The Use Of Smartphones In Distance Learning/ E-Learning/ Online Classes And Its Impact To Neck Pain In The Light Of The Covid-19 Pandemic

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ABSTRACT

Education is a vital sector that was suffered a lot in the current COVID-19 pandemic. Shutting down of schools and learning centres had shown a severe impact on the educational institutes. Therefore, e-learning prefer smartphones in students to study from home. This study focused on the use of smartphones in distance learning. Moreover, the study also examined the excessive use of smartphones which ultimately causes neck pain during the COVID-19 pandemic. The current study consists of 1045 number of participants. The survey results discussed the feedback of respondents based on their understanding. In this study, a quantitative approach was selected. 27 questions were prepared and included in the questionnaire. The data collected from the survey form were examined based on the students' responses. This study investigated the outcomes based on demographic and descriptive analysis, Pearson correlation analysis, reliability test, and linear regression analysis; it is noteworthy that the participants belonged to different regions, mindset and background. Thus, the results will be based on the respondents' perception.

Keywords
Smartphones, Mobile learning, Distance Education.

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Introduction

A mobile phone is a device that can be used as a tool to educate the people of a society. Technological advancement in mobile phones established a learning foundation and made mobile phones a necessity for every individual to fulfill their educational need. Smartphones provide two major advantages in learning education i.e. it fetches the people towards distance learning and makes education easily accessible to everyone. Secondly, such a revolution in e-learning bring society possessions in a school and spread education from school into society (Kuswani, 2008). Hiple and Fleming (2002) reported that distance learning had evolved and removed the communication barrier through mobile phones. It set a new tradition in transiting the print medium into an electronic one. Digitization and interactive educational method eradicate the gap between the mentee and their mentor, which establish an exchange in ideas among the learners (Kuswani, 2008). Distance learning was always considered to be an advantageous platform, however, its importance highlighted in the year 2020 as the COVID-19 virus spread all across the globe.

Coronavirus disease 2019 (i.e. COVID-19) had affected each nation. Such virus made millions of people to suffer in the evolving pandemic. This disease had hit hard the economic growth of each country, thus, the global economy dwindled as time passes. Education is a vital sector that was also influenced by the current pandemic (ADEA, 2020). Shutting down of schools and learning centers had shown a severe impact on the educational institutes. ADEA (2020) reported that 91.4% of the total world's student population could not study in school or varsity. 1.57 billion students are staying in their houses to stop the spread of the COVID-19 virus. It is noteworthy that the State government of each notion took vital decisions to reduce the effect of COVID-19 on the educational sector. Government and private organizations promote e-learning on smartphones and encouraged the learners to study and spend their maximum time at home during the pandemic. But, still, few limitations must be considered while addressing the issues i.e. inadequate resources of a country to support their education infrastructure, shortage of e-learning platforms, and internet facilities. The Education Cannot Wait Global Fund (ECW) decided to support the countries which were affected by COVID-19. The nations who went through a humanitarian crisis and were less equipped got funding of about USD 15 million by the United Nations under the COVID-19 Global Humanitarian Response Plan (UNOCHA, 2020). Global Partnership for Education's also funded USD 250 million that supported 67 developing countries to be spent on the education sector for the most vulnerable learners. As the world organizations promote smartphones based online learning mechanisms among millions of students, however, the negative side of such learning method required to be addressed.

Iyengar et al. (2020) briefed that Smartphone Technology (SMT) has developed several android and iOS applications that act as an online educational platform for learners. However, the abusive use of anything will have side effects. SMT produces stress, causes pain in the neck, hands, and shoulders (Sharan et al., 2014; Sharan and Ajeesh, 2012). Keeping the neck and limb in the same position for a longer duration can cause pain in the muscles, and nerves. Moreover, overuse injuries cause pain in the neck, upper back, shoulder, and upper limbs as well as numbness and tingling in hands and fingers. Text neck is another type of neck pain that occurs due to an unsuitable neck posture (Korpinen et al., 2013). Thus, the use of smartphones in a pandemic condition considered to be a valuable tool in the distance learning system, however, excessive handling of mobile phones will produce stress in the learners, consequently, a severe injury in any part of a body.

This study focused on the use of smartphones in distance learning. Moreover, the study also examined the excessive use of smartphones which ultimately causes neck pain during the COVID-19 pandemic. The current study consists of 1045 number of participants. To collect the data, the study surveyed to gather quantitative data. The survey results discussed the feedback of respondents based on their understanding.

