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Smart Administration of Crises and Their Economic Effects: A Case Study of the Novel Coronavirus (COVID-19) At the Saudi Universities

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Abstract: The present research aims to identify the role of smart administration in addressing crises and their economic effects, the role of Saudi universities in facing Coronavirus, and the role of academic leaders in activating smart administration that helps face crises at the Saudi universities throughout the outbreak of the novel Coronavirus. The author adopted the descriptive approach and a questionnaire, consisting of (147) items, was applied to a sample of the Saudi university leaders at Princess Nourah Bint Abdulrahman University (PNU), Umm Al-Qura University, King Khalid University, University of Ha'il, and King Faisal University. The results showed that the degree of businessmen's satisfaction with electronic economic seminars and conferences was moderate due to the little awareness of the relevant significance of smart administration. Moreover, Corona pandemic revealed the importance of these conferences and seminars, but businessmen were dissatisfied. Furthermore, the university administration was interested in delivering training courses to the personnel of the public relations department, which first handles crises. In addition, the academic leaders instructed faculty members to adopt digital curricula to reduce the educational crisis resulting from the spread of Coronavirus. The research recommends activating smart universities that comply with the environmental changes and empower the personnel to use the advanced technology to meet the requirements of the developmental plans as well as preparing a competent team to manage the university crises and equip its members with the modern technology that helps identify the information relevant to the present and the expected changes.

Keywords: Smart administration, Crises, Covid-19.

Introduction

The outbreak of Covid-19 pandemic has caused some economic implications and it is termed as coronanomics or black swan. The epidemic appears to have triggered a de-globalization process by pushing nations to close their borders, prohibiting regular movements of commodities, capital, and people, as well as temporary commercial and production shutdowns. Countries have already begun to experience the effects of the pandemic on their macroeconomics, and experts are increasingly looking into it. The COVID-19 pandemic is causing significant and far-reaching economic costs for all nations, in addition to the terrible health repercussions (Barua,2020). The virus's economic impact is growing in a big manner, and it is already obvious in a lot of nations (Gopinath, 2020).

In general, COVID-19 has had an impact on everyday life, delayed the global economy, and disrupted global trade and mobility (Haleem, et al., 2020). Supply chain disruptions and a sharp drop in global commerce put even more strain on countries that rely heavily on international trade (Fernandes, 2020). The increase in pricing pressure will be one of the effects of this worldwide economic slump. In this perspective, any country, regardless of its socioeconomic status, must adopt efforts to strike a balance between the need for health safety and the demands of its people (Buheji, et al., 2021).

Recently, technology has had several rapid and successive changes. To comply with this technological progress and biological changes, it is essential to change the

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management of the university institutions and to adopt modern technical approaches in the administration. Scientific and technological progress that occurred in the last century urged the whole world to prioritize smart competencies. However, this interest did not match the smart capabilities of the university personnel (Al-Arawi, 2011).

In addition to the technological changes that occurred in the last two decades, Coronavirus (Covid-19), which is one of the sudden biological challenges and represents a new strain of viruses that have not been previously identified, has prevailed worldwide (World Health Organization, 2020). Accordingly, the institutions have adopted smart technology and so the concept of smart administration has emerged. It denotes the applications and technologies that are used to collect and analyze the data related to the company's operations and to make the proper management decisions. The Central Intelligence Agency (CIA) first adopted this term (Abdelhalim, 2015). Several institutions, including universities, have turned into smart ones to competently handle the rapid and inconstant epidemiological crises (Abdelazim, 2017).

The developments in information and communication technology as well as the crises that coincided with the emergence of the virus (Covid-19) have provided a healthy and safe smart environment at the universities, at the administrative or the educational level. Strategies of online learning have helped students access content, do researches, and collaborate, which enriches online teaching and learning practices (Altinay et al.,2020). Smart administration encourages faculty members to perform new tasks because universities have to develop and institutionalize faculty roles to competently organize and coordinate tasks (Terje, 2017).

Problem of the study

Problem of the present research is relevant to the spread of Coronavirus (COVID-19) pandemic as it affected Saudi Arabia, which adopted all precautionary measures to combat it. In addition, it greatly influenced the educational institutions that subsequently adopted e-learning. Al-Jarallah (2020) indicated the Kingdom's efforts to use online technical packages and platforms that keep learning constant at Saudi universities and schools.

In addition to the effect of this crisis on the education sector, it badly impacted all economic aspects because of shops closure, minimizing working hours at all public departments, reducing the number of workers and their salaries in the private sector, suspension of Umrah by the Ministry of Foreign Affairs on 26/2/2020 and cancellation of Hajj season (Al-Deeb & Basim, 2020).

The problem of the study is summarized in the following main question:

How is the role of smart administration activated to face crises and their economic effects at the Saudi universities throughout the outbreak of the novel Coronavirus (Covid-19)?

It is subdivided into the following minor ones:

1. What is the role of smart administration in facing crises and their economic effects?
2. What is the role of Saudi universities in facing Coronavirus (Covid-19)?
3. What is the role of academic leaders in activating smart administration that helps face crises at the Saudi universities throughout the outbreak of the novel Coronavirus (Covid-19)?

Aims of the study

The present research aims to identify the following:

1. The role of smart administration in addressing crises.

2. The economic effects of the crises.

3. The role of Saudi universities in facing Coronavirus (Covid-19).

4. The role of academic leaders in activating smart administration that helps face crises at the Saudi universities throughout the outbreak of the novel Coronavirus (Covid-19).

