

Critical Care Nursing Students Acceptance of Unplanned Switch to E-Learning during COVID-19 Pandemic

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Abstract

Background: The sudden convert from the classroom to online learning is challenge that faced all countries and people also, the researcher had a great role to present how such a shift would impact the worldwide education and its effect of Unplanned Switch to E-Learning during COVID-19 Pandemic. **Aim of the study:** The study aimed to explore critical care nursing students' acceptance of unplanned switch to e-learning during COVID-19 pandemic from the Saudi and Egyptian perspective. **Materials and method:** This study was conducted by using descriptive research design, **Settings:** This study was conducted at faculty of nursing Alexandria University/ Egypt and Al Riyadh College for health science in Jeddah / Saudi Arabia. **Subjects:** A convenience sampling of all critical care nursing students from Alriyada College and all critical care nursing students from Alexandria University students that are facing the sudden switch from face to face to e-Learning during spring 2020 academic year. **Tool of data collection:** One tool will be used for the purpose of data collection: Extended Technology Acceptance Model to E-learning systems that consist of two main factors, "Perceived Usefulness" and "Perceived Ease of Use" that influence a person's intention to make use of a technology. **Results:** the result showed more than half of the Egyptian and Saudi students have high level of e-learning self-efficacy. Also, nearly half of the studied samples demonstrated a high level of subjective norms. Also the results revealed that near half of the Egyptian and more than half of the Saudi students demonstrate a high total level of acceptance of e-learning sudden shift **Conclusion:** The current study findings concluded that considerable number of the Egyptian and Saudi students demonstrate a highly total level of acceptance of E Learning sudden shift. Hence, the current study has proven that e-learning was an effective method of instruction during the pandemics and the crisis and the emergency time of closure. **Recommendation:** Based on the existing study results, it can be recommended that the educational institutions, if they want to proceeds with online learning, they should focus on increasing students' acceptance and social presence feeling.

Keyword: Critical Care, Unplanned Switch, COVID-19, Pandemic

Introduction

The World Health Organization (WHO) affirmed COVID-19 as a public health emergency in January 2020 so as a virulent disease in March 2020 after observing its alarming spread in numerous countries around the world. Data from WHO avowed that, "as of the first of June, nearby 6 million individuals have conveyed being infected by the virus, and over 367,000 have yielded to the current attack worldwide" (WHO, 2020).

Saudi Arabia was the 67th state to record a confirmed case of the virus, and it did so on the 2nd of March 2020. Within the meantime, the number of definite cases in the Kingdom amplified at an expected daily rate of 25%, resulting in a full number of two, 752 confirmed cases and 38 deaths, up to the 7th of

April 2020. Supposed the Kingdom's especial situation-considering the target for Hajj and Umrah, where 1.7 and 6.7 Million people visit the kingdom from abroad yearly to hold out Hajj and Umrah individually (Roser et al., 2020 & Bindawas & Vennu, 2018), this event can be even more than that to possess high population masses in some places, where a confounding 66% of the population living in the sticks of Riyadh, Makkah, and also the Eastern Area. It's that abundant more of a challenge to encompass such viral disease from spreading (Abouelnaga, et al., 2019).

The Kingdom within the preceding numerous years has been developing its electronic-services infrastructure, which constitutes the bulk of state services, likewise as public schools and universities. The eventuality of such infrastructure has been recognized to be

dynamic in the perseverance of services during the first weeks of the outbreak (Abdel-Haq et al., 2018). The government of Saudi prioritizes education and would usually allocate unevenly one-third of the country's annual take into account education. Such distributions have received a lot of reflection, however, the use of e-learning in schools and universities in the country is unreasonable (Al-Amri & Arabia, 2020).

Egypt has taken several important precautionary procedures to respect in restricting the spread of the virus; including the lockdown of colleges and educational institutions and the slowdown of governmental and social events, the Egyptian Government likewise augmented its efforts for exact identification and treatment of these who are infected by the virus (WHO, 2020, & CDC, 2020).

The number of learners obligatory to remain at home due to the closure of their school on all levels touched a peak of 1.598 billion from 194 countries (WHO Dashboard, 2020, & Sahu, 2020). The pandemic has had an vast effect on teaching students' practices for academic work and life "counting, the switch to online lectures/tutorials, locked libraries, different communication channels for teachers' and governmental support, innovative assessment methods, diverse workloads, and performance levels." (Cao et al., 2020 and Abelskamp & Santamarinam, 2020, and Owusu-Fordjour et al., 2020, & Gonzalez et al., 2020).

