E-learning during COVID-19 pandemic, faculty Perceptions, challenges, and recommendations

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Categories: Research in Health Professions Education

Received: 28/09/2020
Published: 07/05/2021

Abstract

Introduction: E-learning is a learning system carried out through the internet using electronic devices, it is also called online education. Since the objective of e-learning is to allow students to learn and complete their courses without physically attending a traditional on-campus academic setting, it was only appropriate to use is during the COVID-19 pandemic as a preventive precaution. The preparations to use e-learning were initiated after the university’s decision to suspend on-campus lectures, which challenged the faculty members to prepare virtual lectures in a short period of time.

Method: The study's aim is to assess the perceptions of the faculty members regarding distance e-learning during the COVID-19 pandemic. The conduction of an effective E-learning session depends on knowledge and preparation from faculty members. Putting into consideration that the E-learning environment is significantly different from that of a traditional classroom; that is why we look for their perception as key players in this process.

Results: Two-thirds of the respondents were males, 69% of them were in the age group 35-54, and half of them were assistant professors from departments that had courses during the pandemic. 50% of respondents had more than 10 years of experience tutoring. 41% had experience in online teaching, but 52.5% of them had only taught 1-2 online classes. Most of the respondents agree with most of the statements of the self-efficacy perception while, most of them disagree with the usefulness of the e-learning method, especially under the stress of the Covid-19 pandemic. The demographic characteristics have no significant impact on perception.

Discussion and Conclusion: Respondents had a positive perception of the self-efficacy of online teaching but had a negative perception of its usefulness. The majority of the respondents agree that they encounter the challenges that were stated and some of their recommendations to overcome them include forming working groups, organizing needs assessments, capacity building for both staff members and students, developing tools to ensure the students’ commitment, improving online student assessment, and monitoring and evaluation of implementation.
Introduction

E-learning

E-learning is a learning system that can be accessed via electronic devices, it is also called online learning or online education. E-learning provides education in situations where both the source of information and the recipient are separated by time, distance, or both (Cook, Ley, Crawford, and Warner, 2009). Since the purpose of e-learning is to allow students to learn and accomplish their courses without physically attending a traditional on-campus academic institution, it was the suitable for use as a (COVID-19) pandemic preventive precaution. After the disperse of the disease worldwide, many nations, initiated lockdown and educational institutions halted on-campus activities to maintain social distancing and control the spread of the disease and take all the effective preventive measures.

The challenge was to complete a successful academic year and to assure the university’s staff remains safe from contacting the Coronavirus infection. The preparation to transition from on-campus learning to distance learning began after the university's decision to suspend the on-campus education and take preventive precautions for the safety of university employees, accordingly the preparation of distance education programs and Blackboard began.

The university has been using e-learning and distance education since 2015. The Deanship of E. learning and Information Technology had a prompt response and organized workshops on how to use the Blackboard system to assist faculty members, however it was challenging to the faculty members to prepare material for their lectures, e-learning resources and conduct the virtual lectures at that time.

Worldwide

The question regarding medical education through pandemics had been raised by Ahmed, Allaf, and Elghazaly since the COVID-19 outbreak has quickly transitioned into a worldwide pandemic in March 2020. To control the disease's spread and to protect medical students, the health authorities prohibited medical students from attending clinical attachments to reduce the risk of exposure to the disease, which affected the students' performance and competency during the clinical assessment. There had been creative initiatives during the SARS epidemic such as online problem-based learning techniques which were implemented by a Chinese medical school to complete the curricula (Ahmed, Allaf and Elghazaly, 2020).

On March 26, 2020 during the Corona virus pandemic, the International Council for open and Distant Learning launched a global campaign and a task force as a response to increase in the number of cases. The council also launched a website with an aim to share knowledge about distant E-learning and a guide on a high quality online learning experience which includes training for online teaching culture, institutional policies and support, course and curriculum design training, collaboration, course structure training, staff for administrative and technical support, mentors, teaching digital learning environments and analytics, learning assessment on organization and tools usage, plagiarism prevention, and evaluation (Ossiannilsson, 2020).