Significance

Theoretical significance: The present research reviews the relevant literature which presents a theoretical description of the variables that have recently captured the scholars' attention recent. Moreover, smart administration plays a role in creating and reinforcing new tasks for the university leaders as well as reflects the ability of these institutions, including the university, to keep going in light of the spread of epidemics. Other authors also can cite this research as a reference.

Practical significance: The present research identifies the relationship between smart administration and crises management as well as the ability of the university leaders to activate it. Furthermore, the identified mechanisms may grab the attention of policy makers and decision makers to the importance of smart administration, especially In light of the repercussions of COVID-19 pandemic.

Limits of the study

Spatial limits: The research was applied to sample of the Saudi university leaders at Princess Nourah Bint Abdulrahman University (PNU), Umm Al-Qura University, King Khalid University, University of Ha'il, and King Faisal University.

Temporal limits: The research was conducted in the academic year 2020/2021.

Human limits: The research was applied to the academic

leaders of the aforementioned universities, i.e. vice rector, dean, vice-dean, head of department and head assistant.

Topic limits: The research was restricted to the role of smart administration in facing crises and their economic effects as well as its role at the universities in light of the challenges of the novel Coronavirus.

Definition of Terms

Smart Administration: According to Barzelay (2016), smart administration is the administration in which management practices are designed according to a careful analysis of its potentials to create intended effects in particular situations and contexts. It is also the administration that manages change using creativity and problem solving process. Abdelhalim (2015) stated that smart administration denotes the applications and technologies that are used to collect and analyze the data related to the institution's operations and to make the proper management decisions. Moreover, smart administration systems offer multiple ways that overcome the obstacles, which directly impede its production and marketing. It is procedurally defined as the ability of the leaders of these institutions to use technologies and applications to overcome the crises they face to make the proper decisions, which help, achieve the quality of the academic and administrative process as well as positively affect the educational outcomes.

Crisis: According to Merriam-Webster Dictionary (2020), a crisis is a change for better or worse. Whereas, Collins Dictionary (2020) defines it as a situation where a thing or a person is affected by a sudden serious problems. This definition highlights the element of surprise in the crisis. Hence, it is possible to come up with a procedural definition of the crisis as "a sudden situation that could face university education institutions in the Kingdom, and it needs to take a quick and important decision to avoid its bad results and transform the situation for the better."

It is procedurally defined as a sudden situation that Saudi universities faces and requires an instant decision to avoid its negative effects.

Literature Review

Dogar et al. (2020) aimed to identify the constraints to online teaching at Comostas University in Islamabad and Abbottabad University in Pakistan. To achieve the study objective and collect data, interviews were conducted with a sample of (16) graduate students enrolled in social science courses, (4) faculty members, and the university administrators. The results showed that poor internet connection, communication gap in online education due to lack of a classroom for online classes, and excessive screen exposure substantially impeded online education.

Nordmann et al. (2020) addressed the educational issues and disruption resulted from Covid-19 virus at the entire higher educational institutions. The study defined the basic principles to facilitate discussions taking place around the globe by balancing what we know from the pedagogy of online learning with the practicalities imposed by this crisis and any future crises.

Marshall, Roache, and Marshall (2020) examined the characteristics of the leader during crises, the new challenges that faced the educational leaders during Covid-19 crisis, and how educational leaders managed the initial phase of the COVID-crisis in Barbados and Canada. The results demonstrated that higher education leaders were confronted with the magnified issues of equity, access to technology, teacher training, resources, financing, and the well-being of students and staff. Moreover, they adopted different strategies to combat this crisis.

Tantawi (2020) shed light on the methods adopted by Pharos University in e-learning and their effectiveness for students. The study adopted the case study approach and the qualitative approach. The results and recommendations maximize the quality of e-learning and its applications and help students overcome its difficulties. Al-Jarallah (2020) investigated the social and educational aspects of e-learning sustainability in Saudi Arabia. The study adopted the descriptive approach. The results showed that electronic content had great importance in the sustainability of e-learning. In addition, e-learning sustainability proved its success due to the adoption of appropriate educational strategies for each course and the availability of technical requirements that enhance the educational strategies.

Abbasi et al. (2020) examined the quality of virtual learning in Algeria and the requirements to activate it throughout Corona pandemic. The study adopted document analysis approach. The results showed that Corona pandemic made traditional education impossible. Moreover, virtual learning proved its success, especially in light of Corona pandemic. Furthermore, the quality of higher education based on virtual learning requires regulation and technology. Al-Jubouri and Al-Samman (2020) explored the association between leadership strategies, smart institutions and crisis management at the University of Mosul. The author applied the descriptive analytical approach and a questionnaire was applied to (298) leaders at the university to collect data. The statistical program (Amos) adopted to test the hypotheses. The results and recommendations could reinforce the performance of the university and qualify it to manage crises.

Al-Sisi (2020) explored the reality of adopting crisis management system in the Saudi schools to combat Covid-19 virus. The descriptive approach was adopted and a questionnaire was applied to a sample of (126) administrative and educational cadres (educational leader, deputy, administrator, and teacher). The results showed that the participants approved the necessity of crisis management system that schools lack. Moreover, the administration has to provide the human and material elements to activate this system.