Schools and universities are considered a stress on the spread of viruses. This issue can be as a result of the surprising population density of educative organizations paralleled to other places (e.g., workplaces). As well, the demography of colleges and universities, mainly the undergraduates of fluctuating ages, has a propensity to be careless and fewer aware when it involves the virus, how dangerous it is: Therefore, the government often takes these preventive measures (schools are closed) cleverly introduced their war against COVID-19 infection, COVID-19 in this case (Tanveer et al., 2020). Universities have also presumed e-learning with their students, with each university expending its appropriate channel/portal, ensuing in no disruptions in the

education cycle and also the timings of the ultimate exams (Puljak, et al., 2020).

University education was, then, organized through electronic learning, but medical and nursing education has been disconcerted in a remarkably convinced method. Health sciences, university programs' courses only were delivered through e-Learning, but training hospitals and labs have postponed practical parts of students' education, as some of the constraints the epidemic in health establishments (Krahenbuhl, 2016). If academics neglect the nursing students' acceptance of unplanned switch to e-learning and what's happening with health care provider education, it should endanger the professional advancement of scholars and upcoming care of patients (Puljak et al., 2020).

Examining the experiences and acceptance of the students when faced with this significant change is critical for assisting the education and teaching authorities to assign sufficient means and re-orient university education for nursing students. Thus, this study aimed to explore critical care nursing students' acceptance of unplanned switch to e-learning during the COVID-19 pandemic from the Saudi and Egyptian perspective

Aim of the study:

The study aimed to explore critical care nursing students' acceptance of unplanned switch to e-learning during COVID-19 pandemic from the Saudi and Egyptian perspective

Research question:

1. What is Saudi and Egyptian critical care nursing students' acceptance level of unplanned switch to e-learning during COVID-19 pandemic?

Materials and method

Materials

Research design: This study was conducted by using descriptive research design

Settings: This study was conducted at faculty of nursing Alexandria University/ Egypt and Al Riyadh College for health science in Jeddah / Saudi Arabia.

Subjects: A convenience sampling of all critical care nursing students from Alriyada College and all critical care nursing students from Alexandria University students that are facing the sudden switch from face to face to E-Learning during spring 2020 academic year.

Tool of data collection:

One tool will be used by the researcher for the purpose of data collection:

Extended Technology Acceptance Model to E-learning systems: This tool was adopted and translated into Arabic Language; The TAM examines the effect of technology on a participant's behavior and was established by Davis (1986) with the aim of construction a theory of a participant's computer technology behavior (Davis, 1986). The TAM consists of two core factors, "Perceived Usefulness" (PU) and "Perceived ease of Use" (PEU) that impact a person's intent to form the use of a technology. Venkatesh and Davis (2000) extended the initial TAM model by creating ETAM, which contains some factors, namely of "E-learning system acceptance, E-learning system quality, e-learning self-efficacy subjective norm or social influences, enjoyment, accessibility, and computer playfulness Scoring are provided for 30 items employing a five-point Likert scale are used, that has the measures strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1).

Method

- An official permission to conduct the study was obtained from ethics committee at Faculty of Nursing of the above-mentioned settings.
- An official permission to conduct the study was obtained from the dean and the head of department of both colleges (Faculty of Nursing Alexandria University and Alriyada College for Health Science) after providing explanation of the aim of the study.
- **Tool I** was tested for their content validity by 5 experts in the related fields (nursing education), and then the necessary modifications were done accordingly.

- Reliability was tested for the study tools using the appropriate statistical test (0.82). A written informed consent was obtained from each student who was included in the study. It included the aim of the study, potential benefits from participation. The anonymity, confidentiality of responses, voluntary participation and right to withdraw from the study will be emphasized to subjects.
- A pilot study was carried out on 10% of students to ensure the clarity and feasibility of the tools, and the necessary modifications were done accordingly prior to data collection. Students included in the pilot were excluded from the study.
- The researchers collected the data at the first semesters of the academic year 2020/2021.

Data collection: data was collected by:

Google forms survey used to obtain the research data, and the questionnaire was emailed to all recipients.

Ethical considerations:

1. A written informed consent obtained from all participants after explanation of the study aim.
2. Participant's confidentiality of the collected data ensured.
3. Anonymity, the right to refuse the participation in the study maintained.

Statistical analysis

Data were entered to the computer and dissected utilizing IBM SPSS programming bundle variant 20.0. (Armonk, NY: IBM Corp) descriptive statistics was revealed consuming number and percent. Relations were illustrated consuming mean, standard deviation, chi square, student t test and ANOVA test. Significance of the got results was absolute at the 5% level.

