Distance learning during COVID-19 pandemic: satisfaction, opportunities and challenges as perceived by faculty members and students

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Abstract

Purpose – This study aims to investigate and assess the first experience of faculty members and students with distance learning implemented at Al Ain University (AAU) to contain the spread of Coronavirus or COVID-19. The paper attempted to understand faculty and students’ satisfaction with institutional readiness for distance learning and perception towards opportunities and challenges of distance learning.

Design/methodology/approach – The study is based on data collected in March 2020 through an online survey questionnaire from the participants (students = 445, faculty members = 139). The unified theory of acceptance and use of technology (UTAUT) was used in formulating a conceptual framework. The collected data were analysed using several statistical techniques and partial least square structural equation modelling, to test and verify hypotheses.

Findings – The study found that, although faculty members and students expressed high satisfaction with the institutional readiness for distance learning and believed in its opportunities and advantages, they expressed concerns about the challenges facing distance learning. Findings of the study indicated a relationship between the status or college of the participant and perceived opportunities and advantages of distance learning. Hypotheses testing supported the study framework and UTAUT theory by identifying and confirming the impact of perceived opportunities of distance learning on satisfaction with the institutional readiness for distance learning.

Originality/value – The study suggested that non-distance learning institutions should keep offering courses through distance learning to prevent any shortcomings in the future.

Keywords Satisfaction, Challenges, Opportunities, Distance learning, Coronavirus, COVID-19

Paper type Research paper

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1. Introduction

The outbreak of Coronavirus or COVID-19 has changed many aspects of human life and education is no exception. This is because the rapid and exponential spread of the new virus forced most of the governments to close educational institutions in an attempt to control the spread of the Coronavirus. According UNESCO (2020), this decision has affected at least 1,268,164,088 learners or 72.4% students from 177 countries. However, these numbers do not include school teachers, educators and trainers and also faculty members. Although students and educators were not happy about the closure of their institutions, they have no choice but to overwhelmingly support the decision to protect themselves and members of the families. Despite this harsh decision, people could not stop the spread of Coronavirus. The latest update from Johns Hopkins University reported over four million cases confirmed and more than 283,000 deaths by Coronavirus (Johns Hopkins University, 2020). With those figures, the situation is getting worst and the schools and universities remain closed in most of the countries.

In the United Arab Emirates (UAE), as a measure of prevention and control, the government decided from the beginning to implement distance learning as an alternative for traditional teaching. The decision was taken in the first week of March 2020 and required all the educational institutions in the country to close for four weeks, make necessary arrangements for distance learning and complete the academic year through distance learning. The schools and higher academic intuitions started distance learning in the last week of March 2020 (Ministry of Education, U.A.E, 2020a; Ministry of Education, U.A.E, 2020b). It is interesting to know that, although Hamdan Bin Mohammed Smart University was the first accredited distance learning institution in UAE, other academic institutions have been fully or partially implementing distance learning before the spread of Coronavirus, including AAU (Ati and Guessoum, 2010; Lavine and Croome, 2018). However, the pandemic forced all the academic institutions to comply with the government decision, fully implement distance learning, protect students, academic and administrative staff from the deadly virus.

At Al Ain University (AAU), the preparation for distance learning started by checking the availability and relevancy of needed technologies and facilities and acquiring necessary tools and equipment for the implementation. This was followed by training and guiding students on how to use different educational technologies for distance learning. It is noteworthy to mention that, before the spread of Coronavirus, the university partially implemented distance learning by using many platforms and tools required for distance learning services. These include Edugate, Moodle, Microsoft Teams, online registration and digital library. The availability of these tools and services are the key success factors in implementing the first full distance learning to all the courses offered by six colleges, in Al Ain and Abu Dhabi, in the second semester for the academic year 2019–2020. This is an unprecedented decision for an unprecedented situation that may result in extraordinary experiences, opportunities and challenges for the university, faculty members and students.

The review of prior studies identified a good number of studies conducted on the status of distance learning of academic intuitions in UAE (Almekhlafi, 2009; Ati and Guessoum, 2010; Lavine and Croome, 2018). Recent studies include a study conducted at Higher Colleges of Technology (Frache et al., 2019), the University of Fujairah and the British University in Dubai (Mohammad AlHamad, 2020) and Gulf Medical University (Taylor et al., 2020). Unfortunately, none of the previous studies reported the issue of distance learning at AAU. There is a need to investigate and report about faculty and students’ experience of distance learning at AAU.

This study is an attempt to investigate and assess the first experience of AAU faculty members and students with full distance learning implemented to contain the spread of Coronavirus. The study reports the satisfaction of respondents with institutional readiness
for distance learning, as well as their perceptions towards opportunities and challenges of distance learning. This could be the first study reporting the experience of AAU faculty members and students with fully implemented distance learning. The results of the study could be useful in understanding the perceptions and altitudes of AAU faculty members and students towards distance learning. The findings of the study could be important in designing and planning future distance-learning programmes at AAU. Moreover, the findings of the study may contribute to the understanding and application of distance learning not only in the UAE but also in the Arab world.

2. Literature review
Distance learning refers to a method of delivering instruction through online technologies and tools. Such as online learning, distance learning relies on information and communication technologies to deliver the contents and interact with learners (Stauffer, 2020). In the following sections, we will present previous studies that reported faculty and student’s satisfaction with distance learning, prior studies on opportunities and challenges of distance learning.