Coccia (2020) identified the aspects and strategies of crucial decisions in crisis management. Crucial decisions might be made due to scarce natural and economic resources, uncertain and unstable environmental factors, environmental difficulties or conditions, ambiguous circumstances, unclear situations, or a bunch of these factors. The study suggests several strategies for making crucial decisions in different environments based on rational choice theory.

Zara'a and Kaaki (2015) investigated the reality of crisis management at Princess Nourah Bint Abdulrahman University (PNU) from the faculty members' point of view on the five stages of the crisis and the mechanisms that improve the quality of crisis management at the University. The study adopted the survey descriptive survey approach and questionnaire was used as a tool for data collection. The population consisted of (406) faculty members who were randomly selected. The results illustrated lack of strategic plans that help address crises. Alagez and Assaf (2017) addressed the degree of senior management's practice of crisis management in Palestinian universities and its relationship to their strategic thinking as well as the strategic planning indicators. The study adopted the analytical descriptive approach and a questionnaire was used as a tool for data collection. The results showed that the domain of planning for facing crises was ranked the first.

Lott (2012) indicated that crises are prevalent in our lives, especially after the events of September 11, where people deal with personal, professional or social crises. The study examined crisis management plans in five universities in Washington, DC. through conducting a quantitative survey as well as some interviews with five leaders who were randomly selected from these institutions. The results showed that crisis management teams thought that their universities were well equipped to manage the crisis on campus. However, the personnel, faculty member and students disagreed with them.

Commentary

A. Aspects of benefit

- COVID-19 virus has caused a major crisis at the university education at the international and national levels.
- Virtual education has been the optimal solution to confront this crisis.
- The most prominent challenge of this crisis was the lack of a digital environment at the universities.
- Higher education leaders faced diverse issues, such as equality, access to technology, teacher training, resources, and finance.
- Success of e-learning requires the technological preparation of the personnel at the educational institution to have advanced technical skills.
- Posting untrue views and concepts on social networks exacerbate crises.
- Availability of strategic plans helps manage the crisis properly.
- Good management of crisis requires several fundamentals, such as communication, planning, making the right decision at the right time, forming a crisis management team, and availability of true information on the crisis.

B. Aspects of difference

- Previous literature tackled two domains: Crises and the association between smart administration and crises during Corona pandemic. Whereas, the present research highlights the relationship between smart administration of crisis and its economic effects due to the spread of COVID-19 virus in Saudi Arabia.
- The present research highlights the economic and educational effects of the virus, while most of the previous literature addressed the educational effects only
- Some previous literature tackled smart administration at schools and universities, but the present research addresses the role of smart administration only at the universities.
- The previous literature adopted the approaches of case study, descriptive study, documents analysis, and comparative studies. However, the present research applies a questionnaire to university leaders and adopts the descriptive approach.

Methodology and Procedures

Method

The author adopted the descriptive approach and a questionnaire was applied to some Saudi university leaders.

Role of smart administration in facing crises and their economic effects

i. Economic effects of Covid-19 crisis

COVID-19 has had an impact on communities, businesses, and organizations all around the world, impacting financial markets and the global economy accidentally. The supply chain has been disrupted due to uncoordinated government actions and lockdowns (Nicola, et al., 2020).

This oil-price battle is expected to have serious consequences for the global economy, based on the experience of a virus epidemic that has already dampened oil consumption. Cheap oil may have served as a competitive advantage for economies in earlier times.

However, since people are taught to exercise social distance and the working class is concerned about job security, earnings from gasoline sales are unlikely to be channeled into increased expenditure. Furthermore, any boost in consumer activity will very certainly be balanced by the harm done to communities that rely on money from alternative sources of energy. COVID-19 has had an impact on communities, businesses, and organizations all around the world, impacting financial markets and the global economy accidentally (Bai, et al., 2020).

Fear of the Corona virus has caused a significant change in the global economic market, with daily stock market collapses. Factories, restaurants, pubs, markets, flights, super markets, malls, universities and colleges, and other businesses were forced to close (Singh & Singh, 2020). The novel Coronavirus (COVID-19) epidemic has already wreaked havoc on the global economy in a variety of ways, resulting in severe labor market disruption. This pandemic has an impact on both supply (goods and services produced) and demand (consumption and investment). Both advanced and developing countries are attempting to deal with the epidemic, and they are all limited in their resource capacity, with the gap in the poor world being more significant (Zayed, et al., 2021). There is no denying that financial markets now see COVID-19 as having tremendous disruptive potential, and those risks are genuine. However, asset valuation differences highlight the substantial uncertainty surrounding this disease, and history warns us against drawing a straight connection between financial market sell-offs and real-economy downturns (Carlsson-Szlezak, et al., 2020).

- Complete lockdown: 150 countries closed all schools and canceled gatherings and events. More than (80) countries closed workplaces to prevent the spread of the virus. Travel restrictions were imposed on a large scale. Compulsory closure of shops significantly affected worldwide activity and trade. Consequently, fluctuations in financial markets, as well as decline in oil and industrial metal prices, occurred (World Bank Report, 2020).

