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RESEARCH ARTICLE

The Degree of Kindergarten Principals' Practice of Electronic Administration in Light of the COVID-19 Pandemic from the Point of View of Parameters (Case Study in Jordan)

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ABSTRACT

This study, amidst the COVID-19 pandemic, attempts to assess the adoption of e-management by the principals from kindergartens in the Karak Governorate. This is evidence of how leadership in education has been changing through digitization at this juncture. However, this study does bring forth practical implications of how this technology could be integrated into the administration of kindergartens and further influence future policy and practice shaping in early childhood education. This study used an effective, valid, and reliable scale to measure the level of electronic management used by 225 kindergarten teachers from the public and private sectors in Karak Governorate. The study further found that teachers view the level of electronic management practices in the organization as moderate, and there is no significant difference in age (5 to 10 years) and educational qualifications. Among the identified factors influencing the adoption of e-management practices, however, comprise years of experience, level of education, and employment in the private sector. This was fundamental research for understanding electronic management in kindergartens under a crisis in health, which could not be managed even at the national level. The need for and value for adaptation to technological advancements in settings with children and education are underlined.

INTRODUCTION

The COVID-19 pandemic, which has resulted in tens of millions of infections, hundreds of thousands of deaths, and financial damages estimated at hundreds of billions of dollars, has been categorized as one of the most dangerous worldwide epidemics humanity has faced in a century. The virus originated in Wuhan, China, in late 2019 and soon spread to every country on the planet (Sullivan-Moore, 2020). Because all educational institutions were closed as a preventive step to stop the disease from spreading, the education sector is among those most impacted by the pandemic (Onyema et al., 2020).

It was essential to preserve the education sector's continuity by employing all feasible and accessible methods, given its significance and link to attaining sustainable growth and a comprehensive renaissance

in other areas. From this vantage point, it became clear how crucial it is to use technology and technical advancement to keep the educational process ongoing. In order to maintain the advancement of education, numerous nations were compelled to switch from traditional face-to-face instruction to computerized administration (Al-Khamisi, 2020).

E-administration, a form of self-education, relies on a consistent set of computerized academic programs, modern technology, communication channels, and the creation of integrated educational platforms and artificial intelligence-based teaching algorithms. This allows students to acquire various knowledge, experiences, and skills while geographically distant from the school. The student acquires the new concepts and updated knowledge correctly and smoothly and performs the educational activities in an effective manner.

In addition to offering flexible learning paths that can significantly improve access to education from anywhere at any time, electronic administration also significantly increases the availability of education for everyone. These factors make electronic administration necessary. It plays a fundamental role in reducing the cost of education and transportation fees for students and teachers. It also enhances the ability of teachers to use modern and innovative methods to deliver new concepts to students enjoyably and easily, which is reflected in the quality of education in the school and achieves unprecedented competitiveness (Themeli, 2016).

The education process in the kindergarten stage revolves around providing the child with several sciences, knowledge and behaviours through play, which is represented by activities, competitions and interactive games in which the child participates and benefits from them in building his personality and helps him to engage with his peers and communicate with them, which enhances his self-confidence and enhances His creative and intellectual ability (Griebling and Gilbert, 2020).

Given the importance of the kindergarten stage in the education sector, it was necessary to employ electronic management during the Covid-19 pandemic as a necessity to continue educating children and provide them with the necessary knowledge and skills for them at this critical stage,

despite all the difficulties and challenges that face the process of employing electronic management, given For the sudden and forced transition from face-to-face education to electronic management, which was represented by the lack of the necessary infrastructure for its success, and the lack of experience of those in charge of it in using modern technological means and employing them in the learning process—the impact of the COVID-19 epidemic as perceived by female educators.

The COVID-19 pandemic of the past few years has negatively impacted every facet of economic, social, and political life. It has cast a shadow over education in particular and confused those involved in the educational process, resulting in the closure of universities, schools, and kindergartens. It also hindered the educational process' advancement and made it more challenging for teachers to help students learn new concepts.

Fedina et al. (2017) conducted a study aimed at identifying the willingness of teachers and parents to apply electronic management techniques in pre-spreschoolation. The study was conducted in Russia. The descriptive method was employed in the investigation. Interviews served as a research instrument—the study's sample comprised 187 pre-school teachers and 407 parents. The findings revealed that 90% of the teachers were aware of electronic management techniques and that parents and teachers were willing to use these strategies in pre-school instruction. Education has advanced significantly, as has instructors' proficiency with electronic management procedures.