2.1 Opportunities and advantages of distance learning
Distance learning offers many opportunities for educational institutions, instructors and learners. A powerful statement from Ball and Crook (1997) indicated explicitly the importance of distance learning. According to them:

As the educational environment has faced the need for changes, distance learning has provided excellent opportunities to enhance educational performance. Distance learning has emerged as a proven strategy for meeting demands and serving diverse learning populations. Creative delivery of learning has solved problems in access, equity, excellence and funding. Distance learning allows learners in any environment to access information that can be applied directly to social, educational or work dynamics (p. 13).

The above-mentioned importance and advantages of distance learning have been widely supported by research reports from all over the world (Berge and Mrozowski, 2001; Uzuner, 2009; Keles and Özel, 2016). From Greece, Koutsoupidou (2014) used a questionnaire and interview to investigate teachers’ perceptions of distance learning. Findings of the study showed that participants believed that distance learning provides many opportunities, including the ability to connect with people from different geographical locations and different culture, relevant for a large group of students, convenient in terms of timing, actual duration, concentration, transportation and payment and objectivity better achieved through distance learning as compared to face-to-face learning.

In an attempt to shed light on the prospect of distance learning in Bangladesh, Rahman et al. (2015) explained how distance learning can be an effective solution to reduce illiteracy in the country, to reduce educational cost, to overcome educational inequality and to offer degree and non-degree programmes. In Australia, a comparative study between distance learning and face to face learning demonstrated how distance learning can enhance enrolments among students as compared to traditional learning (Bookallil and Rolfe, 2016). This is because most of the students believe that distance learning is flexible and more convenient, allows them to make a balance between studying and family or work commitment, developing ICT skills, opportunities to share knowledge and experiences and learn from other (Keles and Özel, 2016; Fincham, 2017).

In an exploratory study, Knox (2017) investigated students’ perceptions of language teacher education through distance learning. The study was based on two international surveys. The first survey consisted of 24 teachers from 23 institutions located in seven
different countries, while the second survey consisted of 137 students from three universities in Australia, the UK and the USA. Findings of the study showed that both teachers and students believe that distance learning provides many opportunities, including flexibility in learning, situated learning, learner responsibility and diversity in the student cohort. According to the author, the findings demonstrated a valuable experience for teachers intending to know more about the benefits of distance learning.

In an important article describing and assessing the nature of distance learning, Georgiou (2018) outlined the advantages and benefits of distance learning. According to the author, distance learning offers flexibility, personalization, engaging tools to accelerate learning, access to academic programmes and delivering high-quality education. Similarly, an empirical study conducted by Yildiz and Erdem (2018) in Turkey showed the majority of participants believed that distance learning has the advantage of time and space flexibility, self-efficacy in learning process management and financial benefits for both institutions and students.

Recently, a research report by Viola et al. (2019) from the USA, suggested a positive impact of distance learning on students’ academic performance. From South Africa, van Rooyen (2019) reported a pilot study aimed at integrating short message systems (SMSs) into distance learning. Findings of the study showed that students overwhelmingly experienced this initiative not only as support but also as assistance to enable them to study more effectively. The author concluded that mobile technology can enhance the quality of learning and provide students with a more satisfying and successful experience.

2.2 Challenges and disadvantages of distance learning

Like opportunities in distance learning, the challenges in distance learning could be institutional, pedagogical and personal. Prior researchers have extensively explored the challenges of distance learning (Goomas and Clayton, 2013; Hoskins, 2013; Fincham, 2017). As pointed by Inman et al. (1999) distance learning requires different skills and responsibilities. Also, the interaction in distance learning is less direct, less focused on one-to-one exchanges and more emphasis on the instructor’s role. According to Carr-Chellman (2000), the main challenges of distance learning are increased demands of faculty time, increased demands from students, difficulties to change schedules and rhythms, lack of personal contact and demands for learning new technology.

Newhouse (2001) highlighted five challenges in distance learning related to instructional process phases. The challenges are comprehension and retention rate, different student levels of experience, time to make an assessment, creating an open-ended learning environment and providing space to create a mental model. By using arguments from interpretation literature, Ross et al. (2003) believed that effective distance learning must be entertaining, relevant, organized, thematic, involving and creative at the same time. Interesting research conducted by Nufrio (2007) among instructors and students presented technological and behavioural challenges for distance learning. For instructors, the challenges include rigorous planning, controlling the teaching-learning process, acting as manager and facilitator, follow-up and monitoring. While for students, the challenges include weak ICT skills, frustration, lack of quality education, fear and timidity, plagiarism and ethical violations. According to the author, to meet these challenges, educational intuitions must find ways to build flexible and more comprehensive platforms around synchronous technology.

According to Hoskins (2013), distance learning can be transformational through effective encouragement and support, a safe and secured environment; and appropriate guidance. In line with that, Goomas and Clayton (2013) conducted a quasi-experimental study to find out
the impact of distance learning on the students’ grades and retention. For that purpose, the authors compared students of distance learning academic transformation classes to students of on-campus academic transformation classes. Findings of the study showed that distance-learning students were more at risk based on final examination results and retention as compared to face-to-face. According to the authors, distance learning can only be effective by conducting appropriate action research.

From the USA, Benson and Jenny (2017) reported a survey and interview results on how students, professors and instructional technologists perceive distance learning. The majority of participants expressed their concerns about generational gaps in distance learning, the quality of courses and academic integrity, educational technology, faculty training on distance learning and faculty responsibilities and commitments. Similar findings are reported by Fincham (2017) and Knox (2017). An important review by Georgiou (2018) summarized the key challenges for distance learning. The challenges include low quality of education and achievement, lack of socialization and motivation, isolation, lack of facial expression and body language and limited interactions. Recent studies reporting challenges of distance learning include a study by Sbaffi and Bennett (2019), Arthur-Nyarko et al. (2020), Zaheer and Munir (2020).

