Volume –8, Issue – 7, November – 2022 https://doi.org/10.46593/ijaera.2022.v08i07.001

Students' Learning Motivation with Virtual Pedagogy during COVID-19 in Saudi Arabia

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Abstract: Recently, the education system faced an unpredicted health pandemic (COVID-19) that led to quick actions by governments to transform education from traditional face-to-face learning to modern virtual/distance learning. Due to the transition to a new education environment, learners needed special social care to improve their concentration and motivation for online learning in such a crucial crisis. In the current study, virtual learning is investigated to determine its impact on student's motivation from teachers' perception. The influence of teachers on students' motivation is examined by measuring the effects of teachers` gender, age, experiences, and levels of education. The current study also reflects on the influence of obstacles that face virtual education and their impact on student's motivation. The current study is conducted at the Department of Education in Jeddah Region for teachers in middle and secondary schools. To answer the research questions and discuss their results, the current study followed the descriptive analytical methodology and deployed the social survey method. Afterwards, statistical anis were utilized to analyze the responses to the survey. The results revealed that the motivation of students is directly affected by determinants, such as the age of teachers and the practical experience they possess, since there is a statistically significant relationship between the two variables of virtual learning. Research results also indicate a strong relationship between the obstacles of online learning and the motivation of students.

Keywords: COVID-19, Motivation, Learning Motivation, Virtual Learning, Online Learning

I. INTRODUCTION

Since the 1990s, the world has witnessed significant development in field education due to the fast technological advances. The adoption of virtual learning is one example of significant growth in the field of education. In 2019, the world faced an unpredicted pandemic (COVID-19) that spread quickly and easily through air. As a result, almost a unanimous global decision was made to close schools and universities to conserve social distancing and prevent virus prevalence. Some countries switched to online learning directly because they were already prepared for online learning. In Saudi Arabia, all the universities used the Blackboard learning environment, while most schools used the Madrasti platform for distance education. However, most schools, colleges, and universities did not use this education mode before, and their staff were not well-adapted to e-learning.

The current study points out that having higher motivation is a critical factor in students` success. Therefore, moving to a new learning environment, students needed special social care to evolve their concentration and motivation to achieve quality education through online learning. In this research, students' cause was investigated by measuring the role of teachers in educational methodology and teachers` factors in motivating students.

Moreover, it is well-known that many obstacles adversely affect students' general performance and motivation. As a result, addressing and analyzing these obstacles is crucial and is one of the research goals. However, the main aim of this study is to investigate the students' learning motivation with virtual pedagogy during COVID-19 in Saudi Arabia from the perception of teachers.

The qualitative approach of quantitative research has been used to link empirical observations and quantitative research through measurement and validation. To answer the research questions, the current study follows the analytical and diagnostic descriptive method approach while using the

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questionnaire tool after ascertaining the credibility and reliability of the results. Furthermore, the measure of honesty must be used. This is achieved by selecting hypotheses that define research and collecting and analyzing data statistically to reach the desired results.

Through the statistical analysis, the impact of all independent variables (experience - gender – level of education - age) of teachers were studied against students' motivation towards virtual learning as subordinate variables. This effect has been measured for each variable individually and then for all variables.

The main aim of this study is to investigate the students' learning motivation toward virtual pedagogy during COVID-19 in Saudi Arabia from the perception of teachers in particular and to investigate obstacles of virtual learning in general.

II. LITERATURE REVIEW

The literature research for this study covers the main topic of this study. The Covid-19 pandemic has had a significant impact on education across the world. Its threat has presented many challenges for educational systems in most countries. It is the first time to force all educational organizations across the globe have into online learning. The Covid-19 pandemic started in December 2019 in Wuhan, China and rapidly spread worldwide within months. It has affected all areas of life, including education. With the worsening of the situation, the global lockdown resulted to closure of educational institutions. The closure of schools, colleges and universities has led to a stressful event for the educational administration with extremely limited options. The Saudi Ministry of Education has announced online teaching to continue the learning process safely and securely.

The global decision to close the educational institutes was rational to keep social distancing to stop its spread. Some countries immediately switched to online learning because they were already prepared for it. Locally, in Saudi Arabia, all the universities used the Blackboard environment for distance education and taught some elective and general courses.

Online learning is classified as both synchronous and asynchronous. While synchronous technology allows for "live" interaction between the instructor and the students (e.g., audioconferencing, videoconferencing, web chats, etc...), asynchronous technology on the other hand involves significant delays in time between instruction and its receipt (e.g., E-mail, earlier video recording, discussion forums etc..).

At the beginning of the pandemic, researchers continued to explore the subsequent effects of the pandemic on various social and economic aspects of our lives. More succinctly, closing schools and educational institutes was one of the first strategies implemented to stop the spread of the virus, according to Stancati and Cherney (2020).

