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State School Principals' Electronic Management in Light of the Covid-19 Pandemic Circumstances

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Abstract

The study examined the reality of electronic management among leaders of state schools in the Royal Commission in Jubail in light of the Covid-19 pandemic, including the most prominent challenges. A descriptive survey approach was used, and the questionnaire was developed as a research tool. The questionnaire included 24 items in 4 areas of electronic management: organization, communication, follow-up, and evaluation. The questionnaire was distributed electronically to 76 leaders, 28 principals, and 48 deputies. Based on the results, the reality of electronic management in all fields was very large, with a mean of 4.52 and a standard deviation of 0.412. Challenges include financial, technical, human, and administrative challenges, but they do not have a significant impact on the practice of electronic management.

Keywords: Electronic Management, covid-19, Royal Commission Schools in Jubail

With technology and its devices becoming a manifestation of luxury and the highlight of development, it has become a basic need and requirement to address the obstacles and changes facing humanity on an ongoing basis (Kafi, 2020). As a result, e-government has emerged as one of the approaches to development and progress that contributes to the success of organizations and facilitates the linking of institutions to each other (Radwan, 2012).

Interest in electronic management has grown since the emergence of this method. At the end of 2019, the whole world was surprised by the Covid-19 pandemic, which showed the importance of electronic management and the need for remote communication. As previous studies on electronic management were conducted in light of the need to achieve the benefits of practicing electronic management before the Covid-19 pandemic, it is expected that the need has significantly increased since the pandemic.

From this point of view, school administration was one area that had to be practiced electronically during the pandemic. In Saudi Arabia, Royal Decree No. 42874 was issued on 7/11/1441 AH (SPA, 2020), mandating that the Minister of Education suspend attendance studies in public education and the university within the framework of efforts to limit the spread of the Covid-19 virus. The Royal Commission in Jubail directly and simultaneously sought to comply with the instructions issued in this regard and found alternatives and intensified training to make the educational process successful by developing electronic administrative processes and practicing them more effectively.

Several studies have been conducted at the local, regional, and international levels to examine the degree of school leaders' electronic management practices and the impact on other variables. In such works, researchers have shown an interest in ascertaining the reality of the practice of electronic management during this pandemic and the need for electronic practice in some areas of

management, including organization, communication, follow-up, evaluation, and the change in management style. To determine how electronic administration can meet the need in light of these developments and urgent changes, the results of the current research will be compared with results of previous studies to reveal the challenges of that practice. This research will reveal the reality of the practice of electronic administration by the leaders of public education schools in the Royal Commission in Jubail and the challenges faced during the Covid-19 pandemic.

Research Problem

In early 2020, as the Covid-19 pandemic emerged, creating the need to carry out tasks and work while following precautionary health measures, the most important of which was social distancing, researchers became interested in ascertaining the reality of the practice of electronic management in light of this pandemic and comparing it with the results of previous studies to reveal the challenges of that practice. In light of this pandemic, the need to practice electronic management emerged as a more appropriate trend in the management of organizations after it was a manifestation of the development and progress.

School leaders have adopted electronic management practices since the emergence of this administrative style and according to schools' technical development, especially before the pandemic. Many local and regional studies and research were conducted to deal with the degree of electronic management practice by school leaders, including Ibn Swailem's (2020) study, which concluded that the application of electronic management among school leaders in the Ad Dilam governorate obtained a general average (2.74 out of 5, with a medium grade). These results differed from Al-Jassar's (2019) study, which concluded that the degree of state schools principals' electronic management in the Mafraq governorate in Jordan is high, with an arithmetic average of 3.80 out of 5. Nafie and Shaabani (2020) confirmed the influential role of e-government in Algeria in alleviating the pandemic-induced crisis. Therefore, this effect is expected to alleviate the crisis in school management through the exercise of electronic management.

Al-Saqa's (2019) study demonstrated that leaders of public education schools in Riyadh experienced obstacles to applying electronic management (administrative, technical, human, and financial) to a large degree, with an average of 2.41 out of 3. The financial obstacles were ranked highest, followed by the administrative, human, and technical obstacles. Meanwhile, Harris (2020) noted a change in leadership practices of school leaders during the pandemic; school leadership in crisis during the pandemic made it necessary to change leadership practices. As a result, school leaders adopted several appropriate methods, including the electronic management method.

Based on these studies' findings, the research problem lies in revealing the reality of the practice of electronic administration by the leaders of public education schools in the Royal Commission in Jubail and the challenges they faced during the pandemic.

Research Questions

1- What is the reality of electronic administration for the leaders of public education schools in the Royal Commission in Jubail during the Covid-19 pandemic, specifically in the following domains: organization, communication, follow-up, and evaluation?

2- What are the challenges facing the management of public education schools in the Royal Commission in Jubail in practicing electronic management during the Covid-19 pandemic?