2.3 Satisfaction with distance learning
Satisfaction refers to a pleasant feeling that you get when you receive something you wanted or when you have done something you wanted to do (Cambridge Advanced Learner’s Dictionary, 2008). Therefore, satisfaction depends on the attitudes and perceptions that could be influenced by other factors. In the case of distance learning, prior studies have reported how satisfaction of faculty members and students can be affected by the quality of distance learning technologies and tools (Haddad et al., 2014), the method and approach of teaching styles (Cheng et al., 2017), resources and services (Alazmeh, 2019), skills and acceptance (Kamalluarifin et al., 2018).

The quality of technologies and tools plays an essential role in meeting the expectations and satisfaction of students, as well as faculty members with distance learning. These technologies and tools facilitate transformation in the mindset of educators and in the expectations of the learner who can engage in learning any time and any place (Georgiadou and Siakas, 2006). As indicated by Haddad et al. (2014), distance learning technologies and tools serve as vehicles through which the courses are conducted and delivered. Unfortunately, most of the traditional universities are not equipped with the quality technologies and tools needed for distance learning (Leontyeva, 2018). A study by Ibrahim et al. (2007) in Saudi Arabia found that the intention of the students to stay in distance learning programmes depends critically on the variety of techniques used to support and deliver distance learning.

In Serbia, Raspopovic and Jankulovic (2017) used students’ satisfaction to determine the quality of a distance learning system. Findings of the study suggested students’ satisfaction with the academic programme, college and university. Based on the study results, the authors proposed four dimensions for assessing and evaluating student satisfaction with distance learning. The four dimensions are institutional support, instructors support, personal or interpersonal support and learning or academic support. In Pakistan, Arif et al. (2017) assessed the satisfaction of students enrolled in distance learning with web-based services. The findings of the study indicated that the majority of students were satisfied with web-based services. However, no significant difference was found among students concerning their gender, academic specializations and age groups. Besides, the perceived
usefulness and perceived ease of use significantly predicted students’ satisfaction with the use of web services.

In an experimental study in Taiwan, Cheng et al. (2017) investigated students’ satisfaction with the distance learning system. Findings of the study showed that satisfaction with the distance learning system has a significant impact on students’ performance while learning styles indicated no significant impact on satisfaction with the distance learning system. In Malaysia, Rajadurai et al. (2018) conducted a study on satisfaction with distance learning. The results of the study confirmed students’ satisfaction with distance learning materials, assessment management, academic facilitation and the services provided by the universities. The authors believe that learning technology, course quality and internet efficacy are among the factors that can influence satisfaction with distance learning. This was supported by research findings reported by Leontyeva (2018) in which students expressed dissatisfaction with technological infrastructures for distance learning.

Moreover, recent publications on satisfaction with distance learning include an investigation of the relationship between e-learning services and students satisfaction (Alazmeh, 2019), the satisfaction of Yemeni students with distance learning (Aldholay et al., 2019), students satisfaction with e-learning services in Indonesia (Ayuni and Mulyana, 2019). Similarly, research has been conducted on predicting satisfaction with distance learning (Zhang and Lin, 2020) and factors affecting the satisfaction of distance learning (Shao, 2020).

3. Conceptual framework
The conceptual framework of the study is illustrated in Figure 1. The framework consists of two independent variables, one dependent variable and three moderating variables. The dependent variable is satisfaction with institutional readiness for distance learning and independent variables are perceived opportunities and perceived challenges of distance learning, while gender, status and college are moderating variables. The framework assumes that the perceived opportunities and challenges of distance learning by faculty and students have an impact on their satisfaction with distance learning. However, this relationship could be moderated by gender, the status of participants as faculty members or students and the college of the participant.

This conceptual framework is based on the Unified Theory of Acceptance and Use of Technology or UTAUT (Venkatesh et al., 2003). The theory is widely used by similar studies (Birch and Irvine, 2009; Thongsri et al., 2019; Kim and Sang-Soog Lee, 2020). According to UTAUT theory, performance expectancy and effort expectancy are among the important constructs that determine the acceptance and usage of technology. Performance expectancy contains perceived usefulness and relative advantages, while effort expectancy

![Figure 1. Conceptual framework](image-url)
contains perceived ease of use. In this study, these concepts are included in the concept of perceived opportunities. Similarly, the concept of perceived challenges in the current study represents the concept of “complexity” listed under perceived effort in UTAUT theory. Also, satisfaction with institutional readiness for distance learning represents the actual use of distance learning technologies used by the participants at the time of this study. These technologies include among others, Microsoft Team, Moodle and Edugate.

4. Research questions and hypotheses
In light of the above discussed conceptual framework, the theoretical model proposed and previous studies, we asked six important research questions and proposed six hypotheses.

4.1 Research questions

RQ1. How faculty members and students perceive opportunities for distance learning?
RQ2. How faculty members and students perceive the challenges for distance learning?
RQ3. How satisfied are faculty members and students with institutional readiness for distance learning?

4.2 Research hypotheses

4.2.1 Relationship between satisfaction and perceived opportunities.

H1.1. Perceived opportunities for distance learning is positively related to satisfaction with institutional readiness for distance learning.
H1.2. Gender moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning.
H1.3. Status of the participant moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning.
H1.4. College moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning.