According to the UNESCO (2020), the pandemic has deformed the learning progress of millions of students across the globe. Hart et. al. (2019) state that the appraisal of virtual schooling has since improved the situation and online learning is known by many terms including e-learning, virtual learning, internet-enhanced learning, and distance learning. It is delivered through different learning platforms that are described by learning management systems (LMS), such as Blackboard, Moodle, WebCT, and Canvas. These platforms provide virtual learning environments that rely on technology-mediated methods for communication without any physical interaction, according to Moore, Dickson-Deane and Galyen (2011). It allows teachers and students to share information, collaborate and design purposeful learning activities according to Lonn and Teasley, S. D. (2009).

In education in particular, the digital world has the power to provide the classroom with its accessibility, breadth, vast digital surroundings, and ability to interact with classmates/teachers from different countries. Digital education or remote learning may therefore be described as open. With the outbreak of the COVID-19 pandemic, a rising number of people started to gain knowledge through online learning. Researchers in the field suggested constructive suggestions to benefit from online learning. For example, suggestions have been made to enhance online learning for undergraduates during COVID-19 by creating a biochemistry lab class based on the project as per Zewail (2020).

Virtual learning can in no way be as productive as face-to-face learning. Eeva, Miika, Anu and Markku (2019) state that eye contact is a part of learning where the feelings and emotions of both students and teachers can be read which will improve understanding of the concept being taught. As the virus continued to spread, virtual learning was the best alternative for all stakeholders. The optimal concern was instructing/teaching the students. However, statistics indicate that the absence of physical interaction between students and teachers can result in a lack of motivation to study, most especially among younger students according to Yuk, Pen, Kris, C.H, Yui-yip, Dan, and G.T.S., (2021).

There seems to be a divergence of opinion from the result of other studies as per Julia, Ling-Hsia, Tzu-Chiang, Feng-Chou, Chun-Pin, (2021). These differences are due to the study settings, including the study level, program, gender, and more. This research focuses on middle and secondary students. It is assumed that the results of the current study will be unique and new.

Motivation is a theoretical concept utilized to clarify human behavior. Motivation provides the motive for the human beings to react and fulfil their needs. Motivation can also be defined as one's route led to behavior, or to the construct that trigger someone to desire to replicate behaviour and vice – versa according to D.A. and A.R. (2016). The current study perceives motivation from a behavioral point of view as the learner's internal/external condition, which drives their behavior and performance and works on behavior`s continuity and direction towards the goal. As for the cognitive aspect, it is an internal state that moves the learner's ideas and knowledge, knowledge structures, awareness and attention since it insists on the learner to continue their performance to reach a state of cognitive and psychological balance. As for the human aspect, it is a state of internal arousal that moves the learner to exploit their maximum potential in any educational situation aimed at satisfying their desires and achieving themself.

III. METHODOLOGY

The research design is the conceptual structure within which the research is conducted that includes the collection and analysis of relevant data (Kothari, 2004). To gain insight into learners' motivation, which is often claimed as one of the main shortcomings of motivational research (Bodnar et al., 2016), the current study was designed based on a data collection tool (the questionnaire). Furthermore, the qualitative approach is used, which, according to Kothari (2004), is a function of a researcher's perception and impressions whereby the researcher gives their subjective assessment of attitudes, opinions and behaviours. This descriptive/diagnostic study aims to describe the relationship between independent and dependent variables.

Population and Sample

The study sample target represents teachers in public education schools in Jeddah for the middle and secondary stages. The current study applies both primary and secondary data collection techniques. As for primary, a questionnaire was designed and shared with teachers in a self-administered way with open questions that followed the Likert scale. Furthermore, secondary data relates to previous studies and information provided by researchers and scholars on the research topic.

Data Credibility and Validity

In order to ascertain the credibility and validity of the research, Cronbach's Alpha was applied to all questionnaire sections.

Cronbach's Alpha Test

Alpha-Cronbach coefficient was conducted for the questionnaire to 200 study samples (teachers). Table (1) below illustrates the values of Cronbach's alpha (0.70, 072, 075) for the motivation section, obstacles section and the two sections together, respectively.

Table (1) Cronbach's Alpha for the Questionnaire

Reliability Statistic					
Motivation		**Obstacles**		**Total**	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
0.701	**15**	**0.72**	**14**	**0.75**	**29**

Data Analysis Procedures

Data analysis is essential to finding a solution to a problem in any study. As a result, procedures were applied to the research data as shown below:

- **Data Analysis**
  This study gathered and analysed the required information using qualitative and quantitative data analysis techniques. Data was edited and entered into the data analysis software, which is the Statistical Package for Social Science (SPSS), version 20.
- **Editing:**
  Data editing is the procedure that improves the quality of data coding. The information from the study was carefully checked to ensure completeness, accuracy, clarity and uniformity.
- **Data Entry**
  The data was entered into a computer and analyzed using the 20th version of Statistical Package for Social Science (SPSS) software.
- **Coding**
  During coding, the collected data was categorized and transformed into symbols that can be tabulated and accounted. Data was kept in the proper format, presumably leading to the best SPSS outputs. After coding the data, it was ready for analysis by SPSS.
- **Data Analysis and Interpretation**
  The Statistical Package for Social Sciences (SPSS) was used to answer research questions and achieve research goals.