Literature Review

Kafi (2011) defined electronic management as "the administrative process based on the distinct capabilities of the Internet and business networks in planning, organizing, directing and controlling resources, and the core capabilities of the company and others without limits to achieve the company's goals" (p. 47). Ghoneim (2003), as cited in Ahmed (2009), also defined electronic management as "the use of a mixture of

technology to perform business and expedite this performance and to find an advanced mechanism for exchanging information within the organization and between it and other organizations and customers" (p. 44). Due to the Covid-19 pandemic, it has become necessary to practice electronic management from a distance by managing the work team to accomplish tasks without having in-person meetings and instead relying on electronic means to communicate, hold meetings, distribute tasks, coordinate work, and follow up on their completion.

Atwi (2018) indicated that electronic school management refers to "the school's exercise of its functions and tasks by adopting advanced electronic system technologies to achieve advanced levels in its effectiveness, efficiency and production, to provide services in an easy and accessible way to the beneficiaries" (p. 85). As electronic administration contributes to improving the performance of the administrative process, it also improves the performance level of the school administration with all its components through the use of computer applications in all financial, administrative, and academic fields as well as the preservation and retrieval of information, the use of Internet technologies in the educational process, and the activation of e-mail as a means of correspondence instead of traditional correspondence (Atwi, 2018, pp. 86–88).

Electronic Management Functions

E-management's impact is not limited to the technological dimension; it extends to developing traditional administrative concepts, increasing their flexibility, and contributing to the development of self-follow-up, teamwork, and the raising of the degree of empowerment in organizations. Such influence and changes have also affected traditional management functions. These functions of modern electronic management are discussed next.

Electronic Planning

Traditional planning does not differ from electronic planning in terms of defining the concept, drawing goals and objectives, and identifying the methods and means to achieve those goals. However, electronic planning has transformed planning from the traditional approach that focuses on goals of all kinds and takes place at a specific time. It is often rigid and is only modified after the final reports appear in a dynamic, flexible, and continuous electronic layout, allowing for the development and renewal of objectives based on periodic reports, which may be mostly automated electronic reports (Ahmed, 2009, p. 248).

Electronic Organization

Organizing is one of the most essential functions of management, as well as the most changing and developing, and it is considered the most crucial characteristic of organizations. The better the organization, the more it contributes to achieving its goals. An organization has several essential components, as discussed in the following subsections.

Organizational Structure

Organizational structure is the scheme that defines the departments and sections, clarifies their tasks and resources, and contributes to achieving coordination between them in order for the organization to achieve its goals. Organizational structure has changes in an electronic organization to become a horizontal or network structure instead of the vertical or hierarchical structure. Based on teams and groups, an alternative to structures based on fixed units and organizations have often become without a specific organizational structure, but the structure changes according to emergency variables.

Administrative Division

Administrative division aims to distribute activities and functions to departments and sections. In a traditional organization, the administrative division divides the departments traditionally or based on function, beneficiaries, or geographical scope. In an electronic organization, it is based on teams and their tasks without spatial or temporal restrictions. This may result in internal and external alliances to accomplish the tasks.

Chain of Command

Chain of command refers to the distribution of authority and orders. In a traditional organization, the line of authority extends from the top to the bottom, with the authority being concentrated in the president. In an electronic organization, authority is distributed among multiple heads; everyone is responsible, and the units are primarily independent and self-managed. The units may be advisory and adopt the same type of advisory authority.

Formal

Formal components are the systems, policies, and detailed regulations that manage work procedures and task performance as well as the rules of routine work in the organization and the traditional arrangement. Formalism is standard, pre-determined, and characterized by intensity and sharpness in guiding workers, making it a tool for personnel management. At the same time, in an electronic organization, it is flexible and changes according to team tasks and desired goals. It allows the team to be self-managed and develops self-follow-up.

Centralization and Decentralization

Centralization is the fulcrum of decision-making in the organizational structure and its source. It appears clearly in the traditional organization, where higher levels carry out decision-making; the lower levels do not participate in decision-making. Decentralization is applied through the distribution of power. An electronic organization adopts decentralization due to the multiplicity of power centers, which allow for the distribution of decision-making authority at all levels, especially as the organizational structure in electronic management is horizontal with lower organizational levels and based on independent work teams.

The differences between traditional and electronic organizations stem from the electronic management contributing to the provision of information and data broadly and easily, thereby facilitating control as well as a high level of effective communication as easy and fast electronic communication overcomes the obstacles of time and place. As a result, electronic organizations have become an essential element for competition (Ahmed, 2009, pp. 255–256).

