The Impact of Covid-19's Challenges on Education Institutional Development in MENA Region

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Abstract

Various regulation has been implemented in United Arab Emirates at the beginning of the novel virus covid-19, to ensure the safety for students, and studying continuity, a change has to be done. Literature review in this research paper will discuss some factors, which are the challenges that affected the development of moving from traditional education to E-learning, or distance learning. Based on that factors a survey conducted using survey monkey, the goal was to collect a minimum of 150 respondents, luckily survey collected 167 respondents, a quantitative approach followed as a method to analyze the data using Statistical Product and Service Solutions software. Using such a software will give us a clear image about the relationship between all the factors that related to the challenges of e-learning system during the pandemic. After analyzing the data, the results conclude that teacher readiness and student willingness will affect positively and significantly on institutional development as those factors strengthen the relationship, by that they will achieve a better development, and there is a strong positive relation between the internet infrastructure of the country and the educational development.

Keywords: Internet Infrastructure, teacher readiness to the change, student willingness, government regulation, institutional development

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Introduction

After the spread of the corona virus, many industries got affected negatively around the world, and one of the most important industry affected is education, it considers as big potential and future of any country, thus, the leadership of United Arab Emirates made their effort to ensure finishing of the academic year without failing, on 8th of march they made the announcement for E-learning distance, and gave a break of four weeks to the students, as it was during the lockdown of the country, as they lockdown for safety purposes. On 22nd of March 2020, 1.2 Million students from school and university get back to the education in UAE, and that was a big step, and student's parents get more comfortable as they can see their son/daughter studying, and they can observe that. Dubai's education regulator has provided various of online platform software like Microsoft Team, and the application has facilitated a lot of things, you can upload your assignment/HomeWorks, and so on. The government of UAE understand the economic situation, so they asked school to make fee waiver, and not to consider the bus fees which was paid earlier at the beginning of the semester and refund it (Mansoor, 2020).

The factors that the research will study are internet enables learning infrastructure, as it is the key part of this e learning to have a better connection to connect virtually and attend the class, another factor is government regulation and rules that deployed to implement and sustain the education working in the country, not to forget how teacher is ready for such a change, and the willingness of student as well.

Research problem

Because of the separation of the corona virus, many things have been changing in the country in terms of education, the development change has many challenges affected the education system as whole, and finally, the education institution development as whole, which is the problem

Research Questions

- How students in UAE react to government rules and regulation, and the challenges forced on education system?

- How teachers and students accepted such a change, and how ready and willing to study online?

Research Objectives

Investigating on how the challenges of online education affected the education system as whole, and the acceptance of students and teacher on such a grow in education institution development

Literature Review

Institutional Development

Development of any industry require time and efforts, strategy to do it, and e learning, is a top precedence in United Arab Emirates, and like other, UAE, has closed university campus and classes, as a precautionary measure to protect the students in UAE, and everyone start using the online education system, which some people even think that after finding the vaccine, online learning will still be a big part of education, to develop in a proper way of course you must have a very good internet infrastructure, and in this research will study how internet effect on institutional development of education as whole, and how it is acting as a dependent variable (Tabrez, 2020). Institutional development is considered as a main factor in this study, and the related literature with other findings factors is discussed in the coming text.

Government regulation

Before talking about the challenges of the change from traditional learning to distance learning, the first part of literature review is the government regulation, in this research paper, it consider as moderator variable, as it is part and the relation to strengthen the institutional development of education in the United Arab Emirates (Masudi, 2020). As said earlier, E-learning start remoting on 22nd of March 2020, and under the guidance of council minister and leadership of UAE, they have announced that e-learning will be continue until the end of the academic year of 2019/2020 for all high education institutes, and as said By Dr. Amna Al-dahhak, such a decision has been taken to ensure the safety of students, and the continuity of the learning to secure their future without losing the academic year. There was a training session for parents to learn about the application that their son/daughter are going to

use, to be familiar with, and to support their children, thus, will give them the best environment for learning (Godinho, 2020). After the detailed literature review related with government regulation the moderator variable in this research, it was identified that there exists a gap of connecting this variable with institutional development. Therefore, sixth hypothesis (H6: Government Regulation will moderate significantly the relation between the internet enabled infrastructure and institutional development).