4.2.2 Relationship between satisfaction and perceived challenges.

H2.1. Perceived challenges of distance learning are positively related to satisfaction with institutional readiness for distance learning.
H2.2. Gender moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning.
H2.3. Status of participants moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning.
H2.4. College moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning.
5. Research method

The main purpose of this study is to investigate and assess the perceptions of faculty members and students towards distance learning. The study specifically focuses on satisfaction, opportunities and challenges of distance learning implemented at AAU as a necessary precaution to prevent the spread of Coronavirus or Covid-19. The researchers, based on a careful review of related studies (Arif et al., 2017; Georgiou, 2018), designed the study instrument through Google Form. The instrument consisted of four sections collecting data on demographic characteristics, satisfaction with the institutional readiness for distance learning, perception towards opportunities of distance learning and perception towards challenges of distance learning. Besides, the survey instrument contained one open-ended question asking the participants to express their opinion about the implementation of distance learning as a prevention measure to contain the spread of Coronavirus. Responses to survey questions were measured using the five-point Likert scale for satisfaction, opportunities and challenges. The Likert scale for measuring satisfaction was very satisfied, satisfied, neutral, dissatisfied and very dissatisfied. On the other hand, the measurement for opportunities and challenges was “strongly agreed, agree, neutral, disagree and strongly disagree”. These Likert scales were chosen because they are the most reliable methods to measure satisfaction, attitudes, perceptions, experiences and behaviours (Beglar and Nemoto, 2014; Joshi et al., 2015).

The population of the study is faculty members and students of Al Ain University. The university has approximately 5,198 students and 190 full-time faculty members for both Al Ain and Abu Dhabi campuses. As this is the first distance learning experience at AAU, the researchers decided to include all the students and faculty members in the survey. An invitation to participate in the survey was sent to them on 29th March 2020 and closed on the 2nd April 2020. A total of 584 respondents, 445 students and 139 faculty members, participated in the study. The collected data were analysed using IBM SPSS Version 25.

To verify the reliability and validity of the survey instrument, the researchers performed constructs reliability tests using Cronbach alpha (\(\alpha\)). All three constructs; satisfaction, opportunities and challenges; recorded more than 0.60 Cronbach alpha (Table 1) believed to be the lower limit of acceptability as suggested by Hair et al. (2019). Meanwhile, we can use a correlation matrix to propose the factorability if the Bartlett test of Sphericity is significant and the Kaiser–Meyer–Olkin (KMO) measures of sampling adequacy is 0.50 or higher. As presented in Table 1, the values for the Bartlett test of Sphericity were significant for all the scales. Similarly, the values of KMO scores were at least 0.677, sufficient for the requirement stated by Hair et al. (2019). Moreover, the test confirms that all the scales achieved the recommended eigenvalues greater than one (Hair et al., 2019). The results indicate that the study constructs for measuring satisfaction with institutional readiness for distance learning, the perceived opportunities of distance learning and perceived challenges of distance learning are reliable and the sample size is adequate.

<table>
<thead>
<tr>
<th>Construct</th>
<th>No. of item</th>
<th>Cronbach alpha ((\alpha))</th>
<th>KMO</th>
<th>Bartlett’s test of sphericity</th>
<th>Eigenvalues</th>
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<td>0.925</td>
<td>3,384.892***</td>
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<td>Perceived challenges of distance learning</td>
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<td>Satisfaction with institutional readiness for distance learning</td>
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<td>0.917</td>
<td>2,832.164***</td>
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</table>

Note: ***p-value is significant at 0.05 (two-tailed)
Regarding the participants, there were more students ($n = 445, 76.2\%$), than faculty members ($n = 139, 23.8\%$), more male students ($n = 336, 57.5\%$) than female students ($n = 248, 42.5\%$). As to their colleges, participants were mostly from the College of Education, Humanities and Social Sciences ($n = 179, 30.7\%$), followed by the College of Business ($n = 106, 18.2\%$) and College of Pharmacy (17\%). Figure 2 illustrates more details about participants.

6. Findings

6.1 Perceived opportunities

Figure 3 illustrates the perception of participants towards the opportunities and advantages of distance learning. Findings of the study indicate that students and faculty members have high positive perceptions of the advantages of distance learning (Mean $\geq 4.06$). However, the highest mean score can be identified with the positive impact of distance learning on ICT skills (Mean = 4.42), followed by distance learning ability to support and enhance the quality of educational structures (Mean = 4.21) and its ability to promote lifelong learning (Mean = 4.20). These findings are supported by positive comments to the open-ended question, including preventing the spread of Coronavirus, flexibility, the availability of recorded lectures, etc.

6.1.1 Differences in perceived opportunities. Table 2 summarizes differences in perceived opportunities for distance learning. By observing the mean scores, male respondents seem to have better perceptions about opportunities and advantages of distance learning (Mean = 25.1855, SD = 5.89705) than that of female respondents (Mean = 25.0327, SD = 5.58052). However, the results of the independent $t$-test indicate that the mean score difference between men and women is not statistically significant ($t$-values = 0.319, $p$-value = 0.750).
This finding indicates no relationship between gender and perceived opportunities for distance learning.

For status of respondents, faculty members appeared to be more positive with opportunities and advantages of distance learning (Mean = 25.8921, SD = 4.15059) than the students (Mean = 24.8494, SD = 6.10215). Also, the results of the t-test revealed that the mean score difference between faculty members and students is statistically significant (t-values = 1.882, p-value = 0.000). This finding suggests a relationship between the respondent’s status and the perceived opportunities for distance learning.