Electronic Directing

The directive function in electronic management focuses on striving to achieve flexible, renewable, and changing goals within a short time. This pattern can only be achieved through the presence of effective electronic communication networks and a team capable of dealing and interacting with developments and variables as well as a high interest in personal self-development and capabilities. The success of the electronic guidance process also depends on the presence of administrative leaders with electronic and human competence who can cooperate with workers and motivate them to accomplish the required tasks and established goals (Khalil, 2014).

Electronic Leading

Electronic leading refers to the head of the organization and the like among the directors of departments, heads of sections, and those with authority. It deals with employees, most of whom may be specialized and skilled professionals in the electronic field. It makes communication between leadership and individuals more effective and in a consultative form rather than in the form of orders and directives, for the administrative structure in electronic management is a horizontal structure in which leaders derive their strength through their leadership and the development of their methods, enabling them to carry out their tasks, culture, and human relationships. Electronic management is mostly virtual management concerned with gaining the trust of all beneficiaries, whether they are clients or workers (Ahmed, 2009, pp. 270–271).

Electronic Follow-up

The follow-up in electronic management has become immediate, starting with the beginning of implementation to achieve the goals. It coincides with the performance stage on an ongoing basis. It contributes to reducing the time gap between

noticing the deviation and the time of the start of the corrective activity due to the contribution of automated reports or technical reports sent directly through means of communications and electronic networks. This process enables decision-makers to review data and information periodically, helping them make decisions quickly and simultaneously (Ahmed, 2009, p. 277). Electronic follow-up also increases relationships based on trust and self-follow-up, thereby reducing the administrative effort required for oversight. Consequently, the administrative effort required for control is reduced, and everyone has access to reports, meaning all employees are part of the follow-up (Khalil, 2014).

Stages of Transition to Electronic Management

1- Conviction and support of senior management: Leaders at senior levels should be fully convinced of the importance of e-management, and a clear direction, goals, and stages should be drawn up and supported by the needs necessary to implement the e-transformation process.

2- Development of employees' skills: As the tremendous burden in the e-management transformation process falls on workers, who are the essential element of e-management, care must be taken to develop their skills and train them well and thoughtfully before starting the transformation process. Such development should occur through training workshops and courses, both internally and externally, and should include the skill of self-development.

3- Restructuring and documentation of work procedures: The chain of procedures in some organizations takes place without clear documentation of administrative processes and without being written in most cases. Thus, it is necessary to shift to electronic management to work on restructuring administrative processes in proportion to the technology that the organization will provide. These procedures are written down and documented systematically, considering the quality, with easy access to the workers and beneficiaries of these documents.

4- Infrastructure creation: This step involves providing devices, tools, networks, modern communications, and means of storing and saving data and information in line with the organization's needs as well as signing agreements and contracts with competent authorities for the maintenance, modernization, and protection of data confidentiality.

5- Electronic archiving: This step is one of the most essential benefits and gains of electronic management. When switching to electronic management, archived paper transactions should be converted, scanned, and stored electronically for easy reference.

6- Programming of the most widespread procedures: In order for the electronic administration to achieve its goals quickly and clearly, the most widespread transactions in the organization and those that waste the most time and paper should be programmed to make their completion easy and straightforward in a digital manner (Ahmed, 2009).

Impact of the Covid-19 Pandemic on Education

Each crisis, regardless of its type, affects various sectors. However, health crises were not a priority among the experts' predictions about the challenges that might occur in the future. Instead, their focus was on economic and social challenges and technological development (Tarkhan, 2004).

Harris (2020) mentioned that the Covid-19 pandemic led to the almost halting of education services for more than 1.6 billion students worldwide, which required a redesign of education. However, the crisis did not stop learning; instead, learning became available everywhere and at all times. This transformation in Saudi Arabia affected more than 6 million students, more than half a million teachers, and more than 100,000 administrators (Ministry of Education, 2021b).

The best solution for addressing such crises lies in a robust e-government infrastructure. One of the most important lessons learned from managing the 2003 SARS-H1N1 outbreak in Singapore is that

the government relied heavily on its electronic infrastructure through data management and coordination between organizations as well as an early interest in a series of development programs for the e-government action plan since the late 1970s. During the 1990s, it occupied second place in the global classification of e-government. This concern for the development of electronic infrastructure came through the government's prediction of crises, including epidemics or threats of biological terrorism (Devadoss & Pan, 2004).

Some may see distance education or e-learning as requiring huge budgets for implementation, but in fact, it may be much less. The budget of the Ministry of Education in Saudi Arabia in 2019 and before was about 150 billion or more, while in 2020, the budget amounted to approximately 141 billion and decreased in 2021 to close to 136 billion. These figures confirm that the efficiency of spending is an essential element in the development and the economy (Ministry of Education, 2021a).

Research Method

The current study followed the descriptive survey approach, which is appropriate for identifying the reality of the research community and expressing it quantitatively to answer specific questions. This approach can be used to describe the reality by collecting information via the research tool applied to the community or a sample of it (Al-Khalili, 2012).