The United Nations Educational, Scientific and Cultural Organization (2020) COVID-19 Educational Disruption and Response reported that most governments have temporarily closed educational institutions to limit the spread of the virus. These nationwide stoppages will affect over 72% of the students worldwide by 08/05/2020. The statistics show that there were 1,268,164,088 affected learners, 72.4% of total enrolled learners and 177 country-wide closings. The UNESCO offered to support countries to limit the impact of school closings and facilitate the education for all through remote learning (UNESCO, 2020).
Simultaneously, with the increase of Covid-19 cases, many countries advised their educational institutions (schools and universities) to shift to online and distance learning. As assistance and guidance for educators to find successful ways to integrate technology into teaching and learning through the crisis, the global membership organization for open Online and Distance Learning (ICDE) introduced a global campaign ‘learning together’. The main aspects of this movement were about recognizing the outlines of distance education, determining the needed logistical resources and technical support, creating appropriate communication mediums, enhancing time management skills, digital skills, Internet access and learning dynamics. lastly the construction of the learning process applicable to the audience level, using suitable technology and devices and at the end creating precise assessment policy (Ossiannilsson, 2020).

Distance learning eases the association of several resources with numerous varying formats, flexibility (time & place), promotes active and independent learning. On the other hand, it provides tools for interaction and better understanding through discussion boards and chats. Some authors indicate that distance learning is an essential element of future education as it offers a comfortable, easy, fast, and affordable learning environment, it provides huge learning opportunities and will be provided by most educational institutions in the future (Awalt, 2003). According to Alharbi (2002) e-learning requires the establishment of an adequate infrastructure to enable the timely delivery of course materials to students by their teachers as well as to increase teachers’ ability to support of their students and to encourage teachers to become active participants in designing and implementing e-learning processes, which will lead to sense of ownership and compassionate (Hussein, 2011). The major disadvantages of E-Learning are acquiring the knowledge on a theoretical basis, missing the face-to-face learning experience and the limited assessments methods (Radović-Marković, 2010).

COVID-19

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus, its common clinical features vary between mild to moderate respiratory infections and recover without requiring special therapy. Elderly and those with critical medical complications like diabetes, chronic respiratory disease, cardiovascular disease, and cancer are expected to develop acute sickness. The best way to prevent and slow down transmission is to obtain information about the disease and how it spreads. The essential protective procedures against the new coronavirus are: -

- Hand washing or using an alcohol-based rub frequently.
- Avoiding touching the eyes, nose, and mouth
- Maintaining social distancing
- Practicing respiratory hygiene
- Seeking medical care when symptoms like fever, cough and difficulty breathing appear (WHO, 2020).

This study assesses faculty perceptions of the distance learning experience, particularly during the COVID-19 pandemic by recognizing the challenges and recommendations to overcome them, and potential changes which could be made to improve the E-learning experience.

According to Webster and Hackley (1997) the student learning outcomes and attitudes from E-learning are debatable when compared to traditional classroom-based settings. To achieve the maximum benefits from E-learning courses both students and instructors should be provided with an explanation of their roles and instructed to show commitment (Easton, 2003). Another study conducted in 2008 showed that faculty members tend to be at ease with
familiar teaching methods and therefore, during the process of adopting E-learning as new learning method it is crucial to determine their perceptions of the process (Zhen, Garthwait and Pratt, 2008). According to Al-Kethery (2006) governmental support and promotion of E-learning in higher education institutions through the National Centre for E-Learning and Distance Learning develops the positive attitudes of faculty members in most educational institutions in the Kingdom of Saudi Arabia towards the process of distance E-learning. Results of the study titled ‘Faculty Perceptions of Distance Education Courses 2005’, shows that the faculty perceives that even though they identified some shortcomings, the students found the distance learning courses to be very desirable. The shortcomings include the absence of instructor-student and student-student communication, lack of a structured classroom setting, tendencies to self-learn and study the material, difficulties when teaching quantitative courses online and difficulty with directing online exams. A conclusion obtained from this information suggests that the development of an excellent E-learning course primarily relies continuous improvement and repairing per feedback from a student or faculty member (Totaro, Tanner, Noser, Fitzgerald, et al., 2005).