Literature Review

Technological advancement in the mobile phone could not be overlooked particularly in educational institutes (Tikoria and Agariya, 2017). Emerson and Berge (2018) reported that the smartphone became a medium to correlate the education system with the students in the absence of any physical interaction. Distance education is depending on the centerpiece i.e. mobile learning system. Tagoe and Abakah (2014) stated that e-learning proceeded forward as technology advances. Tuncay (2016) reported that the smartphone changed the mindset of the students. The learners became sophisticated as students refused to carry the cumbersome laptop and books. Instead, they prefer smartphones to study. Kibona and Mgaya (2015) assessed the use of smartphones among students for distance education. Their study revealed that the smartphones used in e-learning improved the student's wisdom, social interactions, collaborative learning, and socialization with other learners. Moreover, it was predicted that smartphones considered to be the main source in accessing the online classes in the e-learning system. Ifeanyi and Chukwuere (2018) found that 71.7% participants in their study felt it difficult to access their academic content in smartphones. In addition, Sarfoah (2017) disclosed that most of the participants were against the use of smartphones in distance learning as they found mobile devices were uncomfortable to use. Iqbal and Bhatti (2015) studied the student's readiness in m-learning through the Technology Acceptance Model in Pakistan. Their study concluded that university students had the skills to use smartphones in the mobile learning system. Moreover, Learners found smartphones as a valuable tool in e-learning.

Jung (2014) studied university students' comfort and effectiveness with smartphone devices in South Africa. Their study concluded that smartphones revolutionize the learning platforms, and make the access easier and smart for the learners to stick with it. Ifeanyi and Chukwuere (2018) examined the effect of smartphones on students' educational performance. They selected 375 participants and collected the quantitative data through a survey form. They found that learners felt amazed while using smartphones. Moreover, students had two-way communication with their teachers and batchmates. Learners recorded their live lectures, downloaded the study material, readily accessed to presentation slides at any feasible time, and submitted their assignments online from home. Alzougool and Almansour (2017) investigated the usage of smartphones among Kuwaiti varsity students in performing educational activities. In particular, students registered their semester courses, saved and followed the lecture time table from the smartphone, notified with examination schedule, viewed the semester examination results, performed debates online, announced the important news, and did the online payments of varsity.

Mothar et al. (2014) studied the resource utilization of smartphones in Malaysian university students. Their study found that Malaysian students had opted the smartphone technology as their basic essential need in e-learning. Learners adopted the use of smartphones in sharing the lecture notes among batchmates. Moreover, images of the assignment were readily available for all the students. Students kept the record of their studies throughout the course duration and later share it with newbie students on social media platforms such as Facebook. Learners utilized Facebook in posting the latest results from their smartphones. Akaglo and Kodua (2018) determined the potency of smartphones in the 2nd cycle students in Ghana. Students found the smartphone as the main source of learning pitch; mobile phone advancement indicated the learners to perform their research work with their progressive approach. Students save their project data, assignments, course lecture content, and access to the academic books from the library without visiting it. Such an online system facilitated the beginners in the varsity to revise their previous lectures before attending their live lecture sessions.

Shi et al. (2016) examined the effectiveness of the smartphone in the University General Physics Laboratory. Their study conducted a survey that included 120 respondents from the varsity. Students inclined their will towards the usage of smartphones in learning activities. Students commented that the smartphone anticipated the backdrop information about the lab precautions, administrative requirements, safety measures, and basic operating procedures while using lab equipment. Thus, smartphones illustrated the conceptual framework for the students in distance learning.

Methodology

In this study, the excessive use of smartphones in distance learning was examined which ultimately causes neck pain during the COVID-19 pandemic. Therefore, a quantitative approach was selected. The study surveyed about 1045 students. 27 questions were prepared and included in the questionnaire. The data collected from the survey form were examined based on the students' responses. This study investigated the outcomes based on demographic and descriptive analysis, Pearson correlation analysis, reliability test, and linear regression analysis. It is noteworthy that the participants belonged to different regions, mindset and background. Thus, the results will be based on the respondents' perception.

Data collection and study design

Questionnaire was distributed among the students of the schools, and universities. 73.8% of the participants were born in Jordan. Moreover, 66.9% students were enrolled in undergraduate studies. It is noteworthy that quarter of participants (i.e. 26%) were studying Arts in their respective varsities. The total number of participants from Jordan is 771 out of 1045, in which 531 participants were

undergraduate students from Jordan. Therefore, the data collected from survey form was relying on the perception of undergraduate participants mainly from Jordan.