Research Population

The research population consists of principals and deputies of state schools in the Royal Commission in Jubail during the 2021–2022 academic year, including 77 leaders, of whom 29 were principals and 48 were deputies. The population is divided into schools at three levels: 16 elementary, 7 intermediate, and 6 high schools. One principal's data were missing responses, resulting in a final sample of 28 principals and 48 deputies.

Research Tool

The questionnaire study tool was developed by utilizing previous studies. The tool, in its final form, consisted of two parts. The first part contained respondents' general information. The second part consisted of 24 statements distributed over four areas of electronic management: organization, communication, follow-up, and evaluation. Each domain included six statements.

Participants responded to the questionnaire using a 5-point Likert scale (i.e., strongly agree, agree, neutral, disagree, strongly disagree) as well as an open paragraph to mention any challenges they faced. The challenges were categorized as administrative challenges, technical challenges, human challenges, or financial challenges. The tool was designed electronically using Google Forms to facilitate the task for respondents and implement the required precautionary measures in light of the Covid-19 pandemic.

Validity of the Tool

To ensure content validity, an electronic arbitration form was designed according to the pandemic-related precautionary measures. The form was sent electronically to some arbitrators, who were asked to express their opinion about the validity, suitability, and appropriateness for the domain. They viewed the questionnaire in its initial form to ensure that the tool measured what it was designed to measure and to benefit from their experiences and suggestions to develop the tool correctly. Nineteen arbitrators responded. Based on their suggestions and opinions, the research tool was modified to its final form.

The internal consistency of the research tool was determined by the Pearson correlation coefficient measuring the relationship between each statement and the total score of the domain to which it belongs as well as between each domain and the total score of the questionnaire. All correlation coefficients between each statement and the domain to which it belongs were positive and statistically significant at the 0.01 level, indicating high internal consistency and, thus, validity.

Stability of the Tool

To verify the stability of the questionnaire, the reliability of the Cronbach's alpha coefficient was determined for the questionnaire domains. The results showed good stability values, further demonstrating that the questionnaire has a large degree of stability and can be trusted in the current research.

Results Analysis and Discussion

Research Question 1: What is the reality of electronic administration for the leaders of state education schools in the Royal Commission in Jubail during the Covid-19 pandemic, specifically in the following domains: organization, communication, follow-up, and evaluation?

To answer this question, the arithmetic averages and standard deviations of the responses of the sample members about the reality of electronic management among the leaders of public education schools in the Royal Commission in Jubail during the Covid-19 pandemic were calculated for the organization, communication, follow-up, and evaluation domains. The results are presented in Table 1.

Table 1.

Participants' Responses about Reality of Electronic Management During the Pandemic at the Domain Level

Domain	Arithmetic Average	Standard Deviation	Degree Of Practice	Ranking
Organization	4.76	0.359	Very Large	1
Communication	4.52	0.481	Very Large	3
Follow-Up	4.55	0.444	Very Large	2
Evaluation	4.24	0.629	Very Large	4
Electronic Management as a Whole	**4.52**	**0.412**	**Very Large**	**-**

Table 1 shows that all domains obtained very large degrees of practice. Furthermore, the practice of electronic management among leaders of public education schools in the Royal Commission in Jubail during the pandemic occurred to a very large degree based on the sum of the domains (mean = 4.52; standard deviation = 0.412). This result and the large averages of all dimensions as well as the large general average of electronic management as a whole can be explained by the necessity imposed by the pandemic. The result is due to the presence of electronic tools, programs, and means along with prior practice of electronic management by state school leaders in the Royal Commission due recommendations by the Department of Public Education prior to the pandemic, although the pandemic imposed a higher style of practice for electronic administration.

Based on the results, state school leaders' practice of electronic management was very large (4.52 out of 5). These results differ from previous studies showing the reality of electronic management and the degree of its practice occurred at a medium

degree. Al-Rashidi and Al-Jabr (2016) determined that the practice of electronic management occurred at a degree of 3.2 out of 5. In addition to Ibn Swailem's (2020) study, which also found electronic management was applied to a medium degree (2.74 out of 5), Asikinmohamad et al. (2019) showed that comprehensive technological leadership practices were at an average level (3.79 out of 5). In Abdul Rahman's (2018) study, the reality of the application of electronic management was large (3.66 out of 5). Al-Jassar (2019) found that the practice of electronic management was large (3.80 out of 5). The reason may be attributed to the conditions imposed by the pandemic, which led to the need for electronic interaction in various fields by applying precautionary measures. One of the most important measures was social distancing, which explained why the Royal Commission as a whole and the Education Department, in particular, were oriented toward electronic transactions and the application of electronic tools that contributed to the quality of work.