Another study conducted in 2015 titled “Online Education: Faculty Perceptions and Recommendations” reviews results that show faculty members who have experience with E-learning have a positive view while those who do not have experience hold negative and had concern over the quality of the course and learning outcomes. Amusingly, the results show that overall student learning remains the same or increases with E-learning courses compared to traditional on-campus learning settings. Instructors in E-learning courses demonstrate willingness and ability to increase the time commitment, creativity, teaching methods and styles to produce effective work (Felege and Olson, 2015). According to Haidar (2014) at Walden University about Perceptions of Higher Education Online Learning Faculty in Lebanon the study focusses on the lack of technology usage in higher education and mentions the negative perceptions toward their use at the faculty and instructional level, as well as inconsistencies with technological development that higher education institutions achieved in different countries. And the researcher thinks that the understanding the online learning advantages and disadvantages is important when considering instructional and learning decisions. She described the reasons behind online learning challenges and how to overcome them and emphasizes on the advantage of online learning and the need for achieving the social change (Haidar, 2020). In a study conducted in Park University, about faculty perception of distance learning indicate that, faculty perception focusses on their concern about maintaining education quality, student collaboration and the use of a wide variety of media (Schulte, 2010).

In 2017 study about the gap between medical faculty's perceptions and use of e-learning resources, the results show that participants had positive perceptions about the e-learning resources usefulness for student learning and usability but only 39% of them incorporated those resources in their teaching. The reasons were lack of resources, time to use them during lectures, and awareness of their availability (Kim, Kang and Kim, 2017). In 2018 Another integrative review was made about challenges and the solutions to them that face instructors when developing and implementing online learning programs for medical students and postgraduate trainees. These crucial challenges include inadequate technical kills, time limitations, poor infrastructure, lack of organizational strategies and support, and negative attitudes. The suggested solutions were enhanced tutoring skills and to motivate the staff involved with the directing and developing of online content, improved institutional strategies, support and positive attitude amongst all those involved in the development and delivery of online content (O'Doherty, Dromey, Lougheed, Hannigan, et al., 2018). Faculty perceptions are one of the main rationales for changing academic programs. Some studies show that faculty development programs assist faculty members to better understand and adopt the upcoming changes in learning methods (Zhen, Garthwait and Pratt, 2008). That was supported by Alajmi (2020) when stated that the frustrations and negative perception came from misunderstanding and lack of resources which could be used for teaching.

As stated by Alenezi (2020) in the study about faculty members’ Perception of E-learning in Higher Education in the Kingdom of Saudi Arabia (KSA), a positive perception of E-learning is associated availability of the new tools, logistics and potential for improvements that are incubated. However, they observed some gaps within the
demographics that can affect faculty members such as: self-efficacy, systematic use of multimedia, gender, age, nationality, education level, faculty member experiences. The gaps with gender were divided, with females having a more positive association to e-learning than males. After the age of 45, faculty members had fewer positive responses, other gaps were associated with educational level and faculty member. A Study about the gap between medical faculty's perceptions and use of e-learning resources conducted in Korea revealed that the Study participants had positive perceptions of e-learning resources in terms of effectiveness for student learning and usability, only 39% of them integrated E-learning to their tutoring. Faculty members who have not integrated E-learning to their tutoring claim that the reasons behind that include the lack of resources for their lectures, insufficient time to use E-learning instruments during lectures, and unawareness of the E-learning platforms. The study shows a gap between positive perceptions of medical faculties about e-learning resources and their minimal utilization of them (Kim, Kang and Kim, 2017). One of the important sections of the learning process is the assessment which needs in-depth preparation from the faculty members focusing on formative assessment and cover all the course areas delivered through distance E-learning special the practical part.