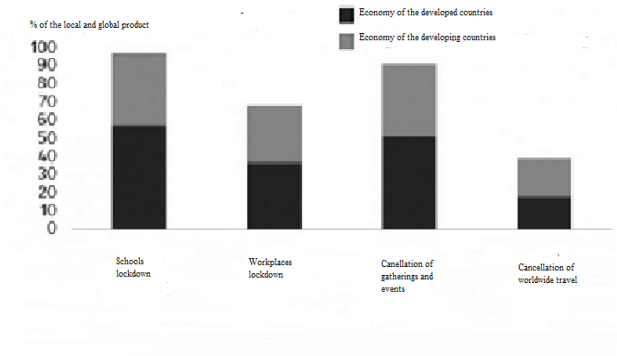

Fig. (1): The effect of Covid-19 crisis on the economy of the developed and developing countries.

Oxford University program for the government efforts to combat COVID-19 pandemic (World Bank, April 2020)

The chart shows that the crisis affected the economies of the emerging markets and developing countries more than those of the developed countries, which indicates the great economic crisis that these countries were exposed to in light of Corona pandemic.

- High rates of unemployment: According to the report of the International Labor Organization, 25 million jobs will be threatened due to Covid-19, especially after imposing full or partial lockdown in many countries. Furthermore, it affected employment in Arab and European countries. The biggest losses in terms of numbers are in the countries of Asia and the Pacific, which are the most populated areas in the world (International Labor Organization, April 2020).
- Oil prices recession: The pandemic resulted in a sharp drop in oil prices. Travel restrictions following this public health crisis reduced the global oil demand. Lack of a new production agreement among OPEC members has led to a supply increase. Hence, oil prices have fallen by more than 50% since the beginning of the public health crisis. These repercussions might negatively impact the economic activity in the region during the first half of this year at least (International Monetary Fund, 2020).

ii. Economic effects in Saudi Arabia: The economic report prepared by the Economic Unit at the Council of Saudi Chambers on "Coronavirus pandemic and the Saudi private sector" praised the efforts undertaken by the government of the Custodian of the Two Holy Mosques during the crisis. It prioritized the financial measures, where it allocated 3.14% of its gross domestic product (GDP) for the category of instant financial support to help the health sector control the spread of the virus. It allocated this sector (47) billion riyals. In addition, it supported the citizens to maintain their keep their jobs and provided decent livelihoods for all persons.

The report also indicated that the Saudi government allocated 3.06% to the category of deferring collection to support the private sector. It also allocated 1.8% of the gross domestic product to the category of lending expansion measures. This indicated the strength, safety and ability of its economy to provide cash liquidity and afford the burdens during this crisis.

Furthermore, jobs, such as logistics services, industrial engineering, cybersecurity, e-learning, e-training, programming, operation and electronic applications, electronic platform management, crisis and risk management, e-commerce and marketing, digital media, remote financial management, export and import transactions management, insurance management, support services and supply chains, that require high technical

skills, comply with the economic, cultural, social and technical variables and are consistent with the Kingdom's vision 2030 will increase in the future (The Economic Unit of the Council of Saudi Chambers, 2020).

iii. Smart administration and its economic effects: In light of the world economic challenges, including Saudi Arabia, smart administration has played a role in alleviating the severity of Covid-19 pandemic. Lockdown, quarantine and staying home terribly affected the national and global economy, employers and investors. In addition, industries and companies have been temporarily suspended. Also, travel and supply of goods and services were restricted, causing economic turmoil (Gupta et al., 2020).

Schools, cafes, malls, companies have been completely locked down in various countries to effectively implement and monitor preventive controls and mitigation strategies for Covid-19. Thus, smart administration, including the Internet of things and cloud computing, artificial intelligence and data-driven applications, have paled a prominent role in reducing the effects of the crisis (Kummitha, 2020).

Smart organization, which adapts to sudden environmental changes, integrates its employees with advanced technologies and meets the requirements of its customers in a short time; is safe and well-established, engages its employees in the organizational processes, and reinforces their capabilities to acquire knowledge through obtaining and analyzing the available data. Adopting this organizational intelligence, directors can conceptualize the present and future situation (Pazireh et al., 2019).

iv. Role of smart administration at the universities in light of the challenges of the novel Coronavirus: Universities faced numerous challenges to combat the virus, as they had to change traditional learning methods and adopt e-learning and virtual education. E-learning, which is an electronic educational system, is synchronous, where the student and professor exist in the educational institution, or asynchronous, where the professor never supervises the students who do not interact with each other (Abbasi et al., 2020). Virtual education is a type of e-learning that has replaced traditional learning during Coronavirus crisis because the learner gets data and information online (Liu, Wang & Wang, 2020)

Virtual universities simulate the traditional universities, but the student learns at home via the Internet and has the exams in computer laboratories (Tantawy, 2020). They also allow the faculty member to interact with students who can students interact with each other.