Results:

Table 1 shows that, nearly half of both groups' age was ranged between 20 to ≥ 22 years old, with statistically significant difference between the two groups whereas, $X^2 = 15.605$, $P = 0.001^*$. Concerning the

students' level of education, it was found that more than three quarters of the Egyptian and Saudi students having secondary school level of education, with no statistically significant difference between the two groups whereas, $X^2= 0.340$, $P= 0.559$. In relation to the number of times using e learning more than half of the participants use e learning daily, with no statistically significant difference between the two groups whereas, $X^2= 2.262$, $P= 0.520$.

Table 2, reveals that more than half of the Egyptian and Saudi students (50.5 & 59.4% respectively) demonstrate a high level of acceptance of E learning. Regarding the quality of e-learning, it was found that less than half of both groups perceived a high quality of e-learning during its sudden shift. In relation to E learning self-efficacy it was found that more than half Egyptian students and Saudi students have high level of e-learning self-efficacy. Also, nearly half of the studied sample from the Egyptian and Saudi students demonstrate a high level of subjective norms. More than half of Egyptian students and Saudi students have high level of enjoyment. In relation to e-learning accessibility the results revealed that the majority (53.7% & 62.5% respectively) of

the Egyptian and Saudi students demonstrate a high accessibility level. In relation to the total acceptance of E Learning sudden shift the results revealed that near half of the Egyptian and more than half of the Saudi students (43.7%, 59.4%) demonstrate a high total level of acceptance of E Learning sudden shift.

Table 3 shows that the mean and standard deviation of E learning sudden shift acceptance among Saudi students and Egyptian students in all items of the e-learning shift acceptance and the total acceptance of E Learning sudden shift as, (147.56 ± 41.81) (145.57 ± 31.96) respectively, with p value 0.05.

Table 4, shows a highly significant positive relation between the Egyptian students' total acceptance to E learning sudden shift and their age, level of education and academic year as $p = .000^{**}$. However, there is no significant relationship between the Egyptian students' total acceptance to E learning shift mean scores and number of times using e learning.

Table (1): Distribution of the studied students according to their demographic characteristics:

| Items | Group | | | | Total N=341 | | Test of significance |
|---|-------------------|------|------------------|------|----------------|------|-------------------------------|
| | Egypt (N= 309) | | Saudi (N= 32) | | No. | % | |
| | No. | % | No. | % | | | |
| Age (years) | | | | | | | |
| 18- | 61 | 19.7 | 1 | 3.1 | 62 | 18.2 | $X^2= 15.605$ $P= 0.001^*$ |
| 20- | 152 | 49.2 | 11 | 34.4 | 163 | 47.8 | |
| 22- | 92 | 29.8 | 20 | 62.5 | 112 | 32.8 | |
| 24-26 | 4 | 1.3 | 0 | 0.0 | 4 | 1.2 | |
| Level of education | | | | | | | |
| Secondary | 237 | 76.7 | 26 | 81.3 | 263 | 77.1 | $X^2= 0.340$ $P= 0.559$ |
| Technical | 72 | 23.3 | 6 | 18.7 | 78 | 22.9 | |
| Number of times using e learning | | | | | | | |
| Every day | 178 | 57.6 | 20 | 62.5 | 198 | 58.1 | $X^2= 2.262$ $P= 0.520$ |
| A few times | 91 | 29.4 | 6 | 18.8 | 97 | 28.4 | |
| a day | 30 | 9.7 | 4 | 12.5 | 34 | 10.0 | |
| Occasionally | 10 | 3.2 | 2 | 6.2 | 12 | 3.5 | |
| Rarely | | | | | | | |

$X^2 =$ Chi Square test

* statistically significant at $p \leq 0.05$

Table (2): Distribution of the studied students according to their levels of E learning shift acceptance:

| Items | Group | | | | Test of Significance |
|---|----------------|------|---------------|------|------------------------------------|
| | Egypt (N= 309) | | Saudi (N= 32) | | |
| | No. | % | No. | % | |
| Acceptance of E learning | | | | | |
| Low | 59 | 19.1 | 5 | 15.6 | X ² = 0.917 P= 0.632 |
| Moderate | 94 | 30.4 | 8 | 25.0 | |
| High | 156 | 50.5 | 19 | 59.4 | |
| Quality | | | | | |
| Low | 46 | 14.9 | 4 | 12.5 | X ² = 3.051 P= 0.217 |
| Moderate | 109 | 35.3 | 7 | 21.9 | |
| High | 154 | 49.8 | 21 | 65.6 | |
| E learning self-efficacy | | | | | |
| Low | 32 | 10.4 | 3 | 9.4 | X ² = 2.577 P= 0.276 |
| Moderate | 98 | 31.7 | 6 | 18.8 | |
| High | 179 | 57.9 | 23 | 71.9 | |
| Subjective norms | | | | | |
| Low | 28 | 9.1 | 4 | 12.5 | X ² = 2.201 P= 0.333 |
| Moderate | 128 | 41.4 | 9 | 28.1 | |
| High | 153 | 49.5 | 19 | 59.4 | |
| Enjoyment | | | | | |
| Low | 52 | 16.8 | 6 | 18.8 | X ² = 5.549 P= 0.062 |
| Moderate | 88 | 28.5 | 3 | 9.4 | |
| High | 169 | 54.7 | 23 | 71.9 | |
| Accessibility | | | | | |
| Low | 59 | 19.1 | 6 | 18.8 | X ² = 1.193 P= 0.551 |
| Moderate | 84 | 27.2 | 6 | 18.8 | |
| High | 166 | 53.7 | 20 | 62.5 | |
| Computer playfulness | | | | | |
| Low | 46 | 14.9 | 5 | 15.6 | X ² = 4.449 P= 0.108 |
| Moderate | 80 | 25.9 | 3 | 9.4 | |
| High | 183 | 59.2 | 24 | 75.0 | |
| Total Acceptance of E Learning Shift | | | | | |
| Low | 53 | 17.2 | 4 | 12.5 | X ² = 2.881 P= 0.237 |
| Moderate | 121 | 39.2 | 9 | 28.1 | |
| High | 135 | 43.7 | 19 | 59.4 | |

X² = Chi Square test * Statistically significant at p ≤ 0.05

Table (3): Distribution of the studied students regarding E learning shift acceptance:

| Items | Group | | Test of Significance |
|---|----------------|---------------|----------------------|
| | Egypt (N= 309) | Saudi (N= 32) | |
| | Mean ± SD | Mean ± SD | |
| Acceptance of E learning | 52.38±12.47 | 52.59±15.81 | t= 0.008 P= 0.928 |
| Quality | 33.79±7.384 | 34.19±9.700 | t= 0.080 P= 0.777 |
| E learning self-efficacy | 11.49±2.572 | 11.56±3.262 | t= 0.023 P= 0.881 |
| Subjective norms | 14.93±3.197 | 14.91±4.402 | t= 0.001 P= 0.971 |
| Enjoyment | 11.01±2.950 | 11.41±3.564 | t= 0.511 P= 0.475 |
| Accessibility | 10.83±2.974 | 11.03±3.496 | t= 0.126 P= 0.723 |
| Computer playfulness | 11.15±2.956 | 11.88±3.309 | t= 1.710 P= 0.192 |
| Total Acceptance of E Learning Shift | 145.57±31.96 | 147.56±41.81 | t= 0.106 P= 0.745 |

t = Student t * Statistically significant at p ≤ 0.05

Table (4): Relation between the studied students' total acceptance to E learning shift mean scores and their basic characteristics:

| Items | Students' total acceptance | |
|---|----------------------------|---------------------|
| | Egypt (N= 309) | Saudi (N= 32) |
| | Mean ±S.D | Mean ±S.D |
| Age (years) | | |
| 18- | 156.87±26.15 | 39.00±0.000 |
| 20- | 138.03±32.34 | 153.82±31.67 |
| 22- | 149.70±31.95 | 149.55±40.96 |
| 24-26 | 165.00±32.54 | ----- |
| Test of significance | F= 5.084 P=0.000* | F= 2.748 P=0.062 |
| Level of education | | |
| Secondary | 139.65±31.86 | 154.06±30.74 |
| Technical | 158.25±25.62 | 147.00±27.76 |
| Test of significance | F= 4.527 P=0.000* | F= 0.515 P=0.610 |
| Academic year | | |
| Second | 127.95±32.43 | 151.00±45.08 |
| Third | 148.96±30.23 | 154.88±29.11 |
| Fourth | 158.43±22.38 | 149.55±40.96 |
| Test of significance | F= 19.733 P=0.000* | F= 2.748 P=0.062 |
| Number of times using e learning | | |
| Every day | 149.11±29.81 | 158.50±14.85 |
| A few times a day | 147.10±42.10 | 151.40±45.29 |
| Occasionally | 144.65±33.21 | 146.25±19.56 |
| Rarely | 139.77±26.96 | 132.00±48.69 |
| Test of significance | F= 0.757 P=0.519 | F= 0.356 P=0.785 |

F= ANOVA test

Discussion

In an era of advanced technology in nursing education, Online learning in medical and nursing education can result in more practical and easier access to a greater quantity of knowledge, especially in uncertain global situations like pandemics (Bozkurt, et al., 2020). There's little doubt that COVID-19 pandemic has augmented the main target on online learning in education, but we expect that in the future, this shift will influence be a permanent trend in medical and nursing education (Adedoyin & Soykan, 2020).