Questionnaire design and setting

In this study, the questionnaire starts with demography of the respondents. The details about the participants were enquired initially which includes their nationality, age, education, gender, and field of study. Thereafter, the questions about the awareness of the pandemic were asked. Furthermore, the questions about percentage of time spend on smart phone in communicating with classmates, using E-learning platform, and personal computer for education, were asked. Then, conditions about the current situation in Covid-19 pandemic which had shifted the world towards E-learning and distance learning approach completely, were analysed. Questionnaire also discussed about the importance of smartphone in e-learning. Lastly, the questions related to tiredness, neck pain and body fatigue during the continuous sessions of online classes were investigated by selecting one option from five different options i.e. strongly agree, agree, neutral, disagree, and strongly disagree. Moreover, the physical activities to maintain the healthy routine was also examined.

Research Methodology

In research methodology, there are two types of data analysis techniques i.e. Quantitative and Qualitative data analysis. This study focused on quantitative data analysis technique due to the data collected from survey. There were no data collected in form of students' interviews, therefore, qualitative data analysis was not considered. In quantitative analysis, the data went through severe investigation to find the correlation between the variables selected in this study. The interpretation of the results were the main findings in this research study.

Instruments (Tools)

In a study, research tools or instruments were evolved by the scholars to reach to their objectives. These design tools help to examine the statistical data. The data can be collected through multiple tools; however, this study used questionnaire and did survey person to person among the school and university students.

Procedures

This study follows a research plan which follows the traditional research process. In a research process, firstly pick the research area. Thereafter, determine the aims, and objectives in the research study. Develop a hypothesis and draw the questionnaire. A literature review is required to analyse the previous findings of the studies so that their results can be corelated with the current study. Literature review proceeded towards methodology selection for the collected data set. Questionnaire aided to gather the primary statistical data. Examine the data with multiple statistical tools. Conclude the research work and write recommendations if needed.

Statistical analysis

In this study, the data was examined on statistical tool. Demographic and descriptive analysis, Pearson correlation analysis, reliability test, and linear regression analysis were performed based on the collected information. Hence, the results were concluded based on the statistical data recorded from the respondents.

Results

The findings in this study is a result of the collected questionnaires. Empirical assessment is performed considering the use of smartphones in distance learning and its effect in causing neck pain during COVID-19 pandemic. Results are based on the quantitative approach. The feedbacks of the questionnaires are summarized followed by demographic and descriptive analysis to reach the concrete conclusions.

Demographic Analysis

The survey form includes the basic information of the participants as shown in

In your daily communication in school/university, what percentage of time do you spend on smart phone in communicating with your mates?

10-30%	282	27.0%
31-50%	246	23.5%
51-70%	197	18.9%
71-90%	125	12.0%
91% above	50	4.8%
less than 10%	145	13.9%

In your daily communication in school/university, what percentage of time do you spend on smartphone in E-learning platform?

10-30%	265	25.4%
31-50%	239	22.9%
51-70%	174	16.7%
71-90%	109	10.4%
91% above	40	3.8%
less than 10%	218	20.9%

How much time do you spend on smartphone for education or communication purposes daily?

10-30%	231	22.1%
31-50%	279	26.7%
51-70%	214	20.5%
71-90%	160	15.3%
91% above	55	5.3%
less than 10%	106	10.1%

How much time do you spend on personal computer for education or communication purposes daily?

10-30%	256	24.5%
31-50%	197	18.9%
51-70%	136	13.0%

71-90%	91	8.7%
91% above	39	3.7%
less than 10%	326	31.2%

How much time do you spend daily on WhatsApp?

10-30%	302	28.9%
31-50%	204	19.5%
51-70%	130	12.4%
71-90%	100	9.6%
91% above	37	3.5%
less than 10%	272	26.0%

. Figure 1 shows that more than half of the participants were male i.e. 55%. On the other hand, 45% females were the remaining participants.

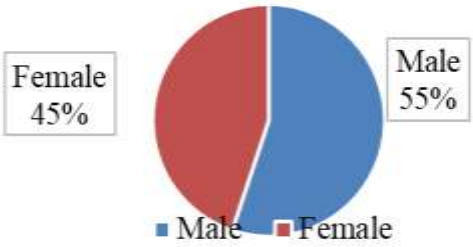

Figure 1. Gender distribution

It can be seen in Figure 2 that most of the respondents were national of Jordan i.e. 73.8%. Moreover, 17.9% participants were citizens of Saudi Arabia. Remaining participants were nationals of Egypt, United Arab Emirates, Iraq, Kuwait, Lebanon, Oman, Qatar, Syria, Yemen and Palestine. Thus, the participants were found to be part of different Arab states.

Figure 2. Nationality of Participants

In **Error! Reference source not found.**, 45.3% participants were above the age of 30. Moreover, 33.4% participants were between the age of 21-30. Remaining participants were under the age of 20 i.e. 21.3%.