Meanwhile, the results of the study indicate that faculty members and students from the College of Communication and Media recorded the highest positive mean score towards opportunities and advantages of distance learning (Mean = 26.9574, SD = 4.44756), followed by the College of Law (Mean = 26.6102, SD = 5.03100) and College of Education, Humanities and Social Sciences (Mean = 25.9106, SD = 4.83931). Besides, the results of the ANOVA test show that the differences at the college level are statistically significant (F-value = 4.835, p-value = 0.000). The finding suggests the existence of a relationship between the college and perceived opportunities for distance learning.

6.2 Perceived challenges

Figure 4 presents the perceptions of participants towards the challenges facing distance learning. The results of the study indicate that students and faculty members have moderate perceptions of the challenges hindering distance learning (Mean ≥ 2.75). However, the highest mean score is observed with supporting digital divide (Mean = 3.72), followed by shifting the attention from the primary goal of the learning process to developing ICT skills (Mean = 3.52) and negative impact on the interaction between teacher and student (Mean = 2.93). These findings indicate challenges facing distance-learning implementation at AAU.
In addition, faculty and students’ reactions to the open-ended question collected important concerns about distance learning, including weak internet connection, weak images and voice, lack of practical applications in labs, classroom management, the communication gap between instructor and students. For instance, a male student from the College of Business complained about “difficulties while attending online learning classes because of losing connection sometimes and facing mic disconnection problems”. According to a male student from the College of Law, “there are many problems in distance education, [such as] weak programme, weak network, lack of ability to rely entirely on it and lack of focus”. Also, a faculty member from the College of Pharmacy believes that, although there are “many health and academic advantages of distance learning […], no way to substitute the conventional lecturing and interaction with students”.

6.2.1 Differences in perceived challenges. Table 3 presents differences in perceived challenges facing distance learning. Results of the study show that female participants registered the highest mean score on the challenges facing distance learning (Mean = 15.9911, SD = 4.39707) than that of male participants (Mean = 15.6290, SD = 4.62254). Nevertheless, the results of the independent t-test show that the mean score difference between female and male students is not statistically significant (t-values = –0.962, p-value = 0.336). The finding indicates no relationship between gender and the perceived challenges of distance learning.

For the status difference, students’ participants recorded the highest mean score on challenges facing distance learning (Mean = 15.9348, SD = 4.54634) as compared to faculty members (Mean = 15.9911, SD = 4.32273). Moreover, the analysis of the t-test revealed that the mean score difference between students and faculty members is not statically significant (t-values = –0.938, p-value = 0.349). This finding suggests that no relationship between status and the perceived challenges facing distance learning.

For the college difference, findings study revealed that faculty members and students from the College of Communication and Media registered the highest mean score on the perceived challenges facing distance learning (Mean = 17.0638, SD = 5.26846), followed by the College of Education, Humanities and Social Sciences (Mean = 16.2011, SD = 4.75392) and College of Law (Mean = 15.9661, SD = 4.06400). However, the ANOVA test results show that the differences at the college level are statistically not significant (F-value = 2.051, p-value = 0.070). The finding suggests no relationship between the college and the perceived challenges facing distance learning.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>No.</th>
<th>Mean</th>
<th>SD</th>
<th>t-value/ F-value</th>
<th>p-value</th>
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</table>

**Table 3.** Differences in perceived challenges facing distance learning

**Note:** p-value is significant at 0.05 level (two-tailed)
6.3 Satisfaction with institutional readiness

As illustrated in Figure 5, participants were asked to express their satisfaction with the institutional readiness for distance learning. With the five-point Likert scale, responses to the listed statements were rated “high” if the mean score is above 4.00, “moderate” if the mean score is above 2 but less than 4.00 and “low” if the mean score is 2 and below. Accordingly, participants expressed high satisfaction with five statements and moderate satisfaction with two statements. The institutional ability to ensure security and safety received the highest satisfaction (Mean = 4.55), followed by using distance learning as a new way of communication between instructor and student (Mean = 4.33) and satisfaction with the continuity of the lecture through distance learning (Mean = 4.27). However, none of the statements received low satisfaction.

Meanwhile, reaction to the open-ended question related to institutional readiness for distance learning supported participants’ satisfaction. For instance, a male student from the College of Engineering said, the university was “doing its best to keep the students safe from COVID-19”. According to a male faculty member from the College of Education, “the IT department has done tremendous efforts regarding the e-learning”. “This is a great experience to using the new technology in our daily life”, added another male student from the College of Engineering.

6.3.1 Differences in satisfaction. Table 4 contains the number of cases for each indicator, mean score, standard deviation, t or F value and p-value. By looking at the mean scores, male respondents appeared more satisfied (Mean = 29.8427, SD = 5.52977) with institutional readiness for distance learning compared to female respondents (Mean = 28.9494, SD = 6.39032). However, the results of the independent t-test indicate that the mean score difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>No.</th>
<th>Mean</th>
<th>SD</th>
<th>t-value/ F-value</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>248</td>
<td>29.8427</td>
<td>5.52977</td>
<td>1.767</td>
<td>0.078</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>336</td>
<td>28.9494</td>
<td>6.39032</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Faculty</td>
<td>139</td>
<td>30.7338</td>
<td>3.51513</td>
<td>3.160</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>445</td>
<td>28.8899</td>
<td>6.58992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>Engineering</td>
<td>94</td>
<td>28.5106</td>
<td>6.07435</td>
<td>2.756</td>
<td>0.018</td>
</tr>
<tr>
<td></td>
<td>Pharmacy</td>
<td>99</td>
<td>28.6970</td>
<td>5.82650</td>
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</tr>
<tr>
<td></td>
<td>Law</td>
<td>59</td>
<td>30.3559</td>
<td>5.16207</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Education, humanities and social sciences</td>
<td>179</td>
<td>29.8827</td>
<td>6.22090</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>106</td>
<td>28.3019</td>
<td>6.52347</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication and media</td>
<td>47</td>
<td>31.2128</td>
<td>5.08166</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: p-value is significant at 0.05 level (two-tailed)
between men and women is not statistically significant ($t$-values = 1.767, $p$-value = 0.078). This finding indicates no relationship between gender and satisfaction with institutional readiness for distance learning.