Research by Burdina et al. (2019) sought to determine the effects of computerized management in elementary school classrooms. The analytical descriptive technique was applied, and the investigation was conducted in Russia. The research sample, which included 430 male and female students from around the Republic of Tatarstan, was between the ages of 8 and 9. The study instrument was a questionnaire. The study's findings demonstrated that a moderate amount of electronic administration was used in elementary courses and that instructors' guidance and interactions with students helped improve their accomplishment levels. The results also indicated that the application of electronic

administration contributed to developing students' expressive skills and reduced their individual differences.

In order to determine the obstacles and constraints that the Greek kindergarten stage's electronic management process faced during the COVID-19 pandemic, Foti (2020) carried out a study. The analytical descriptive technique was applied, and the investigation was conducted in Greece. The electronic survey served as a research instrument. 100) teachers and the study's findings revealed that some use various electronic administration techniques, like social media, email, and platforms. The findings also suggested that some teachers' inability to handle technology and their difficulty in imparting necessary skills to kids are among the difficulties and limitations of electronic management.

During the COVID-19 pandemic, Abu Bakr and colleagues (Abubakar, 2020) studied how to manage the kindergarten-age child's at-home learning process. Interviews were employed as a research method in this descriptive approach study that was carried out in Indonesia. The study sample was formed From (3) female kindergarten teachers in southeastern Sulawesi province; the results indicated that the teachers designed an educational material suitable for children's learning from home during the pandemic and introduced some new life skills such as washing hands and maintaining hygiene, as the results showed. The teachers are keen to cooperate with the children's parents to continue the education process.

Mahmoud (2020) also carried out research to assess, from the perspectives of teachers, learners, and school principals, the reality of electronic administration in light of the Corona epidemic. Three hundred twenty men and women work as instructors, 90 men and women work as administrators, and 169% of men and women attend schools affiliated with the Rusaifa District of the Zarqa Governorate's Directorate of Education. Teachers face challenges in the electronic administration process: "the ease of cheating in exams." The results also indicated that one of the mechanisms for improving the electronic administration experience is the provision of computers and smartphones to students.

To propose a shift to online learning in Palestinian kindergartens amid the COVID-19 pandemic, Ahmad and Zabadi (2020) carried out research. The study included an experimental design in which Google Meet technology facilitated the shift to online learning. The children participating in the research were evaluated using an electronic form. Two hundred male and female students from the Salfit Governorate's private Kindergarten made up the study's sample. The study suggested that kindergartens may effectively transition from traditional to online learning environments. The findings also showed that the instructors had a different perspective on online education and modified their assignments to fit the new course structure. This might speak well of their training and background.

The researcher's interest and specialization in the kindergarten stage and her knowledge of previous studies prepared in this field, such as the World Study (2018), which emphasized the need for activities outside the school curriculum to develop social and emotional behaviour among kindergarten children and her belief in the importance of interactive classroom activities for this age group, and what I sensed that electronic administration relies on digital interaction only, without actual and tangible involvement in the educational process, in a way that reduced children's opportunities to explore the outside world, improve their communication skills, and limited their ability to express their creativity, and weakened their chances of obtaining better cognitive skills, establishing social interactions with young classmates. Thus, the study aims to ascertain, from the instructors' point of view, how much electronic management is employed by Karak Governorate kindergarten administrators in light of the COVID-19 epidemic. This research is essential because it is one of the few, if not the only, that looks at the extent to which kindergarten principals in Karak Governorate are using electronic management in light of the COVID-19 pandemic at the Jordanian level. This is due to the novelty of the topic the study is researching.

The research examines kindergarten principals' use of electronic management practices in the Karak Governorate during the COVID-19 pandemic.

Objectives

The following are the main objectives of the study;

- Investigating how widely electronic management tools are used by kindergarten principals in the

Karak Governorate during the COVID-19 crisis.

- Examining kindergarten principals' adoption and effectiveness of electronic management strategies within Karak Governorate.
- Evaluating how the COVID-19 pandemic has influenced kindergarten principals' shift towards electronic administrative methods.

LITERATURE REVIEW

The World Health Organization (WHO) issued a state of emergency following the pandemic and urged all nations to take precautions against infection and steps to slow its spread. Among the most crucial preventive measures that most nations implemented to combat the pandemic were home quarantines and complete closures. Due to the extensive prohibitions and closures, all spheres of life suffered, including the social, political, economic, and educational ones (World Health Organization, 2020).