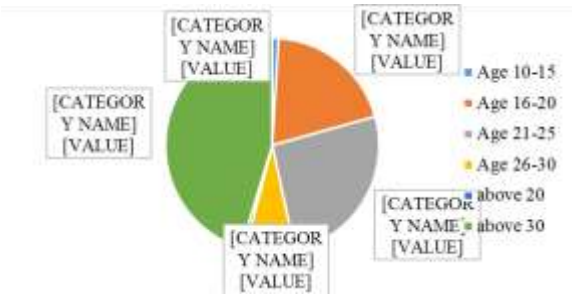

Figure 3. Age of respondents

Most of the participants were studying arts in their educational institutes. 19% students were studying medicine. Moreover, 13% were learning engineering.

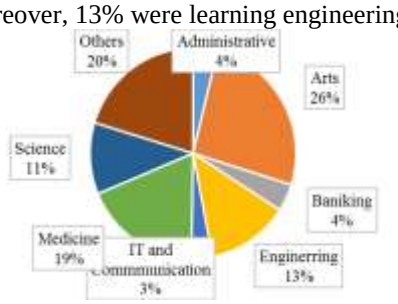

Figure 3. Respondents field of study

Educational level of all the participants is shown in **Error! Reference source not found.**. 66.9% students were enrolled in undergraduate studies. Thereafter, 27.7% were found to be part of postgrad studies. Remaining 5% were studying in high school. Thus, the outcome of the results were totally based on the perception of undergraduate students.

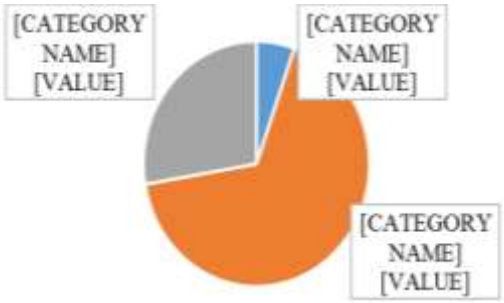

Figure 5. Education level

In your daily communication in school/university, what percentage of time do you spend on smart phone in communicating with your mates?

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91% above	55	5.3%
less than 10%	106	10.1%

How much time do you spend on personal computer for education or communication purposes daily?

10-30%	256	24.5%
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In, the statistical demographic analysis was reported. Nationality, age, education, gender, and field of study were stated.

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showed that more than half of the participants were male i.e. 55% (Figure 1). In addition, respondents were the nationals of 12 independent states, however, approximately three fourth of the participants (i.e. 73.8%) were found to be from Jordan as shown in Figure 2. Participants from Kuwait, Lebanon, and Oman were the least in numbers i.e. 0.1% each. 45.3% of the respondents were above the age of 30 as shown in **Error! Reference source not found.**. Only 1% participants were under the age of 15. The maximum enrolments were found to be in undergraduate course i.e. 66.9% (**Error! Reference source not found.**). Moreover, 27.7% participants were registered in postgraduate courses and only 5.5% respondents were studying in school. In field of the study, 26% participants were studying Arts. Only 3.3% were studying IT and communication. Remaining participants were studying Administrative (3.8%), Banking (4.2%), Engineering (12.9%), Medicine (18.5%), Science (11.0%), and other (20.3%).

Table 1: Demographic Analysis

Gender	Male	Female
	576	469
	55%	45%

Nationality	Egyptian	Emiriti	Iraqi	Jordanian	Kuwaiti	Lebanese	Omani	Palestinian	Qatari	Saudi	Syrian	Yemeni
	40	2	7	771	1	1	1	14	2	187	13	6
	3.8%	0.2%	0.7%	73.8%	0.1%	0.1%	0.1%	1.3%	0.2%	17.9%	1.2%	0.6%

Age	Age 10-15	Age 16-20	Age 21-25	Age 26-30	above 20	above 30
	10	206	271	78	7	473
	1.0%	19.7%	25.9%	7.5%	0.7%	45.3%

Education	High school	Undergraduate	Post graduate
	57	699	289
	5.5%	66.9%	27.7%

Field of study	Administrative	Arts	Banking	Engineering	IT and Communication	Medicine	Science	Others
	40	272	44	135	34	193	115	212
	3.8%	26.0%	4.2%	12.9%	3.3%	18.5%	11.0%	20.3%

Descriptive Analysis

In descriptive analysis, there were 22 questions in the survey that depends on the feedback of the respondents. Following are the detail of the responses of each question.