IV. RESULT AND DISCUSSION

The current study chooses a set of personal variables for the study sample to identify some basic facts related to this sample and form a clear picture of the individuals participating in this study while taking into consideration the following personal variables:

Years of the Teachers Experience

Table (2) shows the study sample's personal characteristics, indicating the number of years of experience. The following table shows these characteristics:

Table (2) Frequencies and Percentages of Years of Experience

Years of Experience	**Frequencies**	**Percentages%**
Less than 5	40	20%
5 to 10	93	46.5%
11 to 15	52	26%
More than 15	15	7.5%

Table (2) shows that (40) teachers have less than five years of experience with a percentage of (20%) while (93) teachers have experienced between 5-10 years, with the percentage of (46.5%). Moreover, (52) teachers have (11-15) years of experience, with the rate of (26%) and (7.5%) of teachers have more than 15 years of experience.

Gender of the Teachers

Table (3) shows the personal characteristics of the study sample. As demonstrated below in table (30), (127) of the sample are males with the percentage of (63.5%) and (73) are females with the percentage of (36.5%).

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Table (3) Frequencies and Percentages of the Study Sample by Gender

Gender	Frequencies	Percentages %
Male	127	63.5%
Female	73	36.5%

Age of the Teachers

As can be seen in the table (4), (26.5 %) of teachers' ages were less than 30 years, while (51%) of them were in the range of (30-40) years old at the time of data collection. Moreover, (21%) of teachers' ages were between (41-50) years. Lastly, 1.5% of the teachers are older than 50 years. This leads to the observation that most of the sample are considered among young teachers.

Table (4) Frequencies and Percentages of the Samples by Age

Age	Frequencies	Percentage (%)
Less than 30 years old	53	26.5%
From 30 to 40 years old	102	51%
From 41 to 50 years old	42	21%
Older than 50 years old	3	1.5%
Total	200	100

Education Level of Teachers

Table (5) reflects that (54%) of the sample have acquired bachelor's degrees, (37%) have master`s degrees, and (9%) of them have PhD degrees. Furthermore, the frequencies are shown in table below.

Table (5) Frequencies and Percentages of the Study Sample by Level of Education

Education	Frequencies	Percentages
Bachelor`s degree	108	54%
Master`s degree	74	37%
PhD	18	9%
Total	200	100

Answering the Study Questions

The Motivation of Students towards Virtual Learning

To answer the first domain, the current study calculated the mean and standard deviation of the paragraphs as demonstrated in table (6), labelled as "Means that can Motivate Students to Take an Interest in Virtual Learning" which reflects the perception of virtual learning by the students according to their teachers.

The mean score for each descriptor was interpreted using the following scheme: **1.00** to **1.49** (as *Strongly Disagree*), **1.50** to **2.49** (as *Disagree*), **2.50** to **3.49** (as *Neutral*), **3.50** to **4.49** (as *Agree*), and **4.5** to **5.00** (as *Strongly Agree*).

Table (6) presents the mean scores and SD for section (1) of the questionnaire which is concerned with the "means that can motivate students to take an interest in virtual learning". Teachers agree on the first statement, (*Using both social networks such as Facebook and YouTube could motivate student for e-learning*) since the results returned were: ($\bar{x} = 3.86$, $SD = 0.98$). As a result, it is safe to say that teachers agree that using social networks will help increase students' motivation in virtual learning. As for the second statement, (*Online learning has given me the opportunity to participate freely and not be afraid to make mistakes when teaching*), teachers` scores were in *Neutral* extent ($\bar{x} = 2.96$, $SD = 0.88$). Moreover, teachers responded to neutral extent as ($\bar{x} = 2.56$, $SD = 0.74$) when they were asked if (*online learning reduced the negative feelings (anxiety and stress) for student*). After that, the statement examined if (*online learning manners motivate student to answering*). Teachers were in the *Agree* extent as the results showed ($\bar{x} = 3.55$, $SD = 1.02$). Furthermore, the teachers responded the statement of (*Using learning management systems such as Moodle as supplemental teaching aids*) within the *Agree* extent as the results ($\bar{x} = 4.04$, $SD = 0.62$)