According to Dog, Shah, and Ijaz (2020), online learning has the following challenges:

- Communication gap is represented in the students' inability to communicate with their professors and colleagues.
- Access to the Internet may impede the students who live in villages and remote areas.
- Impact on quality of education: Education via digital platforms made many students dissatisfied with the quality of education.
- Unwillingness to enroll for online courses: Students prefer classroom education because it is more interactive than virtual education.
- Anxiety caused by the new lifestyle: The compulsive and rapid staying at home has caused anxiety among students and their families because they were exposed to the new lifestyle and learning methods.

v. Experiences of some foreign universities during Covid-19 pandemic

First: The experience of higher education in Canada and Barbados: Like other countries, Canada and Barbados faced the virus which spread in the country a state of panic and uncertainty, especially after addressing this topic in media and on social networks sites. According to Marshall, Roache, and Marshall (2020), university leaders have taken several rapid and pioneering measures, as follows:

- Strategic planning and prioritizing the comprehensive preparation for online submission and evaluation.
- Form various subcommittees (including health committees) to manage the crisis.
- Present webinars, educational videos, live learning experiences, and free resources for teachers, parents, and students.
- Train some faculty members and students to access Wi-Fi in some rural areas and attend online classes.
- Courses were delivered to the students and staff to prepare them for virtual teaching and they were trained to access education both synchronously and asynchronously.
- Design programs to ensure assessing students properly online without affecting testing process and allow students to defer their courses without academic or financial penalty.
- Leaders made great efforts to communicate effectively with stakeholders via emails and meetings with staff and student representatives to keep stakeholders informed and engaged in the University's attitude towards initiating and continuing study.
- The collaborative leadership approach has been evident in both Canada and Barbados, especially when several committees were formed to address

the diverse issues that have arisen in light of the unprecedented virus. Thus, leaders can benefit from the diverse strengths and experiences of their team members in making effective decisions.

- Flexible Leadership: Uncertainty regarding Covid-19 virus requires a flexible leadership approach to instantly adjust plans if necessary. Higher education leaders in Canada and Barbados have adopted this approach to anticipate and be willing for emergency plans.
- Adaptive leadership: Planning, safety measures, and adjustments made by higher education institutions in Barbados and Canada reflect the great efforts of their senior leadership team to adapt to life after the spread of this virus. The adaptive approach of leadership is the cornerstone of decision-making process.

Second: The experience of higher education institutions in Ukraine

According to literature review, Ukraine is one of the countries that experienced high outbreak of COVID-19 pandemic. The Ukrainian experience may seem beneficial to the educational community when developing plans that help combat the virus. In February and March 2020, students continued their studies according to the defined timeline. However, in mid-March, following the Decree of the President of Ukraine that was issued based on the letter of the Secretary of the National Security and Defense Council, the decision of the Cabinet of Ministers of Ukraine and the letter of the Ministry of Education and Science of Ukraine; the university administrations issued the following instructions (Prokopenko & Berezhna, 2020):

- Provide distance learning as well as all preventive measures and adherence to social distancing.
- Establish coordination boards/teams to ensure continuity of work during the pandemic.
- Adopt distance learning with undergraduate, graduate and postgraduate students.
- Prevention of arranging educational, cultural, sports and other public events.
- Prohibition of doctoral students traveling in Ukraine and abroad.
- The Department of Political, Social and Cultural Studies at Skovoroda Kharkiv National Pedagogical University conducted a survey that provided students of Ukrainian higher education institutions and lecturers with online questionnaires related to social and economic issues during Coronavirus pandemic. The results showed that Ukrainian students substantially participated in reducing the crisis when they stayed home.
- 56% asserted their willingness to volunteer during the quarantine.
- The state has established technical institutions for education.
- Lectures and seminars have been replaced by conference calls and teachers have used Google Classroom as well as virtual classroom service.
- Projects were presented using Moodle, Zoom, Skype, Viber and Telegram.
- Teachers have adopted distance learning systems, such as Prometheus.
- Development of discipline and self-regulation of students, where training centers at the universities have trained students to facilitate their access to education at the right time and place regardless of the place of residence and health or social status.
- The courses that the universities presented to faculty members made them coordinate and constantly improve learning process as well as maximize creativity.
- Define a clear strategy of distance learning which helps students learn and collaborate with teachers.
- Higher educational institutions devoted their effort to identify the discipline of the departments, the process of students' training, the system of dormitories work, communication methods, as well as psychological and medical care delivered to students.

Population and Sampling

The population involved the academic and administrative staff at some Saudi Universities. The sample was intentionally selected.

Table (1): Distribution of the participants according to the university and district.

University	District	No. of questionnaires
Ha'il	Northern	43
Princess Nourah Bint Abdulrahman	Middle	50
Umm Al-Qura	Western	20
King Khalid	Southern	28
King Faisal University	Eastern	6

Total		147

Table (2): Distribution of the participants according to the position and Degree.

Position	No.	Degree	No.
Vice Rector	6	Professor	26
Dean	19	Associate professor	42
Vice Dean	42	Assistant professor	79
Head of Department	80		
Total	147	Total	147

Tools of the study

The author adopted a questionnaire consisting of (147) items. Final form comprised two sections: While section one involved key data of the faculty members (name (optional), university, district, governorate, position (Vice Rector, Dean, Vice Dean and Head of Department), and degree (professor, associate professor and assistant professor) the second section included the three domains and the (27) items. The author adopted the three-point Likert scale. The participants were asked to check only one item according to their perspective.

To verify its validity, the questionnaire was reviewed by some Saudi faculty members to evaluate the appropriateness, relevance, clarity, and wordiness of the items. According to their views, some items were omitted and modified to have the final form of the questionnaire.

The questionnaire's reliability was estimated using Cronbach's Alpha coefficient.

Table (3): Reliability coefficients of the domains.