Moderation

Government regulation on this research is acting as a moderator variable, this variable from its name is working between the two variables, and the one responsible for the interaction between independent, and dependent variables, and in this research case the government regulation decision is a moderator between the internet infrastructure of the country and the education institutional development as the online education system, moreover, the moderator can increase and enhance the change or the development of the online education, and in analysis part of this research will discussed the relation and effect of the moderator variable, and how significant related to our research model.

Internet Enabled Learning Infrastructure

After talking about the government's new regulation, authority of UAE promoted with Telecommunication Regulatory authority, known as "TRA" with coordinating with Etisalat and DU, by sharing a list of applications to facilitate the E-learning system, such as, zoom, skype for business, Microsoft Teams, and blackboard. Microsoft Team is been used in American university in the emirates, where the application can show you the students who are attending, you can share your thoughts on the chatting box, you can share you screen as well with instructor and colleagues, moreover, you can use it to submit assignment, and make internal meeting with the colleagues as well (Merjen, 2020). TRA also enabled internet for families who doesn't have internet at their home, as a support for them to connect to the application and to access the successful of the online distance approach (Mansoor, 2020). After the detailed literature review related with internet enabled learning and few other variables, it was identified that there exists a gap of connecting this variable with institutional development.

Therefore, first hypothesis (H1: There is a significant relationship between Internet enabled learning infrastructure and Institutional development) for the study is proposed, the second hypothesis, (H2: Internet infrastructure of the country is directly affected Teacher readiness on Online education system), third hypothesis, (H3: internet infrastructure of the country is directly affected student's willingness into Online education system).

Independent Variable

In this paper research the internet infrastructure in the country will act as an independent variable, and from its name it is independent and nothing will affect it, but this variable will affect the whole idea of the title of developing and changing into the online education, and it is the main variable that can do a change to the system of online learning, because without it, simply there is no online education.

Teacher Readiness for online education

After the pandemic of the covid-19, it must consider a very important factor in education structure which is the teachers themselves, and how ready they are. Schools and University started to make a training program for teacher, and that training comprise into the training on software, and online teaching method, the training on the software is very important, showing how the software will facilitate many things (Mathew, 2020). That is noticeable in Microsoft Team, as you can raise your hand, participate, not only the software, for exam there is what called "lockdown browser" which they are using for exam, as once the browser is opened and the exam started the student has to open his/her mic and camera, however, another important thing is how teachers are ready to teach the students in such a way, because as known that every individual teacher has his/her own style in teaching, so that was another challenge (Rizvi, 2020). After the detailed literature review related with this variable which is the teacher readiness and few other affected variables, it was

identified that there exists a gap of connecting this variable with institutional development. Therefore, fourth hypothesis, (H4: Teacher readiness on Online education system, has a direct & significant impact on education institutional development), moreover, seven hypothesis also related to the teacher readiness, which is the mediator of this hypothesis, (H7: Teacher readiness on Online education system, will mediate the relationship between Internet enabled learning infrastructure and Institutional development).

Students Willingness to Online Education

The other aspect after teacher is defiantly the students themselves, of course students will face some challenges at least at the beginning until they get used to it, the main key here is how to build strategies in learning that can enhance and motivate the student as if it was the traditional education, a very good example on that is what Manipal academy doing, they are doing normal classes no doubt, same time, they are established a virtual happy hours, where students can open their mic and camera and start talking, this kind of practice will enhance and motivate the student instead of making him boring, also, they are doing fitness challenges, to challenges between one another, this will encourage them and sport will pump and energize the brain, and the student will be more willing to take a class (Zaman, 2020) Another important thing is the laboratory and how to inspire the student, remote lab technology using internet of thing is a good practice, and students can watch the experiments from zero to 100 percent, as there are camera in every angle, this practice has been done at BITS Dubai, such a practice required a good IT team and expertise especially when it comes to intern of things (Sengupta, 2020). After the detailed literature review related with this variable which is the student willingness and few other affected variables, it was identified that there exists a gap of connecting this variable with institutional development. Therefore, fifth hypothesis, (H5: Student's willingness into Online education system, has a direct & significant impact on education institutional development, moreover, eighth hypothesis also related to the student willingness, which is the mediator of this hypothesis, (H8: Student's willingness into Online education system, will mediate the relationship between Internet enabled learning infrastructure and Institutional development).