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showed. Moreover, the teachers' score was within the *Neutral* extent ($\bar{x} = 3.02$, $SD = 0.85$) when they responded to the statement of (*reducing pass/fail criteria to ease students' anxiety about passing their courses*). After that, the teachers responded to the statement of (*Providing and practicing different types of assessment*) within the *Neutral* extent ($\bar{x} = 2.88$, $SD = 0.77$) on whether it be can considered as mean to motivate students in online learning. As for the statement of (The teacher poses questions that motivate students to participate actively), the teachers responded within the *Neutral* extent ($\bar{x} = 3.03$, $SD = 1.07$). Afterwards, when the teachers were asked if the statement of (*The teacher shows students how to build the information in the texts on what they already know*) as mean to motivate students in online learning, they were within the *Agree* extent ($\bar{x} = 3.54$, $SD = 0.93$). Teachers also agreed, with the result of ($\bar{x} = 4.22$, $SD = 0.94$) that (*Teachers should help students identify their own learning needs*). The teachers were within *Neutral* extent ($\bar{x} = 3.06$, $SD = 0.78$) in reference to the statement of (Teachers should help students set learning objectives to address problems). The next statement was (*Teachers should help students to identify resources such as internet and blackboard*). The responses of the teachers scored ($\bar{x} = 3.02$, $SD = 0.65$). Next, the teachers were withing the *Agree* extent ($\bar{x} = 3.51$, $SD = 0.66$) regarding the statement of (Teachers should help students to apply the appropriate learning strategies). On the other hand, the teachers were withing the *Disagree* extent ($\bar{x} = 2.21$, $SD = 0.76$) considering the statement of (*Teachers should help students to evaluate the learning outcomes*) as a mean to motivate students. In the last statement of the first section of the questionnaire, the teachers were asked if (*The utilization of guidance for students to be motivated in virtual learning depends on practical orientation on cognitive, emotional, and behavioral engagement*). The result was within the extent of *Strongly* agree ($\bar{x} = 4.57$, $SD = 0.58$).

Table (6) Means and Standard Deviations of the Paragraphs. "The Means that can Motivate Students to Take an Interest in Virtual Learning"

Paragraph	Mean	Standard Deviation
Using both social networks such as Facebook and YouTube could motivate students to e-learning	3.86	0.98
Online learning has given me the opportunity to participate freely and not be afraid to make mistakes when teaching	2.96	0.88
Online learning reduced the negative feelings (anxiety and stress) for the student.	2.56	0.74
Online learning manners motivate the students to answer	3.55	1.02
Use learning management systems such as Moodle as supplemental teaching aids	4.04	0.62
Reducing pass/fail criteria to ease students' anxiety about passing their courses.	3.02	0.85
Provide and practice different types of assessment	2.88	0.77
The teacher poses questions that motivate students to participate actively	3.03	1.07
The teacher shows students how to build the information in the texts on what they already know	3.54	0.93
Teachers should help students identify their own learning needs	4.22	9.94
Teachers should help students set learning objectives to address problems	3.06	0.78
Teachers help students to identify resources such as internet and blackboard	3.02	0.65
Teachers should help students to apply the appropriate learning strategies	3.46	0.66
Teachers should help students to evaluate the learning outcomes	2.21	0.76
The utilization of guidance for students to be motivated in virtual learning depends on practical orientation on cognitive, emotional, and behavioral engagement	4.57	0.58

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Obstacles of Virtual Learning that Students Face

To answer the second domain, the current study calculated the mean and standard deviation of the paragraphs of the question, and arranged it in descending order for the second table, "The obstacles to virtual learning that students face", as shown in table (7) below:

Table (7) The Obstacles in Virtual Learning that Students Face

Paragraph	Mean	Standard Deviation	Rank
Experienced technical problems communicating with teachers during live sessions	4.19	0.81	1
Loss of focus during lectures due to online learning	4.11	0.99	2
Difficulty understanding the lecture content or concept	4.02	0.84	3
Difficulty keeping up with lecture pace	3.95	0.97	4
Difficulty in submitting assignments on to Blackboard	3.87	1.03	5
Difficulty in preparing for online quizzes/exams at home	3.78	0.76	6
Inability to access online quizzes/exams links	3.70	0.98	7
Difficulty in understanding online quizzes/exams	3.66	0.95	8
Experienced problem completing online quizzes/exams within the given time	3.64	1.04	9
Problem arranging for facilities and devices required to complete assignment (internet/computer/laptop/printer)	3.59	0.97	10
Difficulty in concentrating or completing assignments while working from home	3.12	0.58	11
E-learning lacks face-to-face communication	2.48	1.05	12
Failure to develop students' comprehension skills via the Internet	2.45	0.94	13
There are technical problems related to linking the e-learning method to the lecture	2.44	0.87	14

From table (7), It is noted that the paragraph "*Experienced technical problems communicating with teachers during live sessions* " ranked as first obstacle in virtual learning with a mean (4.19), and the second higher paragraph that teachers were within the *Agree* extent ($\bar{x} = 4.11$) for (*Loss of focus during lectures due to online learning*). Next, (*Difficulty understanding the lecture content or concept*) came in third order ($\bar{x} = 4.02$). As for the paragraph (*Failure to develop students' comprehension skills via the Internet*), it came in second to last ($\bar{x} = 3.45$), and the paragraph *(There are technical problems related to linking the e-learning method to the lecture*) came in last ($\bar{x} = 3.44$).

