Predictors: (Constant), Program Design and Delivery

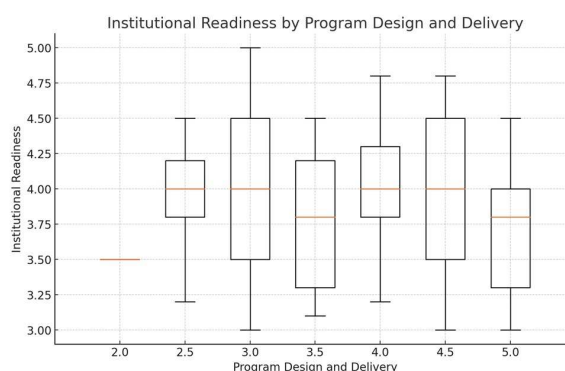


Fig. 4: Program design and delivery as a predictor of institutional readiness

8 CONCLUSION

In light of the prevailing circumstances of emergent cases, the Commission of Academic Accreditation (CAA) is mandated by the Ministry of Education to evaluate the advancements made by higher education institutions in adapting their educational programs to address emergent situations. The CAA has been assigned the responsibility of collecting data pertaining to the present condition of

e-learning methodologies implemented in diverse educational establishments. To investigate the readiness of the institutes to engage in distance learning, an e-learning Readiness Criteria Form; e-LRCF; was designed, it consists of seven categories of criteria, and each criterion contains a set of parameters that aims to examine whether a certain institute fulfills these criteria or there are some shortages that need to be improved. In this paper, we introduced the need to produce the e-LRCF, its criteria, and stages of building this form. Also, we presented the development cycle and how we employed the EFQM Model to make sure that the form and its content are efficient and fulfill the intended specified outcomes and goals. Also, we benchmarked the e-LRCF against well-known international quality organizations to affirm covering the requirements of each criterion. Finally, an analytical result of a questionnaire on E-LRCF efficiency to test the readiness of institutions to conduct distance learning is presented. It is important to note the e-LRCF and the EFQM model used in this research can serve as a pattern for institutions facing similar challenges in the future, such as human conflict, natural disasters, or other unexpected crises. By implementing the e-LRCF and conducting regular assessments of their readiness for distance learning, institutions can be better ready to respond to crises and ensure the continuity of their educational programs. In Addition, disseminating the results of e-LRCF and comparing it with international quality assurance agencies best practices will contribute to serving institutions internationally to adopt such practices during any future emergent situation where e-learning is required to replace fact-to-face education. Results of the statistical analysis of stakeholder's responses showed a positive perception from learners to engage in e-learning and to be involved with institutional preparations and readiness; $F(1, 53) = 7.585, p = 0.008$. However, designing and preparation of online courses was not a promising indicator for institutional readiness; $F(1, 53) = 1.332, P = 0.254$. These results suggest that institutional readiness for e-LRCF can be enhanced by focusing on learner engagement and assessment. However, the program design and delivery may need further attention to improve institutional readiness.

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References

- [1] Commission for Academic Accreditation website, 2023. <https://www.caa.ae>
- [2] EFQM home website, 2023. <https://www.efqm.org/index.php/efqm-model>
- [3] UNESCO, Coronavirus COVID-19 and Higher Education: Impact and Recommendations, 2020. <https://www.iesalc.unesco.org>
- [4] Sultan Ayoub Meoa, Thamir Al-Khlaiwia, Adnan Mahmood Usmanib, Anusha Sultan Meoc, David C. Klonoffd, Thanh D. Hoangea, Biological and epidemiological trends in the prevalence and mortality due to outbreaks of novel coronavirus COVID-19, *Journal of King Saud University – Science*, **32**, 2495-2499 (2020).
- [5] Joseph Crawford, Kerryn Butler-Henderson, Jürgen Rudolph, Bashir Malkawi, Matt Glowatz, Rob Burton, Paola A. Magni, Sophia Lam, COVID-19: 20 countries' higher education intra-period digital pedagogy responses, *Journal of Applied Learning & Teaching*, **3**, 9-28 (2020).
- [6] Michael P. A. Murphy, COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy, *Contemporary Security Policy*, **41:3**, 492-505 (2020).
- [7] Wei Bao, COVID-19 and online teaching in higher education: A case study of Peking University, *Human Behavior and Emerging Technologies* **2 (11)**, (2020).
- [8] Zhu, X., and Liu, J. Education in and After Covid-19: Immediate Responses and Long-Term Visions. *Postdigital Science and Education*, Springer, 2020.
- [9] Ali, W., Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. *Higher Education Studies*; **10**, 16-25, 2020.
- [10] QAA, COVID-19: Initial Guidance for Higher Education Providers on Standards and Quality, March, 2020. <https://www.qaa.ac.uk/docs/qaa/guidance/covid-19-initial-guidance-for-providers.pdf>
- [11] QAA International Partners' Forum, 2020. Summary Report, <file:///C:/Users/Bayan/Downloads/qaa-international-partners-forum-report.pdf>
- [12] World Bank. Tertiary Education and COVID-19: Impact and Mitigation Strategies in Europe and Central Asia, 2020. <http://pubdocs.worldbank.org/en/783451590702592897/ECA-TE-and-COVID-19-long-FINAL-25May20.pdf>
- [13] The Institute for College Access & Success, Untangling the Web: How to Monitor the Risks of Online Education, July 2020. <https://ticas.org/wp-content/uploads/2020/07/untangling-the-web.pdf>
- [14] Darren Turnbull, Ritch Chugh, Jo Luck. "Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge?". *Education and Information Technologies* **26(9)**. 6401–6419 (2021).
- [15] Bayan AbuShawar, Tarik El Amsy, and Nuha Hamada, "Engaging online Learning at AAU and Its Impact on Students' Performance during COVID-19". 2022 International Arab Conference on Information Technology (ACIT), Abu Dhabi, United Arab Emirates, 1-6 (2022). doi: 10.1109/ACIT57182.2022.9994176.
- [16] Kunal Chaturvedi, Dinesh Kumar Vishwakarma, Nidhi Singh. " COVID-19 and its impact on education, social life and mental health of students: A survey. *Children and Youth Services Review*. **121**, 2021.

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