Mediation Variable

In this research student willingness, and teacher readiness will work both as a mediator variables, to mediates between the independent and dependent variable, usually, the independent variable like in this research case the internet infrastructure will make a change in the system, and the mediators variable here student/teacher readiness and willingness will lead that change to make it happen to the dependent variable which is the development of the institutional as whole. Generally the main purpose at the analysis part is to test which variable is making more effect on the dependent variable, is it the mediator or the independent variable, at the same it is important to check the correlation to understand the relationship between them, and that is what will be tested later in the next text of this research.

Research Design

The research designed to answer the research question by using descriptive research design, assuming some hypothesis related to the main title and problem of the research, by studying the challenges that affected the education system, as earlier mentioned, data will be collected using Survey questionnaire statement related to the same factors, the questionnaire statement will be Likert scaling method type of question to understand the degree of acceptance (agree or disagree) responses, analyze it using SPSS software, using Pearson Correlation method, and regression method. Based on what has been conducted in the literature review, a research model has been created as shown in the below diagram no.1

Diagram No.1: Research Mode

Table no.1 below show the supported reference's tabulation for each variable as stated previously in the literature review.

E-learning Development challenges during the pandemic of Covid-19	Reference Support
Independent Variable: Internet Infrastructure	(Mansoor, 2020), (Merjen, 2020)
Dependent Variable: Institutional Development	(Tabrez, 2020)
Mediator 1: Teacher Readiness Mediator 2: Student willingness	(Sengupta, 2020), (Rizvi, 2020), (Mathew, 2020), (Zaman, 2020)
Moderator: Government Regulation	(Godinho, 2020), (Masudi, 2020)

Table (1): Reference Tabulation

Research Hypothesis

Diagram No.2 Research Hypothesis for H1, H2, H3, H4, and H5.

Diagram No.3 Research Hypothesis for H6, H7, and H8

Research Methodology

As discussed previously, and after conducting the hypothesis research, it is time to prepare research questionnaire statement, remember that this research is following the quantitative approach, after collecting research data, will use Statistical Product and Service Solutions "SPSS" software to test research hypothesis, correlation method will be use, and linear regression analysis as well, also will use Andrew F. Hayes process in analyzing the effect of moderation and mediation variables, to understand how they impacted research model as whole, and to understand the variation percentage for each variable in research's dependent variable, which is "Education institutional development". Research questionnaire statements are mentioned in appendix A.

Research Questionnaire Statements

About research questionnaire and its variables

The questionnaire statements are conducted and prepared to investigate what is the audience experienced on online education development change in the country, and how they are reflecting to the challenges of the change.

No.	Variable	Items
1	Internet enabled learning infrastructure	3 Questions (Q05 - Q07)
2	Government regulations	3 Questions (Q08 - Q10)
3	Teacher Readiness to the change	3 Questions (Q11 - Q13)
4	Student willingness to change	3 Questions (Q14 - Q16)
5	Institutional development	3 Questions (Q14 - Q15)

Table (2): Research Variables and questions coverage

Survey has been conducted for only the students who are studying in United Arab Emirates, and it was conducted using survey monkey website, there was a demographic questions from question one to question four, then the other questions are prepared based on the variables that discussed in the literature review and in the research model previously, and table no.2 above is showing the coverage of each variable and where it was covered in which questioned, noticing that each variable has three questions that have been asked in order to make the variable more rich and reliable at the analysis part.