The Lifelong Learning Platform has noted that in 2020, an extraordinary level of threats to the cohesion of society and the economy, stability, and continuity of education and training systems was recorded because of the COVID-19 pandemic. Significant disruptions were registered in these systems, disruptions without precedents. However, the European Commission views distance education as something that would affect the performance of the students in light of Di Pietro et al. (2020) because of a reduction in learning time, loss of motivation, disturbances in their behaviour towards peers, and psychological stress, among others, arising from quarantine. Younger children, those from disadvantaged backgrounds, and those with learning or physical disabilities would then be at even more risk from this situation, which could then drive them to face cognitive and socio-emotional setbacks. The United Nations (2020) reports that such educational losses could worsen the existing social inequalities, putting at risk an entire generation both the life chances and rippling effects that would otherwise reverse decades of progress. The pandemic has further decreased the safety of the students, leading to the rise of post-traumatic stress and other psychological issues, according to Liu and Doan (2020) and Fegert et al. (2020).

On the other hand, such challenges call for urgent school reopening, according to the (United Nations,

2020; Jam et al., 2011; Kattar and Diken, 2020). The historical facts of the severe epidemics from which Shultz et al.. (2016) and Van Bortel et al. (2016) studies arise prove the vitality of the renewal of in-person schooling within modified conditions for the children's sake. The efforts for the reopening of schools in the 2021–2022 academic year have focused on compassionate transitions and reconnections in school communities, seeking to continue to protect the vulnerable population and manage health risks, as advocated by studies such as those of Crawford et al. (2020) Janet et al. (2020) and Halladay Goldman et al. (2020).

Indeed, the above date marked a critical test: the Greek educational system was about to open under these new routines and strict health protocols this coming morning. The research of the Education Review Office (2013), as well as Stone-Johnson and Weiner (2020), underlines that strong, transparent, and decisive leadership is among the key dimensions of building resilience during such crises.

RESEARCH METHODOLOGY

Participants

The current study included all 225 female kindergarten teachers in Karak governorate schools in the public and private sectors in 2022/2023, distributed in the Karak Directorate 162 female teachers, and 63 female teachers in Theban District, according to the statistics of the Planning Department in the Directorate. The first academic year of the academic year 2022/2023. Table 1 shows the distribution of study personnel according to its variables. Only 215 female teachers responded to the study sample form. Thus, the response rate was 95.5%.

Instrumentation

In light of the COVID-19 epidemic, a questionnaire was developed and modified to evaluate the degree of electronic management practice among kindergarten principals in Karak Governorate from the instructors' point of view. This was done by consulting the relevant educational literature to accomplish the study's objectives and answer its questions (Al-Nizami, 2020; Al-Qahtani, 2020; Mahmoud, 2020). The questionnaire was based on a five-point Likert scale, and items were dispersed among three areas;

the field of teaching included 26 items, and the field of communication included 6 items. The field of technology included 8 items.

The correlation coefficient Pearson was used to extract indicators of building validity. First, the degree of correlation between each scale paragraph and the domain to which it belongs was calculated. Next, the degree of correlation between each scale and the scale's overall score was determined. The results ranged from 0.747 for the field of teaching to 0.821 for the field of communication and 0.864 for the field of technology.

Table 1: Cronbach alpha coefficient and Pearson.

Domains	Items	*Alpha*	*Pearson*
Teaching	26	0.875	0.747
Communication	6	0.863	0.821
Technolgy	8	0.831	0.864
Total	40	0.882	

The Cronbach alpha coefficient for the tool's sub-domains and degree was calculated to confirm its stability. The *alpha* value of 0.831-0.875 depicts acceptable values for achieving the study's objective because Peters (2014) states that stability coefficient values greater than 0.60 are appropriate for educational settings.

RESULTS

Table 2: Teachers' perspective of principals' use of computerized management in the Covid-19 pandemic.

Domain	Mean	*SD*	Rank	Usage
Teaching	3.40	0.69	1	Medium
Communication	3.26	1.04	2	Medium
Technology Utilization in Education	3.16	0.89	3	Medium
Degree of Employment in Electronic Management	3.27	0.79		Medium

Teaching has the highest score, which is 3.40, suggesting it is one of the most effective or valuable on the list. All the other fields have scores from 3.16 to 3.27, thus suggesting they are of value but to a slightly lesser extent. Communication has the highest *SD* of 1.04; thus, opinions or outcomes have a wide range in this domain. Teaching comes at 1; thus, it is topmost in this table. Thus, the school principals' use of computerized management in the pandemic impact was higher in teaching.