1. **Awareness: (**Error! Reference source not found.**)**

In **Error! Reference source not found.**, it can be observed that 96% participants were aware of the pandemic. Participants knew about the COVID-19 disease and understand the severity of it.

2. **Time spent on communication (**Error! Reference source not found.**):**

In your daily communication in school/university, what percentage of time do you spend on smart phone in communicating with your mates?

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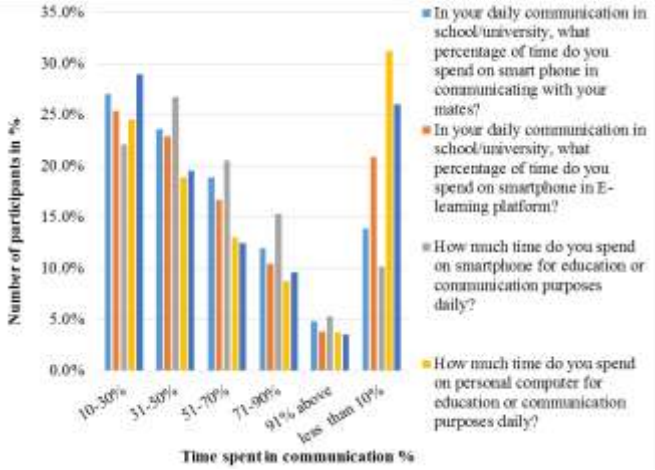

Smartphone considered to be a valuable product during COVID-19 pandemic. The educational system was shifted towards online classes and e-learning system. In **Error! Reference source not found.**, 27% participants spent 10-30% time in communication. Moreover, 4.8% participants

spent more than 91% of their time in contacting with their class fellows through smartphone. Learners gave importance to E-learning, therefore, 26.7% learners spent 31-50% time in online classes. In COVID-19 conditions, the students were communicating with their friends, and fellows through social media. It is noteworthy that students had WhatsApp application in smartphone which is a vital platform in current pandemic condition. However, still, only 12.4% students spent 51-70% time on WhatsApp.

3. E-learning (**Error! Reference source not found.**):

What platform you prefer to study in E-learning system?

blackboard	113	10.8%
google class	96	9.2%
Meet	16	1.5%
Messenger	35	3.3%
Microsoft	142	13.6%
skype	22	2.1%
Teams	61	5.8%
WhatsApp	256	24.5%
zoom	292	27.9%

Do you think that the current situation in Covid-19 pandemic has shift the world towards E-learning and distancing learning approach completely؟

Agree	471	45.1%
Disagree	103	9.9%
Neutral	140	13.4%
strongly agree	290	27.8%
strongly disagree	41	3.9%

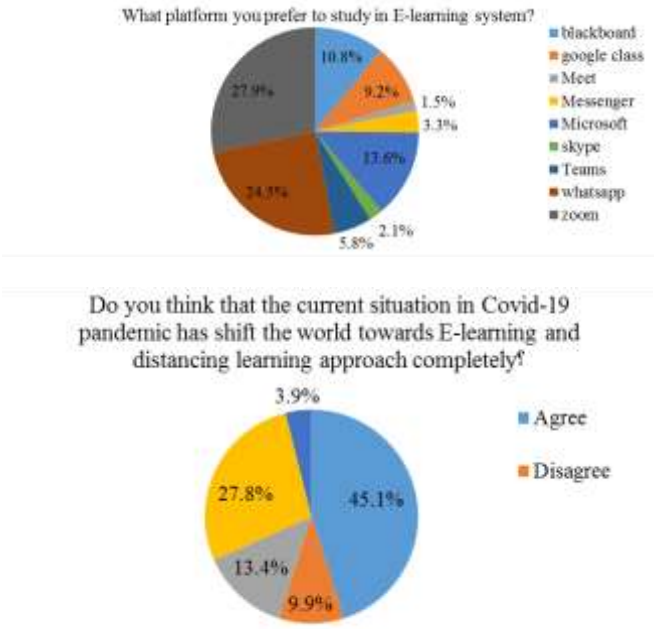

Figure 8. E-learning

In **Error! Reference source not found.**, zoom considered to be the most popular application among the students in e-learning. 27.9% learners prefer zoom, moreover, 24.5% students like to use WhatsApp. Only 2.1% participants prefer Skype for online classes. It is noteworthy that the 72.9% students agreed that COVID-19 had changed the way of teaching and shifted the education system towards online or e-learning.

4. Smartphones (Figure 4):

Do you prefer smart phone over personal computer?

Agree	336	32.2%
Disagree	163	15.6%
Neutral	218	20.9%
strongly agree	242	23.2%
strongly disagree	86	8.2%

Do you think that in Covid-19 pandemic situation, the smart phone is a useful tool to conduct an online class?