The difficulty of submitting assignments and preparations had a mean of 3.78 and 3.7. Moreover, we can see that the means of inability to access, understand quiz, competing quiz, arrange facilities and devises, complete assignments, develop communication skills, and technical linking are 3.66, 3.64, 3.59, 3.12, 2.48, 2.45, and 2.44 consecutively.

The difficulty of submitting assignments and preparations had a mean of 3.78 and 3.7. Furthermore, we can see that the means of inability to access, understand quiz, competing quiz, arrange facilities and devises, complete assignments, develop communication skills, and technical linking are 3.66, 3.64, 3.59, 3.12, 2.48, 2.45, and 2.44 consecutively.

Many factors reduce the learning level, such as technical problems communicating with teachers during live sessions, loss of focus during lectures due to online learning, difficulty in understanding the lecture content or concept, difficulty in keeping up with lecture pace, difficulty in submitting assignments onto Blackboard, difficulty in preparing for online quizzes/exams at home, inability to access online quizzes/exams links, and difficulty in understanding online quizzes/exams.

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The Hypotheses of Study

A-First Hypothesis

1. H_0:

(Age, gender, level of education and experiences of teachers) as independents variable have no impact on the motivation of students during virtual learning as the dependent variable.

2. H_1:

(Age, gender, level of education, and experiences of teachers) as independents have an impact on the motivation of students during virtual learning as the dependent variable.

Three different types of analysis will be applied to investigate the data to get reliable and understandable results that can help provide profound recommendations to improve virtual learning to the target group of students. The analysis types are:

A-One-way ANOVA Test.

B-Independent Sample T-Test.

C-Spearman Correlation.

D-linear regression.

A)One-way ANOVA

(ANOVA) is a hypothesis-testing technique used to test the equality of two or more populations (or treatments) means by examining the variances of samples that are taken. The comparison of gender, age, level of education and experience of teachers and their relationship to students' motivation have been studied separately in order to find out whether there is a meaningful relationship between these independent variables (gender, experience, age, education) and the dependent variable of students' motivation towards e-learning.

One-way ANOVA for Teachers' Experience and Students' Motivation

As can be seen in table (8), it is indicated that there is a statistically significant relation between the experience of teachers and the motivation of students towards virtual learning during the COVID-19 pandemic based on the p-value (0.00) that indicates the existence of a statistical relation.

Table (8) ANOVA Test for Teacher's Experience and Student's Motivation

One-way ANOVA					
Teachers' Experience and Students' Motivation					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.760	2	.380	12.265	.000
Within Groups	6.103	198	.031		
Total	6.863	200			

As can be observed in table (9), there are significant differences between the experiences levels of teachers, expect two level of differences (5-10 years to more than 15 years) and (more than 15 years to 5-10 years) where there are no significant differences between the two groups as shown in the table 9, below.

One-way ANOVA for Teachers' Gender and Students' Motivation

With regard to the relationship between the gender variable of teachers and the motivation of students towards virtual learning, we found that there is no statistically significant relation between gender and motivation of students since the p-value is equal to (0.943), as can be seen in table (10). Since it is more than 0.05, this indicates that the gender of the teacher has nothing to do with motivation, i.e. that both genders perform the same functions.

Differences between males and females have not been studied in relation to the relationship between the dependent variable. This is due to the fact that the ANOVA coefficient is used only for more than one element, and gender finds that the options for answers are only two (male-female) which is less than the specified number since the ANOVA test does not accept less than three elements or options.

Table (9) Comparison of Teachers' Experiences

Multiple Comparisons						
Dependent Variable: Motivation of Students						
LSD						
(I) Experience	(J) experience	Mean Difference (I)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 5 years	5-10 years	.12261*	.02783	.000	.0677	.1775
	More than 15 years	.13249*	.03416	.000	.0651	.1998
5-10 years	Less than 5 years	-.12261*	.02783	.000	-.1775	-.0677
	More than 15	.00988	.03401	.772	-.0572	.0770
More15 years	Less than five years	-.13249*	.03416	.000	-.1998	-.0651
	5-10 years	-.00988	.03401	.772	-.0770	72

Table (10) ANOVA Test for Teachers' Gender and Students' Motivation

One-way ANOVA					
Teachers' Gender and Students' Motivation					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.000	2	.000	.005	.943
Within Groups	6.863	198	.035		
Total	6.863	200			

One-way ANOVA for Teachers' Age and Students' Motivation

As can be seen in table (11), the P-value equals (0.00) and is below the level of indication. This means that there is a statistically significant relationship between age as an independent variable and motivation for students as a dependent variable.