Data Analysis

Data has been collected using survey monkey website, collected 170 respondents, 3 candidates has a missing data, so it was omitted, so total of 167 respondents will be use in this research analysis

10.1 Frequency test

At the beginning of the test, we must check if we have any outliers/missing data, just to make sure, will use the demographic variable to do that, moreover, will see who are our candidates, what is their gender, what is their age range, what is their educational level, how many courses they are taken every week.

Statistics

		Gender	Age	Educational Level	Class Attending
N	Valid	167	167	167	167
	Missing	0	0	0	0
Mean		1.6108	1.3653	1.3892	1.9042
Std. Deviation		.48904	.48295	.48904	.88654

Table (3): Frequency Table Statistics

As it is showing from table no.3 above, frequency table statistics, there are no missing data, this is very important step, because sometimes we can't see if there is a missing data by eye, a double check is very necessary to do, zero missing data, mean we can go through.

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	65	38.9	38.9	38.9
	Female	102	61.1	61.1	100.0
	Total	167	100.0	100.0	

Table (4) Gender frequency statistics

In table no.4 above that most of the candidates of the survey are female gender, 61.1% are female, and 38.9% are male candidates, and most of them 63.5 % have age between eighteen to twenty eight years old, and the rest 36.5% have an age between twenty nine to fifty years old, as shown in table no.5 below.

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-28 years old	106	63.5	63.5	63.5
	29-50 years old	61	36.5	36.5	100.0
	Total	167	100.0	100.0	

Table (5) Age frequency statistics

Most of the candidates 61.1% are bachelor's degree students, only 38.9% of them are postgraduate students, and table no. 6 below are explaining that.

		Educational Level			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's Degree Student	102	61.1	61.1	61.1
	Postgraduate Student	65	38.9	38.9	100.0
	Total	167	100.0	100.0	

Table (6) educational level frequency statistics

And most of the candidates attend one to two classes per week, it is very a smaller number of classes, and that is clear as the survey was taken during the summer semester, where it has less classes compare to the Fall semester, figure no. 1 below showing the pie chart of the number of class that has been taken by the candidates, and table no.7 explaining that by percentage, where 42.5% of students who are taking two classes per week, 37.1% of students who are taking only one class per week, 13.2% of student who are taking three classes per week, and only 7.2% of students are taking more than three classes per weeks.

Figure (1): Pie Chart for the candidates who are taking online classes per week

Class attending

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One class per week	62	37.1	37.1	37.1
	Two classes per week	71	42.5	42.5	79.6
	Three classes per week	22	13.2	13.2	92.8
	More than three classes per week	12	7.2	7.2	100.0
	Total	167	100.0	100.0	

Table (7): Candidates who are taking online classes per week statistics

Normality Test

The data usually skewed or kurtotic, and this test will show how our collected data are normally distributed, the skewness of the data should getting close to the zero, which mean the collected data are perfectly normally distributed, if it was getting close to the one it mean the collected data are skewed to the left or to the right, but it should not be more than 1, for an example will do a test on the three variable if internet enable infrastructure, using SPSS software > analyze – descriptive statistics – explore.

As we can see in table no. 8 below skewness and kurtosis for Internet enabled learning infrastructure (IELI1, IELI2, IELI3) are below the absolute value of one , but it is not getting to the zero, so there is some skewness, as will be seen in figure no.2 below for IELI1.

Normality Test - Descriptive

		Statistic	Std. Error
Internet enabled learning infrastructure1	Mean	3.7186	.08863
	95% Confidence Interval for Mean	Lower Bound	3.5436
		Upper Bound	3.8936
	5% Trimmed Mean	3.7961	
	Median	4.0000	
	Variance	1.312	
	Std. Deviation	1.14537	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	2.00	
	Skewness	-.549	.188
	Kurtosis	-.449	.374
Internet enabled learning infrastructure2	Mean	3.6766	.08290
	95% Confidence Interval for Mean	Lower Bound	3.5130
		Upper Bound	3.8403
	5% Trimmed Mean	3.7495	
	Median	4.0000	
	Variance	1.148	
	Std. Deviation	1.07137	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	2.00	
	Skewness	-.573	.188
	Kurtosis	-.053	.374
Internet enabled learning infrastructure3	Mean	3.9760	.07402
	95% Confidence Interval for Mean	Lower Bound	3.8299
		Upper Bound	4.1222
	5% Trimmed Mean	4.0556	
	Median	4.0000	
	Variance	.915	
	Std. Deviation	.95660	
	Minimum	1.00	
	Maximum	5.00	
	Range	4.00	
	Interquartile Range	2.00	
	Skewness	-.913	.188
	Kurtosis	.756	.374