For the status variable, faculty members expressed better satisfaction with the institutional readiness for distance learning (Mean = 30.7338, SD = 3.51513) than students (Mean = 28.8899, SD = 6.58992). In fact, the analysis of the $t$-test revealed that the mean score difference between faculty members and students is statistically significant ($t$-values = 3.160, $p$-value = 0.002). The finding suggests a relationship between status and satisfaction with institutional readiness for distance learning.

On the differences at the college level, faculty members and students from the College of Communication and Media expressed the highest satisfaction with the implementation of distance learning (Mean = 31.2128, SD = 5.08166), followed by the College of Law (Mean = 30.3559, SD = 5.16207) and College of Education, Humanities and Social Sciences (Mean = 29.8827, SD = 6.22090). Further investigation and analysis through ANOVA test indicate that the differences at the college level are statistically significant ($F$-value = 2.762, $p$-value = 0.018). The finding indicates a relationship between the college of participants and satisfaction with institutional readiness for distance learning.

### 6.4 Relationship between satisfaction, perceived opportunities and challenges

Table 5 presents the results of Pearson correlation analysis between satisfaction with institutional readiness for distance learning (SIRDL), perceived opportunities (PODL) and perceived challenges of distance learning (PCDL). Findings of the analysis supported the stated hypothesis ($H1.1$) by indicating a positive significant relationship between satisfaction with institutional readiness for distance learning and perceived opportunities or advantages of distance learning ($r = 0.802$). However, the results rejected the stated hypothesis ($H2.1$) by indicating no significant relationship between satisfaction and perceived challenges or disadvantages of distance learning ($r = 0.072$).

For moderating variables, the findings of the study revealed no significant relationship between gender and satisfaction ($r = -0.073$), gender and perceived opportunities ($r = -0.013$), gender and perceived challenges ($r = 0.040$). Unlike gender, the variable of college demonstrated significant negative relationship with satisfaction ($r = -0.141$), perceive opportunities ($r = -0.193$) and perceived challenges ($r = -0.099$). Similarly, the variable status showed also a significant negative relationship with satisfaction ($r = -0.130$), while indicated no significant relationship with perceived opportunities ($r = -0.078$) and perceived challenges ($r = 0.039$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>SIRDL</th>
<th>PODL</th>
<th>PCDL</th>
<th>Gender</th>
<th>Status</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIRDL</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PODL</td>
<td>0.802**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCDL</td>
<td>0.072</td>
<td>0.024</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.073</td>
<td>-0.013</td>
<td>0.040</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>-0.130**</td>
<td>-0.078</td>
<td>0.039</td>
<td>0.250**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>-0.141**</td>
<td>-0.193**</td>
<td>-0.099*</td>
<td>-0.035</td>
<td>0.001</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5. Pearson correlation matrix

**Notes:** **Correlations are significant at the 0.01 level (two-tailed); *Correlations are significant at the 0.05 level (two-tailed). SIRDL = Satisfaction with institutional readiness for distance learning, PODL = Perceived opportunities of distance learning, PCDL = Perceived challenges of distance learning
Based on the above findings, the researchers performed regression analysis to determine the impact of perceived opportunities of distance learning on satisfaction with institutional readiness for distance learning. Perceived challenges of distance learning and gender are excluded from this analysis because of the lack of significant relationship with satisfaction. Accordingly, hypotheses H1,2, H2.2, H2.3 and H2.4> are rejected and not included in regression analysis. We assumed that the perceived opportunities for distance learning will have a positive impact on satisfaction. To verify this assumption, we used linear regression tests to find out the impact of perceived opportunities of distance learning on satisfaction with institutional readiness for distance learning. The regression test is based on the following partial least squares, structural equation modelling (PLS-SEM) (Table 6):

\[
SIRDL = \beta_0 + \beta_1 PODL + \beta_2 Status + \beta_3 College + \varepsilon
\]

Table 7 and Figure 6 present the results of regression analyses. According to the results, the value of R square \(R^2 = 0.644\) and path coefficients \(\beta = 0.800\) for perceived opportunities of distance learning demonstrated a significant impact on satisfaction with institutional readiness for distance learning \(p\)-value = 0.000. However, this relationship is negatively moderated by respondents’ status as faculty members or students \(R^2 = 0.017, \beta = -0.052, \ p\text{-value} = 0.047\). On the other hand, the college appeared to not influence the relationship

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIRDL</td>
<td>= satisfaction with institutional readiness for distance learning</td>
</tr>
<tr>
<td>PODL</td>
<td>= perceived opportunities of distance learning</td>
</tr>
<tr>
<td>Status</td>
<td>= 1 if the respondent is a faculty member and 0 for students</td>
</tr>
<tr>
<td>College</td>
<td>= 1 if respondent is from English instruction college and 0 for Arabic instruction college</td>
</tr>
<tr>
<td>(\varepsilon)</td>
<td>= errors</td>
</tr>
</tbody>
</table>