An exploratory case study was carried out at the King Abdulaziz University, Jeddah, Saudi Arabia to study the impact of Blackboard (Bb) formative assessment and determine the medical students’ perception of the impact and effectiveness of Bb. Most of the students had a positive feedback to combined learning and Blackboard as they acknowledged their effectiveness and efficiency. Due to the influential online evaluation on Blackboard, an improvement of performance was observed from the final exam results and a positive link between grades scored in exams on Blackboard and those in final exams was noted (Baig, Gazzaz and Farouq, 2020). On April 2020, a study titled 'Curriculum delivery in Medical Education during an emergency: A guide based on the responses to the COVID-19 pandemic’ was published, the study reveals the obstacles and difficulties faculty members and students face as they transition from the traditional on-campus learning process to distant E-learning and the planning that was needed to make this transition possible in a short period of time. the obstacles faculty members and students encountered include team work, assessment, creating a sense of seriousness and urgency for students similar to that on campus, curriculum and content delivery, stress, lack of engagement and motivation from students, foreseeing challenges, supervision and evaluation (Taha, Abdalla, Wadi, and Khalafalla, 2020).

Methods

This study is a descriptive cross-sectional survey, which was performed in the College of Medicine at Jazan University, KSA. Data collected by inviting participants voluntarily to fill a self-administered questionnaire. Data analysis has been conducted using SPSS. The study conducted in the Faculty of Medicine in Jazan University, respondents of the study are the faculty who participated in the distance E-learning experience during the corona virus pandemic 2020.Due to the limited number of the study population, the unique experience, and the sudden short note every faculty perception's count. Total coverage survey was applied as a method for data collection. Total number of faculty members was 163 (34 females and 129 males).

Criteria for inclusion and exclusion of participants will be as follows:

- Participants will be only faculty members at the Medical college in Jazan University, who participated in distance E-learning experience during corona virus pandemic 2020.
- With no regard to the gender, nationality.
- Exclude those who refuse to participate.

The research instrument for data collection was a self-administered questionnaire. The questionnaire was mailed to
all 163-medical faculty members in Jazan university. The questioner had two parts, a quantitative and qualitative part. The first section of the quantitative part includes demographic questions on gender, age, academic rank, years teaching experience, and the faculty members experience with distance E-learning. The second section of the quantitative part contains 16 Likert-type questions concerning Faculty Members' Perceptions of E-learning courses and related statements by which the faculty member could express their levels of agreement or disagreement. The instrument uses a five-point Likert response scale for each response. The numbers used are: Strongly agree = 5, Agree = 4, Neither agree nor disagree = 3, Disagree = 2, Strongly Disagree = 1. It consisted of two subscales: (1) self-efficacy (items 8-17); (2) Perception about usefulness (items 18-234); it was modified from a questionnaire that was developed by (Liaw, 2008). The third section of the quantitative part was designed to identify some of the E-learning challenges facing faculty members during this arguing experience, this section consisted of 5 items, and used a Likert-type, five-point scale: Strongly Agree = 5, Agree = 4, Neither agree nor disagree = 3, Disagree = 2, Strongly Disagree = 1. The first section of the qualitative part is about faculty members recommendations to overcome the mentioned above challenges and the second section of the qualitative part was about faculty members recommendation for strengthening and improvement of the experience. This part consisted of open-ended questionnaires. Pilot study was conducted to test the questioner validity and whether it will answer the research questions. Corrections were applied to the questioner.

Descriptive analysis for the data has been carried out using the statistical package for social science (SPSS); analysis of frequencies to identify the distribution and the weight of frequencies. Analysis of variances t-test and (ANOVA) analyzed the differences among group means in a sample. The open-ended questions had been analyzed qualitatively, summarized, and coded then divided into relative categories.

**Results/Analysis**

The total number of teaching staff of the medicine faculty in Jazan University is 163. The target group of the study was those who have participated in the e-learning courses throughout the last weeks of the second semester 2019-2020 during the coronavirus pandemic, they were 62. The questionnaire has been distributed by email and a total of 59 of the teaching staff have responded with 95% response rate.