Domain	Cronbach's Alpha coefficient
Role of smart administration in addressing crises and their economic effects.	0.938
Role of Saudi universities in facing Coronavirus (Covid-19).	0.944
Role of academic leaders in activating smart administration that helps face crises at the Saudi universities throughout the outbreak of the novel Coronavirus (Covid-19).	0.923
Total	0.927

Results and Discussion

1st domain: The role of smart administration in addressing crises and their economic effects.

Table (4): Responses to the role of smart administration in addressing crises and their economic effects.

	Item	Agreement			Arithmetic mean	Standard deviation	Relative strength	Ranking
		Agree	Slightly agree	Disagree				
		F	F	F				
1	Adopting technology at the government departments helped accomplish tasks easily during Corona crisis.	96	44	7	3.00	.580	2.01	2
2	Adopting electronic communication helped businessmen conclude their deals, which alleviated the severity of the economic crisis in Saudi Arabia.	35	61	51	2.00	.760	1.76	3

	Item	Agreement			Arithmetic mean	Standard deviation	Relative strength	Ranking
		Agree	Slightly agree	Disagree				
3	Smart administration applications have provided several strategic options and alternatives to the investors in the Kingdom, which has reduced the economic risks during Corona pandemic.	43	78	26	2.00	.678	2.04	1
4	Smart administration helped businessmen arrange economic seminars and conferences that mitigated the economic effects during Corona pandemic.	55	69	23	2.00	.698	1.75	4
5	Smart administration applications provided the data and information that enabled various companies to make the right economic decisions during Corona crisis.	37	70	40	2.00	.726	1.59	5
6	Smart administration programs helped the private sector and various ministries create appropriate strategies and visions that confront Corona pandemic and other expected future crises.	51	75	21	2.00	.672	1.29	6
7	Social networks enabled decision-makers in various ministries to hold instant meetings in which they develop the mechanisms that help confront the economic crisis resulting from Corona pandemic.	61	70	16	2.00	.658	0.41	7

Table (4) shows that item No. (1) had the highest arithmetic mean and the lowest standard deviation. This result is consistent with Lott (2012), Al-Sisi (2020), Abbasi et al. (2020) and Al-Jubouri and Al-Samman (2020) that asserted the importance of modern technology in managing education during crises, especially Corona pandemic. However, item No. (2) was ranked the lowest due to the participants' unawareness of the significance of adopting electronic communication methods in concluding transactions or because the Saudi economy was affected due to businessmen's fear of employing modern technology in concluding deals.

2nd domain: The role of Saudi universities in facing Coronavirus (Covid-19)

Table (5): Responses to the role of Saudi universities in facing Coronavirus (Covid-19)

Item	Agreement	Arith	Stand	Relat	Rank

		Agree	Slightly agree	Disagree				
		F	F	F				
1	Adopt distance education as a primary method to control the spread of the novel Coronavirus.	93	48	6	3.0	.570	2.26	1
2	Increase the budget of purchasing technological devices to facilitate digital transformation process.	50	70	27	2.0	.709	1.52	8
3	Help students access to technological devices.	51	63	33	2.0	.748	1.55	7
4	Adopt educational platforms as a safe alternative to traditional education.	59	72	16	2.0	.654	2.21	2
5	Benefit from social networks to activate communication with faculty members, students and parents.	69	67	11	2.0	.625	1.84	5
6	Prepare sterile laboratories for faculty members.	38	65	44	2.0	.748	1.97	4
7	Deliver training courses to the staff of public relations department which first handles the crises .	41	82	24	2.0	.657	2.01	3

Table (5) indicates that the Saudi universities took several measures to combat the virus spread.

Item No. (1) had the highest arithmetic mean (3) and the lowest standard deviation (0.570). Whereas item No. (10) was ranked the lowest may be due to the weakness of the crisis management team at the universities. Also, the crisis affected the flexibility of the educational content prepared for students. This result is consistent with Marj (2020) that asserted the challenges facing virtual education at the universities and Al-Sisi (2020) that emphasized the importance of having a crisis management system at schools to early detect crises.

3rd domain: The role of academic leaders in activating smart administration that helps face crises at the Saudi universities throughout the outbreak of the novel Coronavirus (Covid-19).

Table (6): Responses to the role of academic leaders in activating smart administration that helps face crises.

Item		Agreement			Arithmetic mean	Standard deviation	Relative strength	Ranking
		Agree	Slightly agree	Disagree				
		F	F	F				
1	Faculty members were instructed to create digital curricula to reduce the educational crisis resulting from the virus.	65	648	13	2.0	.639	1.91	1
2	IT unit prepared training courses for faculty members.	62	60	25	2.0	.729	2.62	8
3	Letters were sent to the university administration to activate e-learning	42	73	32	2.0	.709	1.31	7
4	A day was defined every week for the students living in villages to access the internet easily at the university.	31	57	59	2.0	.762	1.73	2

	Item	Agreement			Arithmetic mean	Standard deviation	Relative strength	Ranking
		Agree	Slightly agree	Disagree				
5	Provide digital platforms for the learners.	49	86	12	2.0	.595	1.69	5
6	Prepare appropriate classrooms where students have social distance in written tests.	47	83	17	2.0	.630	2.51	4
7	Develop a plan that helps students communicate with faculty members at specific times.	47	89	11	2.0	580	2.24	3
8	Increase revision on summer vacation and before the academic year to cover what the students missed.	33	66	48	2.0	.738	1.79	6
9	Provide faculty members with psychological support to help them adapt to the changes resulting from the virus.	36	61	50	2.0	.762	1.67	9
10	Provide students with the courses that qualify them for the oral exams.	39	72	36	2.0	.716	1.42	10
11	Reinforce communication between students and professors to be positive ones.	40	85	22	2.0	.740	0.27	11

Table (6) shows that items No. (2,6, 7, 1, respectively) were ranked the highest. This result is consistent with Al-Jubouri and Al-Samman (2020) and Al-Tantawi (2020), but it is inconsistent with Abbas et al. (2020) and Al-Marj (2020).