Next, the current study considered the four domains individually.

Organization Domain

To understand the organization domain, participants' responses were analyzed for the arithmetic averages and standard deviations, as shown in Table 2.

Table 2.

Participants' Responses about Reality of Electronic Management in the Organization Domain

Statement	Arithmetic average	Standard deviation	Degree of practice	Ranking
Meetings organized for work were held using remote meeting software.	4.83	0.379	very large	**1**
Circulars/decisions/letters were electronically approved by officials to achieve social distancing.	4.82	0.559	very large	**2**
Educators relied on electronic programs in the preparation of schedules of virtual classes.	4.78	0.450	very large	**3**
Electronic networks were used for tasking distribution/ documentation.	4.74	0.472	very large	**4**
Electronic programs were used to inform employees of circulations/regulations.	4.72	0.532	very large	**5**
Electronic software/tools were used to save/archive school data.	4.66	0.555	very large	**6**
Overall average	**4.76**	**0.359**	very large	**-**

As shown in Table 2, the arithmetic averages ranged between 4.66 and 4.83, and all had very large degrees of practice. The highest arithmetic mean was for the statement "the meetings

organized for work were held using remote meeting software" (4.83). The pandemic-imposed social distancing led to many programs emerging that contributed to facilitating remote meetings. The statement "electronic programs/tools were used to save/archive school data" got the lowest arithmetic average (4.66). Schools already tend to save data on CDs or hard disks, or more recently to electronic clouds. The arithmetic average of all statements in the organization domain was 4.76, indicating a very large degree of practice. This result differs from previous studies' results. Al-Rashidi and Al-Jabr (2016) found a medium degree of practice of electronic management in the organization domain (3.2 out of 5). Abdul Rahman (2018) found that the degree of practicing electronic management in the organization domain was large (3.94 out of 5).

Communication Domain

The results related to the communication domain are summarized in Table 3.

Table 3.

Participants' Responses about Reality of Electronic Management in the Communication Domain

Statement	Arithmetic average	Standard deviation	Degree of practice	Ranking
Correspondence between senior management/departments/schools was done electronically.	4.86	0.390	very large	**1**
The importance of communication service/internet quality in the school has emerged.	4.82	0.482	very large	**2**
The administration provided computers for all employees for the distance learning process.	4.46	0.855	very large	**3**
Technical programs are available to share data/information/statistics with senior management.	4.43	0.736	very large	**4**
The school has a communication system/intranet to share data between employees electronically.	4.42	0.868	very large	**5**
Employees use email effectively.	4.11	1.001	large	**6**
Overall average	**4.52**	**0.481**	very large	**-**

As Table 3 indicates, the arithmetic averages of responses in the communication domain ranged between 4.11 and 4.86; all had very large degrees of practice except for the statement on employees' email use. The highest arithmetic average (4.86) was for the statement "the correspondence between senior administration/departments/schools was carried out in electronic form." Indeed, this practice began before the pandemic. The statement on employees' email use had the lowest arithmetic average (4.11), which may be due to the

challenges employees face in using email through the external network (i.e., Internet) if they are not able to use an internal network as well as the presence of security systems to prevent electronic attacks. The arithmetic average of all statements was 4.52, showing a very large degree of practice. Thus, the practice of electronic management in the communication domain was very large. In the modern era, especially the 21st century, modern communications have been developed; the pandemic increased the importance of communications and electronic communication. The findings related to the communication domain differed from those in Abdul Rahman (2018) study, which were significant (4.09 out of 5), although the difference was smaller in this domain than in other domains.

Follow-up Domain

Table 4 presents the results related to the follow-up domain.

Table 4.

Participants' Responses about Reality of Electronic Management in the Follow-up Domain

Statement	Arithmetic average	Standard deviation	Degree of practice	Ranking
The works/tasks assigned to the employees were monitored electronically.	4.80	0.401	very large	**1**
Electronic programs were used to monitor attendance and absence of students/workers during distance learning.	4.79	0.524	very large	**2**
Statistics/reports are prepared automatically through electronic programs.	4.64	0.725	very large	**3**
The technology was used to electronically monitor employee feedback.	4.58	0.735	very large	**4**
There is an electronic security monitoring system to monitor events in the school building.	4.55	0.737	very large	**5**
The message receipt reports were used as an employee's acknowledgment of knowledge.	3.95	0.978	large	**6**
Overall average	**4.55**	**0.444**	very large	**-**

Items in the follow-up domain ranged in arithmetic average from 3.95 to 4.80, all of which showed very large degrees of practice except for the statement on using reports as employees' acknowledgement of knowledge, which was large. The statement "the works/tasks assigned to the employees were followed up electronically" generated the highest arithmetic average (4.80). The researchers attribute this to the emergence of many electronic programs that contributed to the follow-up of the implementation of works, such as the statements tool and the intelligent school in the