Table (8): Normality Test for IELI variables

Figure (2): Normal distribution histogram for IELI1

We can test the normality test by using Z-value, from the following formula

$$\frac{\text{Skewness or kurtosis Statistic value}}{\text{Std Error value}}, \text{ and it should be between } -1.96 \text{ to } +1.96, \text{ example on that for variable IELI1} = \frac{\text{skewness } -0.449}{\text{std error } 0.374} = -1.2$$
 it is acceptable, and so on.

Reliability Test

After the normality test and checking the distribution of the variables, it is very essential to test the internal consistency of the variables and how reliable to each other, and here it is important to test Cronbach Alpha of variables and it should be more than 0.7, if it is getting close to 1 it means that variables any type of question make the internal consistency of the questions reliable to each other, and that is based on the audience reflection to the questionnaire statements, and for any test has reliability less than 0.7, will be omitted from the research, getting 0.5 or 0.4 is not acceptable.

From analyze – scale – reliability test

Table no.9 below, clearly showing the excellent consistency between all variables, all above 0.7 that means they are all reliable

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Internet enabled learning infrastructure1	69.0871	100.214	.563	.857	.867
Internet enabled learning infrastructure2	69.3915	99.532	.532	.812	.868
Internet enabled learning infrastructure3	69.4138	104.026	.323	.803	.878
Government regulations1	69.6303	94.994	.738	.844	.862
Government regulations2	69.0651	103.440	.510	.672	.873
Government regulations3	69.0651	105.796	.394	.527	.873
Teacher Readiness to the change1	69.8911	107.077	.218	.422	.881
Teacher Readiness to the change2	69.5010	101.989	.448	.746	.873
Teacher Readiness to the change3	69.5100	101.811	.511	.637	.870
Student willingness to change1	69.3042	103.861	.419	.812	.872
Student willingness to change2	69.2172	101.818	.558	.880	.868
Student willingness to change3	69.3912	105.310	.317	.365	.877
Institutional development1	70.0871	101.770	.387	.745	.871
Institutional development2	69.8479	99.732	.562	.778	.865
Institutional development3	69.1523	102.354	.437	.908	.875

Table (9): Reliability test for all variables

Data Summarization & Reduction

After all required test, final step to do before doing testing the hypothesis, is doing a summarization to the variables, this research has 5 variables, each variable has three question, will take the summary by taking the avg of each variable, to do so, transform- compute variable.

Testing Hypothesis & research Results

Hypothesis 1 As mentioned earlier, about research hypothesis, now it is time to test one by one, the first test is **H1**, there is a significant relationship between IELI and ID, in another word, the relation between independent and dependent variables. Table no.10 below showing Pearson correlation method between the two variables, and it is significant at 0.01, it is less than 0.01, so it is significant, and we accept the hypothesis, and that is

obvious of course there is a relationship between internet and development into online education system.

Correlations

		IELnew	IDnew
IELnew	Pearson Correlation	1	.067
	Sig. (2-tailed)		.000
	N	167	167
IDnew	Pearson Correlation	.067	1
	Sig. (2-tailed)	.000	
	N	167	167

Table (10): Correlation between IELI and ID

Hypothesis 2, the second test is **H2**, is stated that IELI will directly affect TRC, in this case will do regression analysis to understand.