**Descriptive statistics of demographic data**

| Factor       | Frequency | Percent |
|--------------|-----------|---------|
| Gender       |           |         |
| Male         | 39        | 66.1    |
| Female       | 20        | 33.9    |
| Total        | 59        | 100.0   |
| Age Group    |           |         |
| 25-34 years  | 3         | 5.1     |
| 35-44 years  | 22        | 37.3    |
| 45-54 years  | 19        | 32.2    |
| 55-64 years  | 11        | 18.6    |
| More than 65 | 4         | 6.8     |
| Total        | 59        | 100.0   |
| Academic Rank|           |         |
| Demonstrator | 1         | 1.7     |
| Lecturer     | 9         | 15.3    |

Table 1: Descriptive statistics of demographic data
As shown in Table 1 above, statistics show that 49% were assistant professor, 66% males, and 66% in the age group 25-44. The highest percentage of participation was from the Department of Community and Family Medicine because most of their courses took place during the pandemic. Regarding the years of university teaching experience 61.1% had 10 or more years of experience but only 41% of them had experience of online teaching.

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**Descriptive statistics**

| Assistant professor | 29 | 49.2 |
|---------------------|----|------|
| Associate professor | 10 | 16.9 |
| Professor           | 10 | 16.9 |
| Total               | 59 | 100.0 |

| Department                     | 3  | 5.1 |
|--------------------------------|----|-----|
| Medicine                       | 2  | 3.4 |
| Surgery                        | 1  | 1.7 |
| Pediatrics                     | 16 | 27.1|
| Obstetrics & Gynecology        | 4  | 6.8 |
| Anatomy                        | 10 | 16.9|
| Biochemistry                   | 5  | 8.5 |
| Pathology                      | 5  | 8.5 |
| Physiology                     | 5  | 8.5 |
| Microbiology                   | 6  | 10.2|
| Pharmacology                   | 2  | 3.4 |
| Total                          | 59 | 100.0|

| University teaching experience | 14 | 23.7 |
|--------------------------------|----|------|
| 1-5                            | 12 | 20.3 |
| 6-10                           | 10 | 16.9 |
| 11-15                          | 9  | 15.3 |
| More than 20                   | 14 | 23.7 |
| Total                          | 59 | 100.0|

| Teaching online class          | 24 | 40.7 |
|--------------------------------|----|------|
| Yes                            | 35 | 59.3 |
| No                             | 59 | 100.0|

| Number of online classes       |     |      |
|--------------------------------|-----|------|
| 1                              | 27  | 45.8 |
| 2                              | 4   | 6.8  |
| 3                              | 7   | 11.9 |
| 4                              | 1   | 1.7  |
| 5                              | 3   | 5.1  |
| 6                              | 1   | 1.7  |
| 7                              | 3   | 5.1  |
| 8                              | 2   | 3.4  |
| 9                              | 11  | 18.6 |
| 10                             | 59  | 100.0|
Table 2: Descriptive statistics of perception

| Descriptive statistics of perception about self-efficacy | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
|--------------------------------------------------------|---------------|-------|-----------------------------|----------|------------------|
| One of the advantages, of distance e-learning is that "class times" are flexible | 32.2% | 55.9% | 6.8% | 5.1% | 0.0% |
| The online course format allows students to study at their own pace | 25.4% | 50.8% | 18.6% | 5.1% | 0.0% |
| The theoretical contents of the courses could always be offered online | 20.3% | 40.7% | 15.3% | 20.3% | 3.4% |
| The practical contents of the courses could always be offered online | 3.4% | 6.8% | 15.3% | 40.7% | 33.9% |
| The fact that an online course has no structured classroom type environment suits instructors | 11.9% | 22.0% | 33.9% | 30.5% | 1.7% |
| Online courses appeal to students because there is no required classroom setting | 15.3% | 39.0% | 30.5% | 11.9% | 1.7% |
| In the future, I will teach as many online classes as possible | 11.9% | 42.4% | 22.0% | 16.9% | 5.1% |
| E-learning courses require students self-learning more than in the "traditional" in-class course | 15.3% | 59.3% | 15.3% | 8.5% | 0.0% |
| The technology required to take an E-learning course increases the educational value of the experience | 18.6% | 42.4% | 20.3% | 13.6% | 3.4% |
| E-learning courses require the student to be more self-disciplined than in traditional courses | 10.2% | 52.5% | 18.6% | 15.3% | 1.7% |