Table 7. Path analysis of structural equation model*

<table>
<thead>
<tr>
<th>Variable</th>
<th>(R^2)</th>
<th>(\beta)</th>
<th>(t)</th>
<th>(p\text{-value})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (SIRDL)</td>
<td>0.644</td>
<td>0.800</td>
<td>9.854</td>
<td>0.000</td>
</tr>
<tr>
<td>PODL</td>
<td>0.644</td>
<td>0.800</td>
<td>31.842</td>
<td>0.000</td>
</tr>
<tr>
<td>Status</td>
<td>0.017</td>
<td>-0.052</td>
<td>-1.991</td>
<td>0.047</td>
</tr>
<tr>
<td>College</td>
<td>0.004</td>
<td>0.013</td>
<td>0.502</td>
<td>0.616</td>
</tr>
</tbody>
</table>

Notes: *Dependent variable = SIRDL; Model: \(R^2 = 0.650\); Adjusted \(R^2 = 0.648\); F value = 269.134; \(p\text{-value} = 0.000\)
between perceived opportunities of distance learning and satisfaction with institutional readiness with distance learning ($R^2 = 0.004, \beta = -0.013, p\text{-value} = 0.616$). Nevertheless, these results support the stated hypothesis (H1.3) but reject another hypothesis (H1.4). In addition, the findings suggest that the perceived opportunities of distance with status as moderating variable explain at least 65% of variations in satisfaction with distance learning ($R^2 = 0.650, \text{Adjusted } R^2 = 0.648, F = 269.134, p\text{-value} = 0.000$). However, the remaining 35% variations are related to other variables not included in this study.

7. Discussion

The recent rapid and exponential spread of Coronavirus, COVID-19, led to dramatic changes in our daily life including the learning process and procedures. For the aspect of the learning process and procedure, this study has attempted to investigate and explore faculty and students’ perceptions of distance learning implemented to prevent the spread of Coronavirus. The investigation was based on satisfaction with institutional readiness for distance learning, opportunities for distance learning and potential challenges facing the implementation of distance learning. The study was guided by three research questions. The first research question attempted to explore how satisfied are faculty members and students with institutional readiness for distance learning.

Findings of the study indicated in general faculty and students’ satisfaction with institutional readiness for distance learning. The findings are in line with the previous studies reported by Kamalluarifin et al. (2018) and Alazmeh (2019). The participants in this study expressed high satisfaction with security and safety issues, provision of distance learning tools and equipment, ensuring the continuity of lectures, implementation of a new way of communication and provision of supports and guidance needed for distance learning. It is noteworthy to know that, AAU has been using, at least for the past five years, distance learning technologies and tools such as Moodle and Edugate. In fact, before the Coronavirus outbreak, the university was already conducting online examinations for an estimated 25% of the courses. Therefore, it seems that the existence of distance learning tools and prior successful experience with online examinations have helped AAU to quickly make a necessary arrangement and implement, for the first time, full distance learning for all the courses offered during the Second Semester for the academic year 2019–2020. Therefore, is not surprising to find faculty members and students satisfied with institutional readiness for distance learning.

On gender differences, men appeared more satisfied with institutional readiness for distance learning than women. As reported earlier by Arif et al. (2017), the findings of this study indicated that the gender difference is statistically not significant, suggesting no relationship between gender and satisfaction with institutional readiness. This means, both the male and female participants hold the same perception and satisfaction towards institutional readiness for distance learning. Unlike gender, for status, faculty members expressed better satisfaction with institutional readiness for distance learning than the students. The difference is statistically significant. Similarly, at the college level, participants from the College of Communication and Media expressed the highest satisfaction with the institutional readiness for distance learning, followed by the College of Law and College of Education, Humanities and Social Sciences. These findings suggest the relationship between the status or college of participants and perceived institutional readiness for distance learning.

Although it is not clear why students are less satisfied with the institutional readiness for distance learning as compared to the faculty members. We know that this was the first experience of AAU in implementing distance learning. Therefore, students and faculty
members are expected to experience some difficulties and obstacles while attending distance-learning courses. Certainly, students’ opinions are important for the development and progress of educational institutions. Therefore, AAU should consider more investigations on this issue to understand students’ needs and expectations for future implementation of distance learning. Similarly, more studies are needed to find out why the colleges differ in satisfaction towards institutional readiness for distance learning. Is it because some colleges are well equipped and trained with distance learning technologies and tools than others or it is simply that some colleges prefer distance learning to others. Responses to these questions and the like could help AAU to identify more factors affecting faculty and students’ satisfaction with distance learning.

The second research question attempted to find out potential opportunities and advantages that encourage faculty members and students to accept distance learning. In response to this question, faculty members and students expressed high positive agreement about the benefits and opportunities they believe can be achieved through the implementation of distance learning. As reported in the previous studies (Georgiou, 2018; Yildiz and Erdem, 2018), the opportunities include improving skills through distance learning, flexibility, supporting employment and education and supporting quality education and innovation. The findings indicate that AAU faculty members and students are aware of the importance of distance learning and believe that the new approach of learning can have a positive impact on their teaching, learning and other educational activities.

On the demographic differences, male respondents appeared more positive in their perceptions towards the opportunities of distance learning than the female participants did. However, the difference is statistically not significant, suggesting no relationship between gender and perceived opportunities for distance learning. This means, both the male and female participants have a similar perception towards distance learning opportunities and advantages. Nevertheless, faculty members appeared more positive in their perceptions towards opportunities and advantages of distance learning than the students did.