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	3.535	.250	14.117	.000
	IELnew	.091	.065	.108	.164

a. Dependent Variable: TRCnew

Table (11): Coefficients table predictor variables IELI and dependent variable TRCnew

As we can see from table no.11 above, there is no significant relationship between internet infrastructure and Teacher readiness into change even beta has a very small variation in IELI, so we reject this hypothesis.

Hypothesis 3, third hypothesis **H3**, stated that IELI will directly affect SWC, in this case will also do regression analysis to understand.

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	3.354	.251	13.385	.000
	IELnew	.157	.065	.185	.01

a. Dependent Variable: SWCnew

Table (12): Coefficients table predictor variables IELI and dependent variable SWCnew

In this hypothesis, and shown in table no.12 above, internet is independent variable, and SWCnew act as dependent variable, after doing linear regression analysis, we find out that relationship is significant, and there is 15.7% changes in IELI will affect SWCnew, the other percentage is affected by other factors, in this case we can accept the hypothesis

Hypothesis 4, fourth hypothesis **H4**, stated that TRC will directly has significant impact on ID, in this case will also use linear regression analysis to test the hypothesis. In this test, TRCnew will work as independent variable, and IDnew like always it is the dependent variable.

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	2.982	.291	10.237	.000
	TRCnew	.239	.074	3.226	.002

a. Dependent Variable: IDnew

Table (13): Coefficients table predictor variables TRCnew and dependent variable IDnew

As showing in table no.13 above, we accept the hypothesis because of its positive significant impact, the variation in teacher readiness of (Beta) 23.9% will has an impact on the institutional development of online education.

Hypothesis 5, fifth hypothesis **H5**, is almost similar to the fourth hypothesis, and its stated that SWC will directly has significant

impact on ID, in this case will also use linear regression analysis to test the hypothesis. In this test, SWCnew will work as independent variable, and IDnew like always it is the dependent variable.

Model	Coefficients ^a		Standardized Coefficients		t	Sig.
		Unstandardized Coefficients B	Std. Error	Beta		
1	(Constant)	2.912	.292		9.989	.000
	SWCnew	.253	.073	.260	3.463	.001

a. Dependent Variable: IDnew

Table (14): Coefficients table predictor variables SWCnew and dependent variable IDnew

Again, we accept the hypothesis, because of its positive significant impact, the variation in teacher readiness of (Beta) 25.3% will has an impact on the institutional development of online education.

Hypothesis 6, sixth hypothesis, **H6** is discussed how the moderator which is the government regulation, it has relationship between the independent IELnew and dependent variable IDnew, but obviously and as seen in below matrix no.1, the relationship is not significant, as p value more than 0.05, but there is a 42.83% variation in this variable that explain in the dependent variable.

Model Summary

R	R-sq	MSE	F	df1	df2	p
.1745	.0305	.3403	1.7069	3.0000	163.0000	.1676

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.0877	1.6569	1.2600	.2095	-2.2307	6.4061
IELnew	.3202	.4296	.7453	.4571	-.7995	1.4398
GRnew	.4283	.4185	1.0234	.3076	-.6624	1.5190
Int_1	-.0727	.1076	-.6760	.5000	-.3530	.2076

Matrix (1): matrix between IELI and IDnew, and GR as a moderator variable

Hypothesis 7, seventh hypothesis, **H7**, stated that TRC can lead the change of IELI and will affect it in a way to strengthen or weaken the dependent variable IDnew

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2469	.0610	.3276	5.3255	2.0000	164.0000	.0057

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.8704	.3576	8.0271	.0000	1.9385	3.8023
IELnew	.0338	.0628	.5381	.5913	-.1298	.1974

TRCnew	.2351	.0748	3.1419	.0020	.4301	.4301

Matrix (2): matrix between IELI and IDnew, and TRCnew as a mediator variable

As it is showing in the above matrix no.2 it is clearly showing the IELnew is not significant in this equation, but TRCnew is still working as a mediator and it is significant, which is less than 0.05, and the coefficient is 23.51%, means the percentage variation in TRCnew can make a changes in the institutional development, so we accept the hypothesis.