Table (11) ANOVA Test for Teachers' Age and Students' Motivation

One-way ANOVA					
Teachers' Age *and Students' Motivation*					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.000	1	.000	4.396	.000
Within Groups	6.414	199	.034		
Total	6.414	200			

In reference to the significant differences between the groups of teachers, we can see that there are significant differences between the groups except for the comparison between three levels of ages that are (30-40 vs 40-50 years) and the other groups (40-50 vs more than 50 years) and (less than 30 vs more than 50). This demonstrates no significant difference between them as shown in the below table (12).

One-way ANOVA for Teachers' Education Level and *Students'* Motivation

With regard to the education levels of teachers, table (13) illustrates the P-value that is to equal (0.456) and is greater than 0.05. This means that there is no statistically significant relationship between the two variables.

Table (12) Comparison of Ages

Multiple Comparisons						
Dependent Variable: Motivation of Students						
LSD						
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less 30 Years	30-40	-.03137	.04727	.010	-.1246	.0619
	40-50	.06667*	.03328	.047	.0010	.1323
	More than 50	0.93372	0.5363	0.10	0.1288	0.2909
(30-40) Years	less30	.031370	.04727	.010	-.0619	.1246
	40-50	.09804	.05357	.069	-.0076	.2037
	More than 50	0.12668	0.2719	0.00	0.2426	0.6442
(40-50) Years	s30	6667*	328	.047	323	010
	-40	9804	357	.069	037	076
	re than 50	3316	662	0.53	411	277
More than (50) Years	ss 30	3372	363	0.10	909	288
	-40	2668	719	0.00	442	426
	-50	3316	662	0.53	277	411
The mean difference is significant at the 0.05 level.						

Table .13 ANOVA Test for Teachers' Education Level and Students' Motivation

One-way ANOVA					
Teachers' Education Level and Students' Motivation					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.126	4	.032	.915	.456
Within Groups	6.737	196	.035		
Total	6.863	200			

Regarding the significant difference between education groups, the P-values are more than 0.05. This indicates no significant differences between teachers' levels of education and their effect on students' motivation towards virtual learning as from below table (14).

Table (14) Comparison of Education

Multiple Comparisons, Dependent Variable: Motivation of Students, LSD						
(I) Education	(J) Education	ean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
PHD	Master	.00410	.04691	.930	-.0884	.0966
	Bachelor	.01067	.05766	.853	-.1031	.1244
Master	PhD	-.00410	.04691	.930	-.0966	.0884
	Bachelor	.00656	.04074	.872	-.0738	.0869
Bachelor	PhD	-.01067	.05766	.853	-.1244	.1031
	Master	-.00656	.04074	.872	-.0869	.0738

B) Independent Sample T-Test

This analysis technique is used to test if there is a statistical difference between two independent variables and a dependent variable. The study applies that to every one of the teachers' characteristics (Gender, Experience, Age, and Level of Education) and then a cut-off point was made to separate

every group of choices into just two categories to be appropriate to implement T-Test analysis. The categories are as follows:

-Gender (Male and Female)
-Experience (More Experience and Less Experienced)
-Age (Old and Young)
-Level of Education (High and Low)

Independent Sample T-Test for Teachers' Gender and *Students'* Motivation

From table (15), the P-value is equal to (0.943) and is more than 0.05. This indicates that there are no statistically significant differences between teachers (male-female) and the dependent variable in stimulating students toward virtual learning.

Table (15) Independent Sample T-Test for Gender of Teachers

Independent Samples T-Test									
	Levene's Test for Equality of Variances		T-Test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.380	.241	.072	198	.943	.00229	3178	-.06038	.06496
Equal variances not assumed			.068	64.071	.946	.00229	.03367	-.06497	.06956

Independent Sample T-Test for Teachers' Experience and Students' Motivation

As for the experience component, it is indicated that there is a statistically significant difference, and the cut-off point has been adopted to be 2. As a result, there is a significant difference (p-value equal 0.00) between less experienced and more experienced teachers towards motivating students for virtual learning since the value indicates that the level of experience directly affects motivation.

Table (16) Independent Sample T-Test for Experience of Teachers.

Independent Samples T-Test										
		Levine's Test for Equality of Variances		T-Test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Means of Motivation	Equal variances assumed	67.763	.000	4.956	198	.000	-.12588	.02540	-.17597	-.07579
	Equal variances not assumed			-5.912	152.142	.000	-.12588	.02129	-.16794	-.08381

Independent Sample T-Test for Teachers' Age and Students' Motivation

In table (17), we see the effect of statistical significance that has been measured among the variable age. The result has been statistically significant where the P-value equals 0.00. The number 2 has been

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adopted as the cut-off point for the test. As a result, there are statistically significant differences between less experienced and more experienced teachers.