The table 3 shows the data from the teachers registered the proficiency level of the electronic administration by these principals at moderate during the pandemic. The arithmetic means ranged from 2.88 to 3.67, while the offered *standard deviation* ranged from 0.82 to 1.08. The detailed analysis revealed that the statement "I am capable of achieving the material goals of education through electronic management" has been rated at the minimum level, which reveals that this statement was one of the points needed for improvement in the application of electronic management for the realization of material goals of education.

On the other hand, the aspect with the highest rating is the children being given adequate time in handing in and retrieving assignments through the online system, with an arithmetic mean of 3.67 and a *standard deviation* of 0.85. The next area's detail would have a mean of 2.88 with a *standard deviation* of 0.91 and would point to areas that need improvement in electronic management practices of the educational process during such challenging times.

Table 3: Teachers' point of view on the use of computerized management in the field of teaching.

Item No.	Statement	Mean	*SD*	Rank
16	Give the children enough time to receive and send assignments through the electronic administration.	3.67	0.85	1
15	I consider the unique characteristics of each child when administering the electronic	3.65	0.87	2
12	I make sure the kids complete the tasks I give them.	3.61	0.88	3
13	Throughout the lessons, I keep my attention on the kids interacting with me.	3.59	0.84	4
14	I do the skills required for the stage in children in several ways.	3.55	0.86	5
17	Use multimedia such as sound,pictures, videos and animations in teaching children electronic management.	3.53	0.88	6
21	I follow the schedule of giving kids homework and activities at certain times while considering the needs of the parents.	3.51	0.88	7
26	I encourage citizen children to participate in the lesson continuously.	3.5	0.97	8
25	I encourage children to participate using a variety of means.	3.48	0.9	9
22	I implement educational activities that match the developmental standards of children.	3.47	0.85	10
23	I provide continuous feedback to children and their parents.	3.46	0.93	11
6	Do the lesson at specific times.	3.43	0.93	12
9	I use a variety of assessment methods suitable for children observation, cross-check lists, rating scales.	3.43	0.82	13
18	I use a variety of assessment techniques to gauge the goals pertaining to the emotional, skilled, and cognitive domains.	3.43	0.83	14
5	Take into account the distribution of time to carry out the various activities.	3.4	0.92	15
24	Throughout the lessons, I try to improve the way the kids interact with one another.	3.4	0.93	16
11	Assign the children practical assignments that are consistent with the lessons.	3.37	0.92	17
7	I deliver the lessons asynchronously through pre-made videos.	3.36	0.89	18
4	Prepare plans to implement and deliver lessons remotely.	3.34	0.9	19
19	Send enrichment activities to children on an ongoing basis.	3.34	0.88	20
20	Send therapeutic activities to children if necessary.	3.34	0.91	21
3	I do children continuously through the electronic administration.	3.25	0.89	22
8	I present the lessons interactively directly with the children (synchronous).	3.23	0.89	23
2	I diversify the teaching methods that I apply remotely (dialogue, stories, problem solving, discovery, etc).	3.18	0.78	24
10	Involve children in interactive activities through live (distance) lessons.	3.04	1.08	25
1	With electronic management, I am able to meet the learning objectives of the instructional materials.	2.88	0.91	26
	Total score for the field of teaching	3.40	0.69	

Table 4: Perspective of the teachers on the technology-related items used in the classroom.

Item No.	Statement	Mean	*SD*	Rank	Degree
33	I have continuous internet coverage.	3.99	0.97	1	High
34	Children have continuous internet coverage.	3.25	0.96	2	Medium
35	I am equipped with the skills needed to transform the book's instructional material into interactive digital content.	3.21	0.98	3	Medium
36	I am capable of converting the book's instructional material into interactive electronic information.	3.21	0.98	4	Medium
38	I participate in training courses held by the Ministry on electronic management techniques.	3.2	1.01	5	Medium
37	Youngsters have resources and gadgets (smart devices) that facilitate remote learning.	3.16	1	6	Medium
40	In order to increase my effectiveness in electronic administration, I am eager to advance my technological abilities.	3.15	1.03	7	Medium
39	(The guardian/child) have the technological abilities required for online learning.	2.95	1.08	8	Low

It appears from Table 4 that the total score for the field of technology used in teaching was medium, as the arithmetic mean was 3.16, and the *standard deviation* was 0.89). With *standard deviations* ranging from 0.97 to 1.08. Paragraph 33 appears in the first rank with the following statement: "I am always online." The last rank, paragraph 39, asserts that "(the child/guardian) possesses the necessary technical skills for distance education," it had an arithmetic mean of 2.95, which is ranked low.