Final Hypothesis in this research is **H8**, stated that SWC can lead the change of IELI and will affect it in a way to strengthen or weaken the dependent variable IDnew, ame as in hypothesis no.7, will use Andrew F. Hayes Process from regression, model 4.

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2610	.0681	.3251	5.9930	2.0000	164.0000	.0031

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.8653	.3462	8.2754	.0000	1.9629	3.7676
IELnew	.0160	.0633	.2533	.8003	-.1488	.1809
SWCnew	.2493	.0745	3.3467	.0010	.0552	.4434

Matrix (3): matrix between IELI and IDnew, and SWCnew as a mediator variable

Same like in hypothesis no.7, matrix no.3 is showing that the mediator is significant in this hypothesis, and is doing a changes by 24.93% means the percentage variation in SWCnew can make a changes in the institutional development, so we accept the hypothesis, and below table is a summary for all the hypothesis

No.	Hypothesis	Result after testing
1	There is a significant relationship between Internet enabled learning infrastructure and Institutional development.	Accept Hypothesis, Significant relationship
2	Internet infrastructure of the country is directly affected Teacher readiness on Online education system.	Reject hypothesis, as it is not significant
3	Internet infrastructure of the country is directly affected student's willingness into Online education system.	Accept Hypothesis, Significant positive relation.
4	Teacher readiness on Online education system, has a direct & significant impact on education institutional development.	Accept Hypothesis, Significant positive relation.
5	Student's willingness into Online education system has a direct & significant impact on education institutional development.	Accept Hypothesis, Significant positive relation.
6	Government Regulation will moderate significantly the relation between the internet enabled infrastructure and institutional development.	Partially accepted, it is not significant but there is a variation.
7	Teacher readiness on Online education system, will mediate the relationship between Internet enabled learning infrastructure and Institutional development.	Accept Hypothesis, Significant positive variation changed.
8	Student's willingness into Online education system, will mediate the relationship between Internet enabled learning infrastructure and Institutional development.	Accept Hypothesis, Significant positive variation changed.

Table (15): Hypothesis Summary

Conclusion

This research has discussed the change and developing from traditional education to online education, and these changes were because of the novel virus that attacked the global, so there was no other decision to take better than this, to warrant student's future, and there was eight hypothesis, and it was noticeable that government regulation is affected by a high variation percentage, but it was not significant in this case because it is working as a moderator between internet infrastructure and institutional development, however, the mediators were working significantly in this research and they positioned correctly, teacher readiness to the changes, and student willing to open their system and connect with their teacher to study was significant in a way to grow in the institutional development and made a very good variation, teacher readiness has a variation of 23.9% in the institutional development, and student willingness to change has 25.3% in the institutional development. Also, it was noticeable that the internet infrastructure correlate significantly with development growth of online education, and it will be a good approach if they enhance the internet even better, deploying 5G network technology could make a big difference especially for schools and university who are implementing internet of things system.

Recommendations

it is very important for any industry to understand its resources and main variables, moreover, they should understand the mediator they have at the organization/company, because it is the relation and can strengthen the goal of a certain business. Another important aspect is the moderator of the organization, very important to find the moderator in our company and use it in a way to satisfy people and achieve better, because it is responsible for the interaction between independent and dependent variable (the objective of every business).

Further Research and Limitation

The research used some variables, that can reduced the challenges of covid-19, which are the internet infrastructure, teacher readiness, students willingness, another variable could be used in the future, which it could be by implementing the software, and it could be possible to use virtual reality 3D, in a way that make you feel more satisfy, and seeing your teacher and students, like if they were real, such a technology can be used if the virus stay for a long period, hybrid class is also another approach, as student can attend some classes online, and another one at university, of course with following the best precautionary measure, and social distance practices, another aspect here is the limitation of the research, as the time is very limited it could have collected more respondents to give a better explanation in the analysis part, moreover, it is still new to the audience, and they need time to cope with the idea of the change, because any change in any industry required time, to manage and to achieve a better performance, and that is the main goal.

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