Descriptive statistics of perception about usefulness

| Descriptive statistics of perception about usefulness | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
|-----------------------------------------------------|---------------|-------|-----------------------------|----------|------------------|
| The interaction/lectures with the instructor is more frequent in a regular classroom setting. | 40.7% | 42.4% | 6.8% | 8.5% | 1.7% |
| The lack of student-to-student interaction would hinder their learning experience | 25.4% | 52.5% | 11.9% | 10.2% | 0.0% |
| The textbook is more crucial in E-learning class than in a traditional class | 15.3% | 32.2% | 28.8% | 20.3% | 3.4% |
| Tests in an E-learning course are more difficult for students. | 13.6% | 18.6% | 30.5% | 33.9% | 1.7% |
| Preparation of tests in an E-learning course are more difficult to administer. | 25.4% | 30.5% | 13.6% | 22.0% | 6.8% |
| Stress due to the corona pandemic affects the E-learning quality. | 10.2% | 49.2% | 13.6% | 23.7% | 1.7% |

Most of the staff members agree that class times during e-learning are flexible and allow students to study at their own pace. The majority agrees with teaching theoretical contents of the courses online always while only 10.2% agree with teaching practical content online. According to most of the respondents, e-learning requires more self-learning and self-discipline from students which leads to an increase in the educational value. When considering the usefulness of online teaching, most of the teaching staff agree with the fact that lack of interaction between students and interaction between students and the instructions, in addition to the stress due to the coronavirus pandemic, may affect the quality of the teaching process. See Table 2.
Descriptive statistics of challenges

Table 3: Descriptive statistics of challenges statements

| Statement                                                      | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree |
|---------------------------------------------------------------|----------------|-------|----------------------------|----------|-------------------|
| Transforming subject material into e-learning experiences      | 10.2%          | 55.2% | 18.6%                      | 13.6%    | 1.7%              |
| Lack of student motivation and engagement                      | 10.2%          | 62.7% | 23.7%                      | 3.4%     | 0.0%              |
| Staying up to date with modern technology.                    | 25.4%          | 47.5% | 16.9%                      | 6.8%     | 3.4%              |
| Designing e-learning material for students with different learning abilities | 15.3%          | 69.5% | 5.1%                       | 8.5%     | 1.7%              |
| Availability of needed devices.                               | 16.9%          | 52.5% | 18.6%                      | 8.5%     | 0.0%              |

As shown in Table 3, the respondents agree with the main challenges, which are: technology, transformation of the subject material into e-learning experiences and students’ motivation and engagement.

Analysis of Variances (demographic characteristics and perception)

We conduct analysis of variance for four demographic factors which are: gender, age group, academic rank, and online teaching experience to test their impact on the staff perception. Independent t-test analysis has been used for gender and experience, and one-way ANOVA for age group and academic rank.

Relations between demographic factor on perception

Table 4: Statistical significance of relationship between gender, age group, academic rank, and online teaching experience with perception