The degree to which kindergarten principals in Karak Governorate were using electronic management in light of the COVID-19 pandemic was determined by computing the arithmetic means and *standard deviations* from the teachers' perspective in Karak Governorate. This was done based on the education sector (public, private), years of experience, and educational qualification (intermediate diploma, bachelor's degree) in view of the variables shown in Table 5 (less than five years, five to ten years, and more than ten years).

Table 5: Principals use electronic management in light of the COVID-19 pandemic from the instructors' perspective.

			Governmental			Private		
	Field		N	Mean	*SD*	n	Mean	*S D*
Education Sector	Teaching		80	3.21	0.51	135	3.52	0.76
	Communication		80	2.60	0.97	135	3.64	0.87
	Technology use in Teaching		80	2.75	0.75	135	3.41	0.88
	Degree of Employment in Electronic Management		80	2.85	0.58	135	3.52	0.79
			Intermediate diploma			Bachelor's		
	Field		N	Mean	*S D*	n	Mean	*SD*
	Teaching		28	3.42	0.92	187	3.40	0.65
Qualification	Communication		28	3.48	1.08	187	3.22	1.03
	Technology use in Teaching		28	3.07	0.97	187	3.18	0.88
	Degree of Employment of Electronic Management		28	3.32	0.94	187	3.27	0.77
		Less than 5 Years			5-10 Years			More than 10 Years
	Field	n	M	*S D*	n	Mean	*S D*	n	Mean	*S D*
	Teaching	46	3.03	0.88	71	3.54	0.56	98	3.48	0.63
Years of Experience	Communication	46	3.13	0.99	71	3.61	0.77	98	3.06	1.16
	Technology used in Teaching	46	2.95	1.01	71	3.32	0.76	98	3.15	0.91
	Degree of Employment of Electronic Management	46	3.04	0.92	71	3.49	0.60	98	3.23	0.81

The table above shows the variance between the average electronic management practices among kindergarten principals during the COVID-19 pandemic according to the teachers' perceptions in the Karak governorate. The type of education sector (government and private), educators' qualifications (intermediate diploma and bachelor degree), and their tenure (5 years and below, between 5 and 10, above 10 years) are taken as independent variables of this study from the perspective of female teachers. Further, it tests for the statistical significance of the differences in the mean values using a significance level of $\alpha = 0.05$.

The findings of Table 6 revealed statistical differences at the level $p \leq 0.05$ concerning the application of electronic management practice by the kindergarten principals in Karak Governorate during the COVID-19 pandemic, as reported by the teachers. As such, the education sector variable was identified as necessary to be included to represent the differences that were noted to exist among all the study areas and in the adoption of distance learning overall. This showed the significance levels of less than 0.05 across all the domains, hence an agreement that principals in private schools indicate a tendency toward higher use of electronic administration than their counterparts in public schools. From Table 6, the effect size of the education sector variable is 0.047, showing that the type of education sector has a small size of effect. This shows that only 4.7% of the variance in electronic administration practice is accountable based on the education sector type.

Table 6: Significance of the study's variables in determining the differences between the arithmetic means of the degree of kindergarten principals' use of electronic management in Karak Governorate.

Source of Contrast	Field	Sum of Squares	Degrees of Freedom	Meanof Squares	Value (q)	Function Level	Effect Size Eta^2
Education Sector	Teaching	2.129	1	2.129	5.774	*017	027
	Communication	4.146	1	4.146	5.959	*015	028
	Teaching Technique	7.431	1	7.431	12.178	*001	056
	The Degree of Employment of Electronic Management	4.300	1	4.300	10.179	*002	047
Source of Contrast	Field	Sum of Squares	Degrees of Freedom	Meanof Squares	Value (q)	Function Level	Effect Size Eta^2
Qualification	Teaching	0.54	1	0.54	145	704	001
	Communication	236	1	236	340	561	002
	Teaching Technique	1.844	1	1.844	3.023	084	015
	The Degree of Employment of Electronic Management	135	1	135	320	572	002
Years of Experience	Teaching	5.122	2	2.561	6.944	*001	063
	Communication	1.656	2	828	1.190	*306	011
	Teaching Technique	5.73	2	2.865	4.695	*010	044
	The Degree of Employment of Electronic Management	3.747	2	1.873	4.434	*013	041

On the other hand, results also revealed no statistically significant differences between the use of EM and DL according to the teachers' opinions of the kindergarten heads regarding the educational qualification variable among all the Karak Governorate majors. This is supported by the significance levels of more than 0.05. On the other hand, Table 6 shows the variable "Educational Qualification" at an effect size of 0.002, which implies a minimal effect. This, therefore, means that the change in the adoption of electronic management practices accounted for by the educational qualification variable remains at a mere 0.2%.