Examining the experiences and acceptance of the students, when faced with this significant change, is critical for assisting the education and teaching authorities to assign sufficient means and re-orient university education for nursing students. To be able to manage this condition in the forthcoming future, it's essential to learn from these experiences and to define the strong and weak points. In the literature, there are not any large-scale studies are exploring the nursing students' acceptance

* statistically significant at $p \leq 0.05$ of this unplanned switch to e-learning. Thus, this study aimed to explore critical care nursing students' acceptance of unplanned switch to e-learning during the COVID-19 pandemic from the Saudi and Egyptian perspective.

The current study revealed that almost half of both groups' age was ranged between 20 to ≥ 22 years old, this finding was constant with Khalil et al., (2020) results, who stated that half the sample participants were between 21 and 22 years old.

Also, It was found that the majority of Egyptian and Saudi students having secondary school level of education this result on agreement with Nafee et al., (2018) results which revealed the majority of Saudi students were in secondary school compared. The current research results also show that half of the study participants use e-learning every day, which is consistent with the results of Al-Rahmi et al., (2015) & Alghizzawi, et al., (2019).

The results of the current study show that a considerable number of Egyptian and Saudi

students show a high degree of acceptance of e-learning. This study finding was in agreement with the study of Yiong et al., (2008), who demonstrated that distance learners had moderate level of acceptance for e-learning. Moreover, another study conducted by Evans and Le Roux (2015) who mentioned that the acceptance of e-learning resources the studied students and academic staff during a blended teaching and learning environment.

The results of the current study also showed that the majority of both groups perceives a high quality of e-learning during its sudden shift. The results of this study agreed many similar studies, which proposed that with the fast shift to e-learning education the adopted for e-learning was substituted as mentioned by Hayter & Jackson, (2020), Ramos-Morcillo et al. (2020), and Morin, (2020).

About e-learning self-efficacy this survey result shows that a considerable number of Egyptian and Saudi students have a high level of e-learning self-efficacy. The findings were in accordance with Latip et al. (2020) Who mentioned that students who study have a positive feeling about the usefulness of e-learning tend to own a positive acceptance of the e-Learning method, and this issue, in turn, will affect their self-efficacy, thus leading to an excellent understanding of the teachings. Furthermore, Abulibdeh and Hassan (2011) findings showed that the bulk of the studied students have IT and e-learning self-efficacy

Concerning students' enjoyment, the current study findings revealed that over half Egyptian and Saudi students had a highly level of enjoyment. There have been many studies clarifying that the students have a high level of e-learning satisfaction (Al-Samarraie et al., 2018, Cole et al., 2014, & Yilmaz, 2017).

In reference to e-learning accessibility, the current study findings revealed that the majority of the Egyptian and Saudi students illustrated a high accessibility level. These findings agreed with Kumar and Owston (2016) who, revealed that almost all of the studied students were observed encountering one or more barriers to accessibility while completing the net units.

Concerning the mean and variance of the current findings, it at all was revealed that E learning sudden shift acceptance between Saudi students and Egyptian students all together items of the e-learning and hence the acceptance of E Learning sudden shift respectively, this could result the supply and hence the infrastructure of e-learning and the web speed was taking all the governmental importance to enable all students to learn as attendance. In contrast, Cardall's (2008) study concluded that pre-clinical students received live lectures with a choice.

The present study finding, revealed that there was a highly significant direct correlation was found between the Egyptian students' acceptance to E teaching sudden shift and their age, level of education and academic year.

Conclusion

The current study findings concluded that the majority of the Egyptian and Saudi students demonstrate a highly total level of acceptance of E Learning sudden shift. Hence, the current study has proven that e-learning was an effective method of instruction during the pandemics and the crisis and the emergency time of closure.

Recommendations

Based on the existing study results, it can be recommended that the educational institutions, if they want to proceed with online learning, they should focus on increasing students' acceptance and social presence feeling.

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