| Self-efficacy perception (Statements)                  | Sig. (2 tailed) |
|-------------------------------------------------------|-----------------|
|                                                       | Gender | Age | Rank  | Experience |
| One of the advantages of distance e-learning, is that “class times” are flexible | 0.899 | 0.250 | 0.124 | 0.029 |
| The online course format allows students to study at their own pace. Crosstabulation | 0.825 | 0.101 | 0.168 | 1.000 |
| The theoretical contents of the courses could always be offered online. Crosstabulation | 0.340 | 0.573 | 0.493 | 0.819 |
| The practical contents of the courses could always be offered online. | 0.633 | 0.730 | 0.170 | 0.116 |
| The fact that online course has no structured classroom type environment suits instructors. | 0.450 | 0.134 | 0.012 | 0.471 |
| Online courses appeal to students because there is no required classroom setting. | 0.469 | 0.471 | 0.246 | 0.791 |
| In the future, I will teach as many online classes as possible. | 0.100 | 0.427 | 0.379 | 0.150 |
E-learning courses requires students self-learning more than in a traditional in-class course | 0.134 | 0.328 | 0.835 | 0.697
The technology required for e-learning course increases educational value of experience | 0.784 | 0.270 | 0.691 | 0.531
E-learning courses require student to be more self-disciplined than in traditional courses. | 0.329 | 0.561 | 0.769 | 0.704

Usefulness perception (Statements)

| Statement                                                                 | T | O | 1 | T1 |
|---------------------------------------------------------------------------|---|---|---|----|
| The interaction/lectures with the instructor is more frequent in a regular classroom setting. | 0.087 | 0.103 | 0.103 | 0.872 |
| The lack of student-to-student interaction would hinder their learning experience | 0.772 | 0.942 | 0.942 | 0.477 |
| The textbook is more crucial in e-learning class than in a traditional class | 0.218 | 0.744 | 0.744 | 0.215 |
| Tests in an E-learning course are more difficult for students. | 0.746 | 0.227 | 0.227 | 0.142 |
| Preparation of tests in e-learning course are more difficult to administer. | 0.423 | 0.470 | 0.470 | 0.703 |
| Stress due to the corona pandemic affects the E-learning quality. | 0.295 | 0.008 | 0.008 | 0.489 |

Table 4 above shows the independent samples t-test analysis and one-way ANOVA carried to analyze the relationships between these demographic factors with the perception, show no significant relations.

Analysis of the open-ended questions shows the suggestions for solving the e-learning challenges and improving the teaching process are:

- The importance of changing more than 10% of future "regular" classes into online classes.
- More orientation workshops and training courses for both teaching staff and students.
- Developing the engagement tools of online teaching process with special focus on student's interaction and motivation.
- Development of advance tools for the assessment.
- Providing various technologies that facilitate in imparting content and materials in an online format and providing good internet connection.

For the effective performance of the online/distant learning approach the researcher proposes the following recommendations:

- Forming working groups to include academic affairs, medical education, IT, and departments representative
- Organizing and conduct needs assessments
- Capacity building
- Develop different tools to facilitate the process
- Monitoring and evaluation of implementation
- Assess student's perception about the experience
Discussion

A total of 59 individuals from the teaching staff have responded to the questionnaire with 95% response rate. Two thirds of the respondents were in the age groups 35-44 and 45-54 (69%). About half of the respondents were assistant professors. Most of the respondents were from departments which had courses during the pandemic. More than 50% of respondents had teaching experience for more than 10 years, and 41% had experience of online teaching but 52.5% had only taught 1-2 online classes.

The study concludes that respondents had positive perception about the self-efficacy of online teaching, which may be due to their previous experience with the method in agreement with the Felege and Olson (2015). Their responses were as follows: 88.1% agreed with the time flexibility of e-learning, which matches the result of the Felege and Olson (2015), where they think it can produce effective and creative work. 61.0% agree that the technology required for the e-learning course increases the educational value of the experience. 54.3% of the respondents considered teaching as many online classes as possible in the future. Regarding the appropriateness of the online teaching to the different parts of curriculum, 76.3% of the respondents agree that theoretical contents of the courses could always be offered online, while 23.7% do not agree. As for practical content 74.6% of the respondents disagree and only 10.2% agree. As for the advantages of the online teaching for the students, 76.2% found that the online course format allows students to study at their own pace. 54.3% of the teaching staff agree that online courses appeal to students because there is no required classroom setting, which was matching the results from Totaro, Tanner, Noser, Fitzgerald, et al. (2005). About 33.9% of respondents agree with the fact that an online course has no structured classroom-like environment that suits instructors. 74.6% agree with the fact that e-learning courses require students self-learning more than traditional in-class course, and 62.7% agree that e-learning courses require the student to be more self-disciplined, which is a good opportunity for the students to gain lifelong learning skills of self-motivation and independent learning.