My School platform. The lowest arithmetic average (3.95) was for "The message receipt reports were used as an employee's acknowledgement of knowledge." The researchers attribute this to a decrease in employees' effective use of e-mail due to a scheduled update to the security protocols against cyber-attacks, which required password updates, and the difficulty of accessing e-mail from outside the organization's network. The overall average of all statements was 4.55, indicating a very large degree of practice in the follow-up domain. These results differ from the results of previous studies. Al-Rashidi and Al-Jabr (2016) found a medium level of practice of control (3.2 out of 5). Abdul Rahman (2018) determined a large degree of the application of control (3.76 out of 5). The current researchers argue that the follow-up has shifted from direct follow-up to remote follow-up due to the pandemic, based on methods that reduce waste and improve work.

Scope of Evaluation

The results related to scope of evaluation are shown in Table 5.

Table 5.

Participants' Responses about Reality of Electronic Management in the Scope of Evaluation Domain

Statement	Arithmetic average	Standard deviation	Degree of practice	Ranking
There is an electronic program to save employee performance appraisal data.	4.46	0.738	very large	**1**
An electronic indicator was used to measure the performance of remote workers.	4.32	0.787	very large	**2**
Beneficiaries' feedback sent electronically is taken into consideration during the evaluation of staff performance.	4.22	0.759	very large	**3**
There are multiple technical means to assess the performance of workers during the Covid-19 pandemic.	4.21	0.771	very large	**4**
The reports issued by electronic programs were relied upon in evaluating the performance of employees.	4.18	0.890	large	**5**
The skill of workers in using technology during the distance learning process was calculated within the evaluation items	4.05	1.005	large	**6**
Overall average	**4.24**	**0.629**	very large	**-**

The arithmetic averages of the scope of evaluation domain responses ranged between 4.05 and 4.46, showing large and very large application. The highest average (4.46) was for the statement that "there is an electronic program to save employee performance evaluation data," which is likely due to the presence of a number of programs that school leaders used for electronic transformation

before the pandemic. The statement "the skill of workers in using technology during the distance learning process was calculated within the evaluation items" had the lowest average (4.05). Although there is a paragraph in the job performance evaluation on work knowledge and the use of assistive technologies, some of the methods used during the pandemic were new and required training. This training was mainly offered as self-training, meaning developing the necessary skills relied on employees' motivation. The overall average for all scope of evaluation statements was 4.24, suggesting a very large degree of practice. The evaluation domain was ranked fourth (last) in terms of practice in this study. This result supports the study of Grey-Bowen (2010), in which the appraisal and evaluation domain was the least efficient. However, Al-Rashidi and Al-Jabr (2016) found a medium score for the evaluation domain (3.2 out of 5). Abdul Rahman (2018) showed a significantly large result for evaluation (3.41 out of 5). This difference may be due to the urgent need to evaluate workers electronically, thereby reducing paper records, to maintain safety during the pandemic.

Research Question 2: What are the challenges facing the management of state education schools in the Royal Commission in Jubail in practicing electronic management during the Covid-19 pandemic?

The result of the first question in the study showed the electronic administration among school leaders is practiced to a very large degree based on the average of all domains (4.52). As a result, any challenges that emerge will not have a significant impact. The question of challenges was answered by collecting participants' responses and opinions in an open paragraph in the questionnaire.

Financial Challenges

Financial challenges were most commonly noted, with 57 responses (33.3%). Some of the most prominent comments are as follows:

The lack of a stable source of financial income for schools has led to a severe shortage of financial resources during the Covid-19 pandemic.

The low level of community participation by companies due to the impact of the Covid-19 pandemic on all sectors and businesses.

The lack of financial resources has made it difficult to provide programs that support the practice of electronic management and SMS messages.

The lack of financial resources has also made it difficult to support students from families with low incomes who do not have computers or smart phones.

The lack of financial resources led to the low motivation of employees and students through gifts and rewards.

Financial challenges ranked first among the obstacles to the application of electronic management in both Al-Saqa's (2019) and Bashkoush's (2021) studies, thereby confirming the importance of overcoming this challenge to practice electronic management effectively. Identifying diverse sources of school income and giving an appropriate investment space to the school council can help overcome these challenges. Support from community partnerships can help distribute support equitably to schools.

Technical Challenges

Technical challenges were the second most often noted challenge, with 49 responses (28.7%). The most prominent challenges notes related to service providers for telecommunications and the Internet (34 responses), including the following: "Weak Internet service by service providers in some

remote places, as some employees and students were outside Jubail while studying remotely."

Fifteen responses were received about the technical challenges represented in electronic programs, including those related to the Ministry of Education, such as:

The Ministry's delay in stably activating the e-learning platforms at the beginning of the emergence of the Covid-19 pandemic.