Table (17) Independent Sample T-Test for Age of Teachers

Independent Samples T-Test										
		Levene's Test for Equality of Variances		T-Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	% Confidence Interval of the Difference	
									wer	per
Means of Motivation	Equal variances assumed	76.608	.000	-2.165	198	.000	-.07042	.03253	-.13456	-.00627
	Equal variances not assumed			-4.338	159.000	.000	-.07042	.01623	-.10248	-.03835

Independent Sample T-Test for Teachers' Education Level and Students' Motivation

In table (18), we see no effect of statistical significance among the education variable because the result has not been statistically significant since the P-value equals (0.60). The number 2 has been adopted as the cut-off point for the test. As a result, there are statistically significant differences between less experienced and more experienced teachers.

Table (18) Independent Sample T-Test –Education of Teachers

Independent Samples T-Test										
		Levine's Test		Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Means of Motivation	Equal variances assumed	.221	.639	-.515	198	.607	-.02259	.04385	-.10907	.06389
	Equal variances not assumed			-.537	23.93	.596	-.02259	.04205	-.10938	.06420

Based on previous analyses of the variable (gender – age - level of education - experience), the relationship is statistically significant for the variables (age & experience**)**. Still, the other variables (gender and educational level) demonstrated no statistically significant relationship between the variables through research results.

C) Correlation

In order to further deepen the statistical analysis, the coefficient of association between independent variables, which are gender, experience, education and age of teachers, and the dependent variable of students' motivation towards virtual learning orientation was studied using the Spearman analysis. It

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is important to understand the correlation, a statistical measure of the strength of a linear relationship between paired data.

Table (19) Correlation between (Experiences, Age, Gender and Education) of Thechers and Motivations of Students during E-Learning

			Mean of Motivation
Spearman's	Experience	Correlation Coefficient	.456**
		Sig. (2-tailed)	.000
	Gender	Correlation Coefficient	.017
		Sig. (2-tailed)	.816
	Age	Correlation Coefficient	-.462**
		Sig. (2-tailed)	.000
	Education	Correlation Coefficient	.024
		Sig. (2-tailed)	.855
		Sig. (2-tailed)	

Correlation is an effect size that should assist in describing the strength of the correlation using the following guide (S.L. Ilia,2017) of values:

-0.00-.19 is very weak
-0.20-.39 is weak
-0.40-.59 is moderate”
-0.60-.79 is strong”
-0.80-1.0 is very strong

The correlations describe the ability to predict the value of one variable based on another. Based on table (19), a moderate correlation existed between experiences and motivation with the occurrence value of (0.456). After that, education had a fragile correlation value (0.024), and the third was gender with very weak relation, as the correlation value is (0.017). Lastly, we only have one moderate negative correlation between age and motivation by a value that equals (-0.462).

Linear regression analysis

Regression analysis is a technique that uses data to identify relationships among variables and then use these relationships to make predictions. This is achieved when there is a constant rate of increase of one variable to another (Paolo Giudici,2012). As demonstrated below in table (20), we see that there is a significant relation between (age, gender, experiences and education) of teachers as dependent variable and the motivation of students towards e-learning as the dependent variable where the p-value is (0.00), and it is significant.

Table (20) One-way ANOVA: Experience, Gender, Age, Education of Teachers and Motivation of Student toward E-Learning

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.780	4	.195	6.250	.000
	Residual	6.083	195	.031		
	Total	6.863	199			
Dependent Variable: Mean-Motivation						
Predictors: (Constant), Experience, Gender, Age, Education						

As related to regression analysis as shown in the table (21), the P-value of independent variable equals (13.0, 2.7, 8.3 and 3.8) for Experiences, Gender, Age and Education of teachers consecutively.

Equation of Linear Regression

$$Y=a+b_1x_1+b_2x_2+b_3x_3$$

Y (Motivation) = 4.3 +13.4 (Experiences) + 2.7 (Gender) +8.3(Age) + 3.8(Education).

Table (21) Regression Analysis: Experience, Gender, Age, Education of Teachers and Motivation of Student toward E-Learning

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	per Bound
	(Constant)	4.301	.057		75.993	.000	4.189	4.412
	Experience	0.134	.022	.594	-4.477	.000	-.145	-.056
	Gender	0.027	.030	.016	.237	.813	-.053	.067
	Education	0.038	.016	-.090	-1.321	.188	-.051	.010
	Age	0.083	.031	.379	2.854	.005	.027	.148
a. Dependent Variable: Mean-Motivation								

The Second Hypothesis (Students' Motivation and Virtual Learning Obstacles)

A) One-way ANOVA Test

The one-way ANOVA test results show a statistically significant relationship between obstacles and students' motivation towards virtual learning. A one-way ANOVA test has been used; as shown in table (22), the P-value was (0.00). As it is less than 0.05, this indicates that obstacles directly impact students' motivation towards virtual learning, which may negatively affect them.

Table (22) One-way ANOVA (Students' Motivation and Obstacles)

ANOVA					
Mean of Motivation					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.111	3	.370	12.619	.000
Within Groups	5.752	197	.029		
Total	6.863	200			

B) Correlation between Student's Motivation and Obstacles

Form table (23), we see that the correlation coefficient is -0.47. This means that there is strong negative relation between variables.