Conclusion

First Domain

- Adopting technology at the government departments helped accomplish tasks easily during Corona crisis.
- Smart administration applications have provided several strategic options and alternatives to the investors in the Kingdom, which has reduced the economic risks during Corona pandemic.
- Businessmen were slightly satisfied with adopting electronic websites to conclude their deals, which alleviated the severity of the economic crisis in Saudi Arabia.
- Businessmen's satisfaction with electronic economic seminars and conferences was low due to the unawareness of the importance of smart administration.
- Decision makers at different ministries were demotivated to adopt social communication networks in arranging meetings to develop strategies that help address the economic crisis.

Second Domain

- The Saudi universities adopted distance education to control the virus spread.
- The Saudi universities replaced traditional education with platforms as a safe alternative.
- The university administration delivered training courses to the staff of public relations department, which first handles the crises.
- The university sterilized the faculty members' classes.
- Digital content was not well prepared.
- The Deanship of Student Affairs did not prepare the modern technological devices that facilitate contact with students during the crisis competently.

Third Domain

- The academic leaders presented training courses for the faculty members with the assistance of (IT) unit.
- Students had social distance in the classrooms devoted to written exams.
- A plan was developed to help students communicate with faculty members at specific times.
- Academic leaders instructed faculty members to expedite adopting digital curricula to reduce the educational crisis caused by the spread of Coronavirus.

- Letters were sent to the university administration to activate e-learning.
- Academic leaders' were disinterested in providing the training courses that qualify students for oral presentations in the final exams.
- Academic leaders were keen to deepen effective communication between students and professors, which made them positively share in the dialogue.

Recommendations

The present research recommends transforming universities into smart ones that adapt to sudden environmental changes and allow their personnel to integrate with advanced technology that fulfills the requirements of developmental plans. Preparing a competent team equipped with modern technology that provides information on the present and expected changes and helps manage university crises. Moreover, the Saudi universities have to develop future plans that adapt to the economic, cultural, social and technical changes and match the Kingdom's vision 2030. All Saudi universities should adopt virtual education as an alternative to traditional education. Furthermore, maximizing training programs for faculty members and the employees to keep pace with the local and global changes. The university infrastructure has to be compatible with smart devices. In addition, providing smart devices at the classes and rooms that faculty members use. Using social networking sites to communicate with students, as well.

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References

[1] S. Barua. *Understanding Coronanomics: The economic implications of the coronavirus (COVID-19) pandemic*. (2020); Available from: https://ssrn.com/abstract=3566477.

[2] G. Gopinath, *Limiting the economic fallout of the coronavirus with large targeted policies, Mitigating the COVID economic crisis: Act fast and do whatever it takes*. 41-48 (2020).

[3] A. Haleem, M. Javaid, and R. Vaishya, *Effects of COVID-19 pandemic in daily life, Curr Med Res Pract*. **10(2)**, 78-79 (2020).

[4] N. Fernandes. *Economic effects of coronavirus outbreak (COVID-19) on the world economy*. 2020; Available from: http://dx.doi.org/10.2139/ssrn.3557504.

[5] M. Buheji, et al., *The extent of covid-19 pandemic socio-economic impact on global poverty. a global integrative multidisciplinary review, American Journal of Economics*. **10(4)**, 213-224 (2020).

[6] A. Al-Arawi, *The role of smart administration and senior administration in the development and renewal of business and leadership in the institution, Journal of College of Administration and Economics*. **(4)**(2011).

[7] *Emerging respiratory viruses, including COVID-19: Methods of detection, prevention, response and control*. 2020; Available from: https://openwho.org/courses/introduction-to-COVID-19-AR?locale=en.

[8] E. Abdelhalim, *Smart administration, economics and accounting*. **10(660)**(2015).

[9] H. Abdelazim, *A proposal for transforming Egyptian universities into smart ones in light of Karl Albrecht's model of organizational intelligence, Journal of Educational and Social studies*. **23(1)**(2017).

[10] F. Altinay, et al., *Readiness to online learning: To be a smart university, Romanian Journal for Multidimensional Education*. **12(1)**(2020).

[11] T. Gaustad and D. de Paoli, *New Faculty Roles in Online Education: The Professor as Writer, Director, Actor and Producer?, Smart Universities: Education's Digital Future. Stracke, CM, Shanks, M. and Tveiten, O.(eds). Logos Verlag Berlin GmbH (2018)*. (2017).

[12] S. Al-Jarallah, *Sustainability of e-learning system in the Kingdom of Saudi Arabia through analyzing the views of the persons benefit from Twitter platform in light of Covid-19 pandemic*. Public Administration, (2020).

[13] F. Al-Deeb and M. Basim, *Practices of necessity theory to combat Coronavirus: Saudi Arabia as a model, Public Administration Institute*. **60(special issue)**(2020).