Agree	390	37.3%
Disagree	165	15.8%
Neutral	153	14.6%
strongly agree	238	22.8%
strongly disagree	99	9.5%

Do you think that use of smart phone has made the E-learning system easy and accessible to ever one?

Agree	406	38.9%
Disagree	180	17.2%
Neutral	158	15.1%
strongly agree	217	20.8%
strongly disagree	84	8.0%

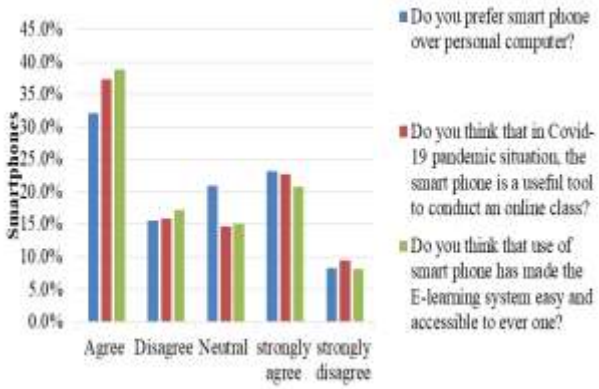

Figure 4. Use of Smartphones during COVID-19

In order to know the perception of students toward smartphones during COVID-19 conditions, the survey form includes the question which indicate the student insight. 32.2% learners preferred their smartphones and considered it as a comfortable tool as shown in Figure 4. Moreover, 37.3% students found smartphone as a vital source in attending their online classes. Lastly, 38.9% learners agreed that smartphone had evolved the e-learning system and highlighted the importance of online platforms in current pandemic situation.

5. Online classes (**Error! Reference source not found.**):

It is more time consuming to take classes through online platform?

Agree	379	36.3%
Disagree	190	18.2%
Neutral	199	19.0%
strongly agree	244	23.3%
strongly disagree	33	3.2%

It is hard to maintain decorum while taking lectures from home?

Agree	387	37.0%
Disagree	166	15.9%
Neutral	255	24.4%
strongly agree	202	19.3%
strongly disagree	35	3.3%

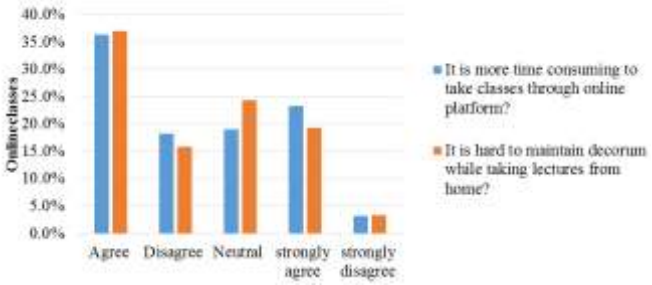

Figure 10. Classes through online platform

Online classes have its advantages, however, internet issues, availability of smartphone device, and time-consuming classes have reduced its significance. In COVID-19 pandemic, 36.3% students felt that online platforms were inefficient and causes delay in conducting online classes. 37% learners believed that online classes had a drawback of maintaining class discipline during the lectures.

6. Physical fitness and body pain

Taking continuous classes through device makes me feel tired and body fatigue?		
Agree	390	37.3%
Disagree	101	9.7%
Neutral	137	13.1%
strongly agree	399	38.2%
strongly disagree	18	1.7%
I suffer from the neck pain every now and then?		
Agree	459	43.9%
Disagree	71	6.8%
Neutral	113	10.8%
strongly agree	337	32.2%
strongly disagree	25	2.4%
I do physical activities in order to maintain the health routine.		
Agree	439	42.0%
Disagree	185	17.7%
Neutral	252	24.1%
strongly agree	119	11.4%
strongly disagree	50	4.8%
Body/time pain decreases on its own by the time?		
Agree	333	31.9%
Disagree	295	28.2%
Neutral	294	28.1%
strongly agree	75	7.2%
strongly disagree	48	4.6%
I have done stretching and other activities to avoid these effects of online classes?		
Agree	376	36.0%
Disagree	260	24.9%
Neutral	252	24.1%
strongly agree	93	8.9%
strongly disagree	64	6.1%
Does your institute guide you to take some measure to avoid any sickness or body pain?		
Agree	165	15.8%
Disagree	369	35.3%
Neutral	218	20.9%
strongly agree	45	4.3%
strongly disagree	248	23.7%
Do you think you have a correct posture while reading, writing and taking online classes?		
Agree	313	30.0%
Disagree	352	33.7%
Neutral	211	20.2%
strongly agree	42	4.0%
strongly disagree	127	12.2%
Do you feel physically fit while operating from devices only?		
Agree	193	18.5%
Disagree	456	43.6%
Neutral	232	22.2%
strongly agree	24	2.3%
strongly disagree	140	13.4%
Are you maintaining your screen time according to the requirements?		
Agree	344	32.9%
Disagree	239	22.9%
Neutral	326	31.2%
strongly agree	53	5.1%
strongly disagree	83	7.9%