The problem of server pressure and the density of users of educational platforms, especially test days.

There are no alternative programs that help in administrative follow-up, ensuring that teachers attend classes, limiting student absences electronically, and data analysis programs.

The monitoring aspect of the workers and its means are limited, and the technology does not allow for following up on all aspects.

Some companies have developed techniques that meet the needs of the administrative staff in facilitating electronic management, such as absence-reporting programs, statements, smart school, and electronic record, that the Ministry had to provide for free.

The technical challenges were not great because the Royal Commission in Jubail had previously given teachers their own computers years ago, but the small number of maintenance and support teams and the lack of spare parts posed a simple challenge. Also, the Information Technology Department of the Royal Commission prevented the use of some programs for technical protection against viruses and cyber-attacks and blocked some websites, which caused a simple and inevitable challenge that was bypassed by using mobile devices.

The practice of electronic management is based on the presence of technology, so this axis is central, and its presence as a handicap is considered a significant challenge. The rank of technical challenges in this study is consistent with Bashkoush's (2021) study, in which it ranked second place, whereas in Al-Saqa's (2019) study it ranked fourth. Tan (2016) identified the lack of infrastructure as a technical challenge. As for the state education schools in the Royal Commission in Jubail, the technical challenges mostly stem from the Ministry of Education and the Communications Sector based on respondents' comments. The Royal Commission provides devices for teachers, and the Internet is freely available in schools and even public parks. The only challenge was the delay in maintenance requests and information technology protection protocols as a result of protection against electronic attacks.

Human Challenges

Human challenges came in third place with 42 responses (24.6%). Some of the most prominent comments are as follows:

The lack of administrators and a large number of burdens and tasks on them led to the difficulty of continuous and accurate follow-up of teachers and students, the performance of everyone's tasks and duties, and their attendance and absence.

Providing technical support to students and teachers, providing all their requirements, coordinating between them, communicating with parents, and responding to all their inquiries impeded the implementation of administrative processes.

Continuous open communication with the beneficiaries, especially at the beginning of the pandemic (there was no specific time for work).

The lack of ability of some administrators to deal with some programs, especially in the beginning of the pandemic, led to delays in some work.

There is a difficulty in self-training during the Covid-19 pandemic and work pressures.

The lack of performance of the technical support team for the Education Department in the production of explanatory videos contributes to distance training or a solution to some technical problems.

The lack of a specialized electronic support team in schools.

The presence of a technical glitch has become a sign of the disciplinary failure of some employees.

The difficulty of applying administrative procedures with students electronically and remotely.

The health impact on employees due to using devices for a long time.

Previous studies also ranked human obstacles third in electronic management obstacles (Al-Saqa, 2019; Bashkoush, 2021), suggesting the stability of this domain. In Tan's (2016) study, human challenges included the lack of leaders' efficiency, the lack of technical staff, and the opposition of some workers, thinking that they were under surveillance. However, the presence of human capital capable of facing challenges to achieve what the team aspires to do can overcome all challenges according to the available capabilities.

Administrative Challenges

Finally, 23 responses (13.5%) were received about administrative challenges. The most prominent of these responses related to the Ministry of Education, which accounted for 12 responses, including the following:

The delay in the Ministry of Education's announcement of the Ministry's plan for the educational process during the Covid-19 pandemic.

The plan of the Ministry of Education in terms of teaching method and assessment tools was not clear. The reason may be the lack of press conferences and the inadequate response of the official spokesman of the Ministry to respond to inquiries, which were very many, especially through social communication, including Twitter.

There is limited coordination to standardize work, but there is no unified guide for procedures and administrative work that contribute to the practice of electronic management.

Rapid changes and sudden decisions and converting most transactions to electronic transactions.

The difference in official working hours between the concerned departments, including the Information Technology Department and the General Education Department, and the working time of primary schools, which started at 3 pm after the work of other departments ended.

The administrative structure needed a redistribution of tasks and responsibilities to match the distance learning process.

Whereas nine respondents saw remote management as a new style of management in all its domains that necessitated finding new tools to develop and follow up on plans, two respondents identified the large number of administrative tasks assigned to the school leaders and deputies as an administrative challenge.

Administrative obstacles ranked second in Al-Saqa's (2019) study and fourth in Bashkoush's (2021) study. Despite these rankings,

administrative obstacles are among the most critical challenges that higher management should overcome to facilitate the tasks of the remaining administrative levels, especially executive or school administration, to practice electronic management effectively.