Table (23) Correlation between Obstacles and Motivation of Student in E-Learning)

Correlations				
			Mean of Motivation	Obstacles
Spearman's rho	Mean of Motivation	Correlation Coefficient	1.000	-0.47
		Sig. (2-tailed)	.	.000
		N	200	200

V. DISCUSSIONS

This research found that there is a significant relation between motivation of students towards virtual learning as a dependent variable and teachers and their role as an independent variable by considering their (Age, experiences, education and gender) as one variable. The one-way ANOVA test showed significant relation between all of them where the p-value equals 0.00. As a result, these factors play role in students' motivation in virtual learning. Hence, considering them for developments and paying attention for their strong and weak points will lead to direct improvement in students' motivation during virtual learning.

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One-way ANOVA test was conducted to measure the relationship for each variable individually. The results show that there is significant relation between (age and experiences) of teachers and motivation of student toward virtual learning.

To study these factors, teachers' ages and experiences, in depth, independent sample t-test for each one was carried out to find more specific details. For the teacher's age, t-test was applied to measure if there is a significant difference between young and old teachers and low and high experienced teachers. The results show a significant difference between the two variables.

Furthermore, correlation analysis was used to determine the degree of strength between the variables. The correlation between teachers' age groups and students' motivation showed a relation by the value of (-0.462). As a result, this negative relation result indicates that teachers of lower ages present a better impact on students' motivation towards virtual learning rather than old teachers. This is most likely because they are young generations which means that they are more familiar with using technological tools. Therefore, they have sufficient knowledge in dealing with virtual learning tools. As for experience, the result was (0.456) which is is moderate correlation strength. This positive result indicates that more experienced teachers can positively affect students' motivation towards virtual learning. On the other hand, teacher's gender and level of education were not significant to students' motivation as no statistical differences exist between the independent sample's mean.

Through analysis, the current study found that virtual learning has not changed much in matters of students' negative impact, freedom, and lack of error. There are also some problems with the overall evaluation of results. There are also some obstacles and challenges that negatively affect students' motivation towards virtual learning such as technical problems, attendance, and evaluation.

There are some positive determinants, such as *(using social media tools will motivate students to answer and complete classrooms),* identifying needs, and creating strategies that affect and solve many of virtual learning problems. These problems include helping students build their information in the text on what they already know and identifying learning needs which will help them to be more motivated towards virtual learning.

Through the results, the current study found that the role of teachers is important in virtual educational success. Based on research results, the current study recommends to ensure that teachers are familiar with this type of learning, and that they can manage educational blindness efficiently with recommended ongoing training besides developing the tools and eliminating obstacles to help improve students' perform better. Obstacles vary between technical issues related to the technical devices used and in how teachers can evaluate students' performance clearly and fairly, etc.

VI. RECOMMENDATION AND LIMITATIONS

In light of the current study results, the researcher provides a number of recommendations that are hoped to contribute to shedding light on the topic of students' learning motivation with virtual learning pedagogy during COVID-19 in Saudi Arabia. The recommendations are:

- As analysis results showed that old teachers have some difficulties in managing students' motivation, the researcher recommends establishing a development program to ensure that all teachers (especially old teachers) have adequate expertise in virtual learning and its tools.
- Students experienced technical problems in communication during online learning as teachers` responses indicated the result of ($\overline{x} = 4.19$, $SD = 0.81$) for this matter. As a result, the researcher recommends improving the online learning platforms and making sure they are free of errors and bad responses.
- There are some negative feelings, such as anxiety and stress, that require continuous follow-up.
- A virtual learning management program should be developed. This program should address planning classes and following up during lectures, ensuring positive interaction and resolving any technical problems related to the means and tools used in virtual education, and following up duties and developing forms of evaluation.

- The competent authorities should also review the evaluation of teachers' performance and develop a program to improve educational cadres for virtual learning.

The current study limits itself to analyzing the effect of motivation on the students` academic progress in online learning. Moreover, the current study limits itself to analyzing the effect of motivation on the students` academic progress from the perspective of the teachers who instruct these students, not the students themselves. Furthermore, the current study is limited to a certain selected sample of students in the region of Jeddah in Saudi Arabia which does not generalize the results reached by this study on all regions in the Kingdom. Moreover, the current study was conducted in a way to examine the effect of certain parameters that are related to the teachers` age, gender, experience, and degree of education only with no concern to these parameters in terms of the guardians of the students. Finally, the current study was conducted with a sample of two hundred teachers who taught in public schools in the region of Jeddah. As a result, it is recommended for other researchers in the field to include a larger sample of participants in their future studies. Moreover, it is also recommended that other researchers in the field to examine different parameters and factors that may affect the educational process using e-learning locally, in the Kingdom of Saudi Arabia, and globally, multinational, or even global samples.

Conflict of interest: We declare that we have no conflict of interest.

Ethical statement: We declare that they have followed ethical responsibilities.

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