From the demonstrated results on the second section of the perception investigation, we conclude that staff members had negative perceptions regarding the usefulness of the online teaching. Most of the respondents (83.1%) think that there is a lack of interaction with the instructor during the e-learning class. Once Again, a considerable percentage of the teaching staff (77.9%) that agrees that the lack of student-to-student interaction would hinder their learning experience. The same findings were found in the Totaro, Tanner, Noser, Fitzgerald, et al. (2005) study where 47.5% agree that the use of a textbook is more crucial in e-learning class than in a traditional class compared to 23.7% who disagree. Concerning the assessment as a part of the learning process, 55.9% of the respondents think that the preparation of tests in an e-learning course are more difficult to administer and that they may doubt the assessment quality, the same conclusion was found in the Totaro, Tanner, Noser, Fitzgerald, et al. (2005) study where they conclude with the difficulty of administering exams online. While only 35% think that the assessment tests in an e-learning course are more difficult for students. This result fit the results from an exploratory case study carried out at the King Abdulaziz University by Baig, Gazzaz and Farouq (2020) to study the impact of Blackboard (Bb) formative assessment. They found improvement of their performance in the final exam due to formative online. Most of the staff members (59.4%) agree that the stressful situation due to the corona pandemic affects the e-learning quality, while only 25.4% disagree.

Regarding the major challenge that faces staff members during the e-learning process, 66.1% agree that transforming subject material into an E-learning experience was a challenge. A similar challenge was mentioned in two studies by Zhen, Garthwait and Pratt, (2008) and Alajmi (2020), where they think that this challenge can be resolved by staff development programs that assist faculty members to better understand and adopt the method. Another challenge was designing e-learning material for students with different learning abilities. 84.8% agree with that. 72.9% agree that staying up to date with modern technology is a challenge. Availability of needed devices is a challenge for 69.4% of the respondents, the same findings were according to Haidar (2014). 72.9% of the
respondents agree that lack of student motivation and engagement is a real challenge in distance learning, and the qualitative study by Schulte (2010), Park University, regarding student collaboration and maintaining education quality. There was an agreement between this study’s challenges and the challenges viewed in a study by Taha, Abdalla, Wadi, and Khalafalla (2020).

The demographic characteristics of the respondents all most have no significant impact on their perception. This was not the situation in the study conducted by Alenezi (2020), where they found that females having a more positive association to e-learning than males, and the age of 45, faculty members had fewer positive responses.

Suggestions and recommendations could solve these challenges and improve the online teaching process to assure gradual transition into online teaching especially for the theoretical contents of the courses, capacity building for both teaching staff and students, developing the assessment tools, providing various technologies to facilitate the process, and formulating working group and developing a plan of action.

**Conclusion**

The study concludes that respondents had positive perception about the self-efficacy of online teaching method, while their perception of the usefulness of this method was negative. Demographic characteristics of the respondents had no significant impact on their perception. That may be due to the lack of experience, the short time for preparation and the stressful COVID-19 pandemic situations.

**Take Home Messages**

Investigating the participant perception is the first step towards effective planning of the E-learning process in the medical college. It gives a clear idea of the required needs, challenges, and suggestions for solutions.

For the effective performance of the online/distant learning approach the researcher proposes the following recommendations:

- Forming working groups to include academic affairs, medical education, IT, and departments representative
- Organizing and conduct needs assessments
- Capacity building
- Develop different tools to facilitate the process
- Monitoring and evaluation of implementation
- Assess student’s perception about the experience

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Acknowledgements

We would like to acknowledge the staff members for their participation and the medical college administration for their help and assistance.

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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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Ethics Statement

This research has been conducted after obtaining an ethical approval from the Research Ethical Committee of Jazan University, with reference number: REC41/6/157.

External Funding

This article has not had any External Funding

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