Recommendations and Conclusions

Considering the results of this study, the researchers recommend that, because electronic management is practiced to a very large extent, it should be applied as a permanent administrative method by all schools and education departments to enhance its practice, especially during crises. Likewise, managers, agents, and employees should pursue continuing qualification through training courses and workshops to maintain their level of competence in electronic management and learn about new developments. On the other hand, working to reduce challenges, continuing existing technical support, increasing its efficiency through an integrated technology development and support team, and providing permanent and rapid maintenance are all important considerations.

Based on the findings, the researchers present several proposals for future studies that will contribute to improving the educational leadership style. These proposals include conducting foreign, Arabic, and local studies to reveal the relationship between electronic management and crisis management during disasters and pandemics as well as conducting such studies following the standards of the International Society for Technology in Education (ISTE) for educational leaders during crises. The researchers also recognize the importance of conducting foreign, Arabic, and local studies that deal with the reality of the practice of administrations at the higher and university levels of electronic management during the Covid-19 pandemic.

References

[1] Abdul Rahman, I. J. (2018). The reality of applying e-management in the functions of administrative operations among Jordanian school principals in the Capital Amman governorate and ways to develop them. *Journal of the Islamic University of Educational and Psychological Studies, 26*(6).

[2] Ahmed, M. S. (2009). *Electronic management*. Dar Al Masirah for Publishing and Distribution.

[3] Al-Jassar, A. F. (2019). The degree to which government school principals in Mafraq governorate practice electronic circuit. *Journal of Educational and Psychological Sciences, 3*(28), 1–12.

[4] Al-Khalili, K. Y. (2012). *Fundamentals of scientific research*. Dar Al Qalam for Publishing and Distribution.

[5] Al-Rashidi, F. M., & Al-Jabr, H. S. (2016). The degree of application of electronic management in public secondary schools in the state of Kuwait. *Scientific Journal, 32*, 551–587.

[6] Al-Saqa, E. A. M. (2019). Obstacles to the application of electronic management among the leaders of public education schools in the city of Riyadh. *Journal of Educational Sciences, 20*, 307–391.

[7] Asikinmohamad, N., Daud, Y., & Mohammad, M. (2019). The level of technology leadership among secondary school leaders in Kelantan. *International Journal of Latest Research in Humanities and Social Sciences, 2*(10), 35–44.

[8] Atwi, J. E. (2018). *Modern school administration, its theoretical concepts and practical applications*. House of Culture for Publishing and Distribution.

[9] Bashkoush, J. A. (2021). Obstacles to applying electronic management in primary schools in Dohuk governorate from the point of view of the principals of these schools. *Journal of Arts, Literature, Humanities and Sociology, 65*, 369–387.

[10] Devadoss, P., & Pan, S. (2004). Leveraging e-government infrastructure for crisis management: Lessons from managing SARS outbreak in Singapore. *AMCIS 2004 Proceedings*, 253.

[11] Grey-Bowen, J. E. (2010). *A study of technology leadership among elementary public-school principals in Miami-Dade County*. St. Thomas University.

[12] Harris, A. (2020). Covid-19 school leadership in crisis? *Journal of Professional Capital and Community, 5*(3/4), 321–326. https://doi.org/10.1108/JPCC-06-2020-0045
[13] Ibn Swailem, M. I. I. (2020). The reality of the application of electronic management in public schools of public education for boys in Al-Dalam governorate, Kingdom of Saudi Arabia. *Journal of Educational and Psychological Sciences, 4*(8), 121–142.
[14] Kafi, M. Y. (2011). *Electronic management*. Raslan House and Establishment for Printing, Publishing and Distribution.
[15] Kafi, M. Y. (2020). *E-learning and the knowledge economy*. Raslan House and Establishment for Printing, Publishing and Distribution.
[16] Khalil, N. S. (2014). *Management of educational institutions at the beginning of the third millennium.* Dar Al-Fajr for Publishing and Distribution.
[17] Ministry of Education. (2021a). *General Directorate of Digital Transformation and Information Security*. https://departments.moe.gov.sa/IT/Pages/default.aspx
[18] Ministry of Education. (2021b). *Open data.* https://moe.gov.sa/ar/knowledgecenter/dataandstats/Pages/opendata.aspx
[19] Nafie, Z., & Shaabani, M. (2020). E-government: The best way in the time of the emerging corona pandemic. *Journal of Finance and Markets, 7*(3), 184–199.
[20] Radwan, M. A.-F. (2012). *Electronic management and its functional applications.* Arab Group for Training and Publishing.
[21] SPA (Saudi News Agency). (2020, March 7). The Ministry of Education suspends studies.
[22] Tan, C. (2016). Technology usage in school management. *International Journal of Learning and Teaching, 2*(1), 53–57.
[23] Tarkhan, M. A. Q. (2004). *The degree of readiness of the educational leadership in Jordan to face the expected future challenges until the year 2020 and the preparation of educational leaders to confront them* [Unpublished PhD thesis]. Amman Arab University, Jordan.