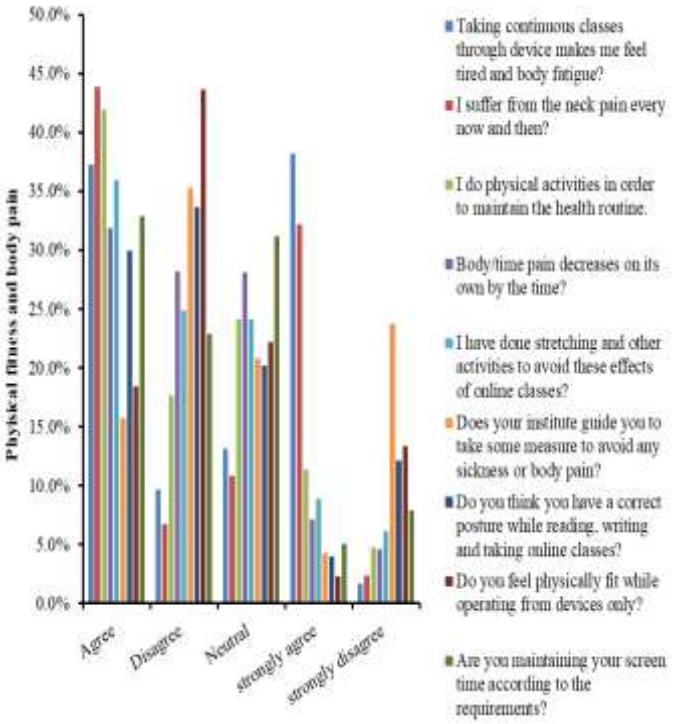

Figure 5. Body pain during COVID-19

In Figure 5, bar graph showed the results about the consequences of online classes. It was discovered that online classes had affected the health condition of the students. Moreover, the learners felt unfit and stressed during COVID-19 pandemic. 75.5% agreed that smartphones had caused the body fatigue, and neck pain. 76.1% participants completely acknowledged that e-learning disturbed their life sufficiently, and troubled their health significantly. Only 38.9% learners felt that they had correct body posture during online classes. 61.1% reported that the incorrect posture had caused neck pain. Notably, pain in the neck occurred due to neck strain during online classes. Thus, it had been established that e-learning had its positive effects, however, it reduced the physical activities of the students which ultimately cause body fatigue and neck pain.

Pearson Correlation Analysis

Pearson correlation analysis is a statistical test which measure the relationship between the dependent and independent variables. In this study, smartphone is a dependent variable. Whereas, e-learning, online classes, physical fitness and body pain, time spent on communication are independent variables. Here, coefficient values ranged between +1 to -1, where, +1 show a perfect positive relationship, and -1 showed a perfect negative relationship. 0 means no relationship among the variables.

It was observed that E-learning had a medium correlation as the coefficient ranged between ±0.3 to ±0.49 as shown in

. In addition, online classes had a low correlation. Its coefficient lied in the negative range i.e. < ±0.29. Time spent on communication, and fitness and body pain had coefficients which ranged in medium correlation. Thus, it was found that independent variables do not show a perfect strong relationship with dependent variable.

E-Learning	
Coefficient (r)	0.44
N	1045
T statistics	15.96
DF	1043
p value	0.000

Online Classes	
Coefficient (r)	-0.11
N	1045
T statistics	-3.53
DF	1043
p value	Negative

Physical fitness and body pain	
Coefficient (r)	0.24
N	1045
T statistics	7.82
DF	1043
p value	0.000

Time spent on communication	
Coefficient (r)	0.11
N	1045
T statistics	3.62
DF	1043
p value	0.000

Linear Regression Analysis

Linear regression is a statistical approach in which it models the relationship between the two or more variables. In this study, multiple linear regression analysis was selected as shown in

Table **1**. It was observed that significance F had <0.05 value. In addition, e-learning, online classes, physical

fitness and body pain had a significant relationship with the dependent variable as their p value measured to be less than 0.05. However, variable i.e. time spend on communication showed insignificant relation as its p value was higher than 0.05.