Similarly, at the college level, participants from the College of Communication and Media recorded the highest mean score in perception towards distance learning opportunities and advantages. Besides, the findings indicate that both status and college differences are statistically significant. This means these two demographic characteristics have a relationship with the perceived opportunities for distance learning. However, it is not clear whether they have a positive or negative impact on the perception towards distance learning. Future studies may attempt to find out the nature of this relationship and the impact on the perceived opportunities for distance learning.

The last and third research question addressed the challenges and disadvantages that might discourage faculty members and students to accept distance learning. Findings of the study show that faculty members and students expressed moderate concerns about the challenges facing the implementation of distance learning. The concern challenges include supporting the digital divide, disrespect for the primary goal of the learning process, a negative impact on the interaction between instructors and students, supporting plagiarism and an increase in educational expenses. The findings of this study are in line with the previous studies reporting challenges facing distance learning, particularly a recent study by Arthur-Nyarko et al. (2020), Zaheer and Munir (2020).

On the demographic differences, female participants expressed more concerns about the challenges facing distance learning than the male participants. Similarly, students and participants affiliated to the College of Communication and Media recorded the highest concerns about the challenges facing distance learning as compared to faculty members and
participants of other colleges, respectively. However, the findings of the study indicated that the demographic differences related to gender, status and college are not statistically significant. This suggests no relationship between demographic variables and perceived challenges for distance learning. Accordingly, the attribute of gender, status and college has no impact on perceived challenges towards distance learning.

On the relationship between the dependent variable and independent variables, the findings of the study revealed the significance of the relationship between satisfaction with institutional readiness for distance learning (DV) and perceived opportunities of distance learning (IV). This relationship is found to be negatively moderated by the status of the participant as a faculty member or student. Nevertheless, the findings support the Unified Theory of Acceptance and Use of technology or UTAUT (Venkatesh et al., 2003). This was achieved by identifying the relationship between DV and IV and confirming the impact of perceived usefulness, relative advantages and perceived ease of use represented in this study as perceived opportunities towards distance learning on satisfaction. Unfortunately, the remaining variables demonstrated no significant relationship with or impact on satisfaction with institutional readiness with distance learning. Accordingly, the findings of the study supported two hypotheses and rejected six (Table 8).

8. Conclusion
Distance learning has proven to be an effective solution for academic institutions, particularly in containing and preventing the spread of coronavirus and ensuring the continuation of the learning process. Although it was the first experience to fully implement distance learning at AAU, the university succeeded in implementing distance learning with high satisfaction from faculty members and students. As perceived by faculty members and students, distance learning has potential advantages of enhancing ICT skills, supporting work and education at the same time, supporting quality education and innovation and allowing learners to learn any time and any place. However, distance learning is not free from challenges including the issue of the digital divide, the primary goal of the learning process, communication and interaction between instructors and students, plagiarism and financial issues. Therefore, academic institutions should be able to control these challenges.

<table>
<thead>
<tr>
<th>Code</th>
<th>Hypothesis</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1.1</td>
<td>Perceived opportunities for distance learning is positively related to satisfaction with institutional readiness for distance learning</td>
<td>Supported</td>
</tr>
<tr>
<td>H1.2</td>
<td>Gender moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
<tr>
<td>H1.3</td>
<td>Status of the participant moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Supported</td>
</tr>
<tr>
<td>H1.4</td>
<td>College moderates the relationship between perceived opportunities of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2.1</td>
<td>Perceived challenges for distance learning is positively related to satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2.2</td>
<td>Gender moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2.3</td>
<td>Status of participants moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2.4</td>
<td>College moderates the relationship between perceived challenges of distance learning and satisfaction with institutional readiness for distance learning</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Table 8. Findings of testing hypotheses
minimize and limit their impacts on the learning process and students’ academic performance.

Meanwhile, male and female participants demonstrated no significant difference in satisfaction with institutional readiness for distance learning and perceived opportunities and challenges of distance learning. However, there are significant differences in satisfaction at the college level and between faculty members and students with intuitional readiness for distance learning and perceived opportunities for distance learning. Faculty members appeared more satisfied and more positive with institutional readiness with distance learning as compared to the students. Similarly, participants from the College of Communication and Media are more satisfied and more positive about distance learning as compared to other colleges. These findings suggest the relationship between the status of participants or colleges and satisfaction, perceived opportunities and challenges of distance learning. The regression analysis revealed a significant impact of perceived opportunities of distance learning on satisfaction with institutional readiness for distance learning. The finding is in line with the UTAUT theory, which is based on the relationship between accepting technology and using technology (Venkatesh et al., 2003).

9. Implications
The pandemic of Coronavirus helped us to discover three types of academic institutions. These institutions are full-distance learning institutions, partial distance learning institutions and traditional learning institutions. For full distance learning institutions, the business was as usual with no major challenges at all for distance learning and working from home. For partial distance learning institutions, the pandemic was an opportunity for them to improve distance learning tools and equipment, facilities and infrastructures, marketing strategies and plans. However, for traditional learning institutions, the implementation of distance learning was very challenging and costly. Therefore, the pandemic of Coronavirus has been an extraordinary experience for both partial distance learning institutions and traditional learning institutions. These institutions should continue to implement and offer a distance learning teaching approach as an option for students to choose alongside the face-to-face classroom teaching approach. This implementation will help these institutions to acquire and maintain the necessary tools and equipment needed for distance learning, make necessary changes and update whenever required and more importantly to avoid any risk and uncertainty of similar situations to come in the future.

References


Further reading

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