[14] M. Barzelay, *Intelligent Administration: Productivity, transparency and management of change, International Public Management Review*. **7(1)**, 6-13 (2006).

[15] *Definition of crisis*. (2020); Available from: https://www.merriam-webster.com/dictionary/crisis.

[16] A.A. Dogar, et al., *Constraints to Online Teaching in Institutes of Higher Education during Pandemic COVID-19: A Case Study of CUI, Abbottabad Pakistan, Revista Romaneasca pentru Educatie Multidimensionala*. **12(2Sup1**.) (2020) 24-12 .

[17] E. Nordmann, et al., *Ten simple rules for supporting a temporary online pivot in higher education, PLOS Computational Biology*. **16(10)**, e1008242 (2020).

[18] J. Marshall, D. Roache, and R. Marshall, *Crisis leadership: A critical examination of educational leadership in higher education in the midst of COVID-19 pandemic, (Commonwealth Council for Educational Administration & Management)*. **48(3)**, 30-37 (2020).

[19] M. Tantawy, *Assessment of communication methods used in e-learning during Corona pandemic and their effectiveness for students: A case study, Journal of Public Relations Research Middle East*. **2(29)**(2020).

[20] Abbasi, et al., *The impact of immediacy challenge on the quality of virtual higher education during crises: Virtual higher education in Algeria during Corona pandemic as a model, Journal of Studies in Humanities and Social Sciences*. **3(4)**(2020).

[21] Al-Jubouri and Al-Samman, *Establishing smart institutions using leadership strategies and their role in crisis management: An analytical study of a sample of the colleges of the University of Mosul, Journal of Tanmiyat Al-Rafidain Development*. **39(126)**(2020).

[22] A. Al-Sisi, *The reality of using the crisis management system at the Saudi schools to combat Covid-19, International Journal of Educational and Psychological Sciences*. **(51)**(2020).

[23] M. Coccia. *Critical decisions in crisis management*. (2020); Available from: https://ssrn.com/abstract=3541580.

[24] S. Zara'a and S. Kaaki, *Crisis management mechanisms at Princess Nourah Bint Abdulrahman University (PNU), Journal of Educational Sciences*. **23(1)**(2015).

[25] F. Alagez and M. Assaf, *Degree of senior management's practice of crisis management at the Palestinian universities and its relationship to their strategic thinking, The Educational Journal*. **31(122)**(2017).

[26] M. Lott. *Crisis management plans in higher education: Commonalities, attributes, and perceived effectiveness* Doctoral dissertation, Gallaudet University, Virginia, (2012).

[27] M. Nicola, et al., *The socio-economic implications of the coronavirus pandemic (COVID-19): A review, International Journal of Surgery*. **78**, 185-193 (2020).

[28] H.M. Bai, et al., *The socio-economic implications of the coronavirus pandemic (COVID-19): A review, Int. J. Surg*. **8(4)**, 8-17 (2020).

[29] J. Singh and J. Singh, *COVID-19 and its impact on society, Electronic Research Journal of Social Sciences and Humanities*. **2(1)**, 168-172 (2020).

[30] N.M. Zayed, et al., *Impact of coronavirus (covid-19) on the world economy, (2020): A conceptual analysis, Journal of Humanities, Arts and Social Science*. **5(1)**, 1-5 (2021).

[31] P. Carlsson-Szlezak, M. Reeves, and P. Swartz, *What coronavirus could mean for the global economy, Harvard Business Review*. **3(10)**, 1-10 (2020).

[32] *Report on the government efforts to address Corona pandemic*. (2020), World Bank

[33] *Banwan Report: Due to Corona pandemic, the world will lose 195 million full-time jobs, including 5 million in the Arab countries*. (2020); Available from: https://news.un.org/ar/story/2020/04/1052922.

[34] *Covid-19 Pandemic in the Middle East and Central Asia: A double shock facing the region*. (2020); Available from: https://www.imf.org/ar/News/Articles/2020/03/24/blog-covid-19-pandemic-and-the-middle-east-and-central-asia-region-facing-dual-shock.

[35] *Coronavirus pandemic and the Saudi private sector*. (2020); Available from: https://www.spa.gov.sa/viewfullstoryphp?lang=ar&newsid=2123429.

[36] D. Gupta, et al., *Future Smart Connected Communities to Fight COVID-19 Outbreak, Internet of Things*. **13**, 100342 (2021).

[37] R.K.R. Kummitha, *Smart technologies for fighting pandemics: The techno- and human- driven approaches in controlling the virus transmission, Government Information Quarterly*. **37(3)**, 101481 (2020).

[38] T. Pazireh, et al., *Model developement for establishment of smart organizations: Case study of the social security organization, International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*. **10(4)**, 559-565 (2019).

[39] W. Liu, Y. Wang, and Z. Wang, *An empirical study of continuous use behavior in virtual learning community, PLOS ONE*. **15(7)**, e0235814 (2020).

[40] I. Prokopenko and S. Berezhna, *Higher education institutions in Ukraine during the Coronavirus, or COVID-19 Outbreak: New challenges vs new*

opportunities ,Romanian Journal for Multidimensional Education. **12(2)**(2020).

[41] Z. Marj, *Virtual education in a time of crises, reality and challenges: A case study of the Algerian Ministry of National Education, Journal of Studies in the Humanities and Social Sciences*. **3(4)**(2020).