Table 1: Summary Output of Linear Regression Analysis

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	254.3337901	63.58344752	77.32290625	1.91514E-57
Residual	1040	855.203052	0.822310627		
Total	1044	1109.536842			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1.054224302	0.195173689	5.401467328	8.1913E-08
E-learning	0.391313694	0.027098719	14.44030243	3.24443E-43
Online classes	-0.071312747	0.030767428	-2.317800114	0.020653512
Physical fitness and body pain	0.301920103	0.050515904	5.976733641	3.1244E-09
Time spend on communication	0.038431859	0.026538811	1.448137897	0.147879886

Reliability Test Analysis

The reliability test is applied to the findings and attempts to measure the consistency and accuracy of the data collected. Based on the findings of this study, the variables do not fall within the Cronbach's Alpha coefficients range of 0.7 above, which means that the strength associated in relation to the variables were unacceptable as shown in Table 4. It is noteworthy that all independent variables had insignificant relation with the dependent variable.

Smartphones	
No. of questions	3
Sum of Variances	4.60
Variance of total score	8.40
Cronbach's α	0.68
E-learning	
No. of questions	2
Sum of Variances	1.13
Variance of total score	1.13
Cronbach's α	0.00
Online Classes	
No. of questions	2
Sum of Variances	2.42
Variance of total score	3.07
Cronbach's α	0.43
Physical fitness and body pain	
No. of questions	9
Sum of Variances	9.99
Variance of total score	19.40
Cronbach's α	0.55
Time spent on communication	
No. of questions	5
Sum of Variances	16.57
Variance of total score	27.35
Cronbach's α	0.49

Discussion

This study investigated the excessive use of smartphones in distance learning which ultimately causes neck pain during the COVID-19 pandemic. Outcomes of this study indicated that 27% participants spent 10-30% time in communication. Moreover, 4.8% participants spent more than 91% of their time in contacting with their class fellows through smartphone. Learners gave importance to E-learning, therefore, 26.7% learners spent 31-50% time in online classes.

Widhiyanto et al. (2017) discussed about the addition of smartphone among the students of Maryland

University. In year 2012, the students were kept distant with smartphones for 24 hours. It was found that 50%

participants were not being able to control their emotional attachment with the smartphones. Participants felt lonely and could not feel comfortable without it. It was further elaborated that 90% of the students checked their smartphones before starting the activity. It was noteworthy that 22% participants spent less time on smartphones, however, 40.7% respondents spent their maximum time on smartphone. Thus, smartphones considered to be a valuable product amid the learners' life.

Dissatisfaction during online classes causes students to suffer from several health issues. Alzarea and Patil (2015) stated that the most common symptom observed in their study was cervical pain, which was reported from 71.2 % subjects. The use of mobile phone leverages our body demeanour and mechanics in unsound manner which may bequeath neck, shoulder, upper back and arm along with whole body pain. Park et al. (2015) studied about the use of smartphones for short and long duration that directly affect the student's health condition. 20 students were divided equally in both groups i.e. heavy user and lighter user. Their study concluded that the student who were the heavy user of smartphones felt stress and pressure on the cervical spine, thus changing the cervical curve and increasing pain threshold from the muscles around the neck. Thus, their study concluded that long duration on smartphone impact the leaners fitness. Jung et al. (2016) studied 50 subjects through e-device. Their study concluded that using a smartphone for a prolonged duration could negatively affect posture; therefore, predisposing the users to vertebral diseases, and neck pain.

The results of this study showed that learners felt unfit and stressed during COVID-19 pandemic. 75.5% agreed that smartphones had caused the body fatigue, and neck pain. 76.1% participants completely acknowledged that e-learning disturbed their life sufficiently, and troubled their

health significantly. Only 38.9% learners felt that they had correct body posture during online classes. 61.1% reported that the incorrect posture had caused neck pain.

Conclusion

It is obvious that technological advancement has disturbed the education system, primarily the e-learning platforms where classes were conducted online. Referring to the results of this study, e-learning in Arab states considered smartphone as an important tool to attend the online classes. Sharing the lecture notes, availability of eBooks, access to internet in smartphones were the distinguished characteristics which highlighted smartphone importance in our daily life. In addition, the major injury faced in using the smartphone was the neck pain, and muscles discomfort. Thus, students required to be fit during COVID-19 pandemic condition so that they can continue their studies efficiently.

However, it is noteworthy that the variables selected in this study did not show the correlation between them. Both dependent and independent variables were insignificant. The analysis did not show perfect correlation amid variables which conclude that the collected data were totally based on the student's perception which can affect the results.

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