Table 7: Results of the Scheffe test for post-comparisons on experience.

Field	Categories	Less than Five Years	From 5 to Less than 10 Years	More than 10 Years
Years of Experience	Less than Five Years			
	From 5 to Less than 10 Years	5115		
	More than 10 years	4475	0640	
The Technology used in Teaching	Less than Five Years			
	From 5 to Less than 10 Years	3645		
	More than 10 Years	1950	1695	
The Degree of Employment of Electronic Management	Less than Five Years			
	From 5 to Less than 10 Years	4539		
	More than 10 Years	1917	2622	
Statistically Significant at the Level of Significance:				

The overall influence will be tested between years of experience across various study domains and within the overall implementation of distance learning, excluding the communication field.   According to teachers, they are setting up significant differences in the practice of electronic management by the kindergarten principal in Karak Governorate under COVID-19. Below 0.05 are the significance levels in these areas, and the source of these differences in mean scores concerning years of experience is well illustrated in Table 17.

Table 7 further points out statistically significant differences in electronic management and using technology in education between the less than five years group and other experience groups.   Such differences were more pronounced in education technology integration and adoption of electronic management. Notably, the group with experience ranging from 5-10 years stands out with the highest mean score of 3.49.   This means that the less experienced (0-5 years) and the most experienced (more than 10 years) amongst them used electronic administration less effectively than the moderately experienced principals (5-10 years).

Table 8: Means and *standard deviations* of electronic administration in light of the COVID-19 epidemic, as perceived by the teachers.

Variables	Categories	#	Mean	*S D*
Education Sector	Governmental	80	2.85	0.58
	Private	135	3.52	0.79
	the Total	215	3.27	0.79
The Technology Used in Teaching	Intermediate Diploma	28	3.32	0.94
	Bachelor's	187	3.27	0.77
	the Total	215	3.27	0.79
The Degree of Employment of Electronic Management	Less than Five Years	46	3.04	0.92
	From 5 to Less than 10 Years	71	3.49	0.6
	More than 10 Years	98	3.23	0.81
Total		215	3.27	0.79

The results in Table 8 indicate that there are apparent differences between the arithmetic averages in the degree of kindergarten principals' practice of electronic management in Karak Governorate in light of the Covid-19 pandemic from the teachers' point of view, according to the variables of the education sector, educational qualification, and years of experience, and to determine whether the Differences between the averages are Statistically significant at the level (0.05 ≥ a).

DISCUSSION AND CONCLUSION

The study results displayed that the impact of COVID-19 on electronic management practices among students pursuing kindergarten education was nuanced.   It points to further strengthening the elimination of technological disparities, teacher training on improved digital tool use, and a collaborative atmosphere in mitigating the predicaments associated with distance education. The findings inform in a precious manner about the dynamics of e-administration in early childhood education during an unprecedented global crisis, giving a realistic and logical perception of e-administration.   The results align with those of Burdina et al. (2019), which signal moderate proficiency in electronic administration.

Some potential limitations to effective electronic administration include the teacher's low technological skills in developing an effective digital plan for both lessons and programs for learning.   This further speaks volumes about the difficulty of passing some skills remotely; for example, this included the research work of Foti (2020), Abusini et al. (2023), and Ferraro et al. (2018). All these studies highlight the importance of female teachers needing to be well-versed in such technology tools and resources in order to develop and produce educational content that is visually appealing and interesting for their students.

In addition, the effective implementation of this electronic administration is complex due to the struggle to maintain effective communication with students through modern technologies and the challenge of conducting physical and group activities remotely.   For example, most parents have limited

use of technology and still need help with most communication applications, including Zoom, and mainly access educational platforms, which have highly affected remote education quality.

The marked mean score of 3.40 for employing electronic management for educational content is moderate. It indicates that teachers try to ensure that the content is well covered, given the various technological resources available to students. The latter include disparities in internet access and technology ownership among students, which have been known to choke continuous learning and assignment submission.

The area of communication, marked at an average score of 3.26, reflects an area where the study clearly signals the teachers' conscious efforts to share their experience in relation to the use of digital tools and lesson planning to improve the electronic experience in management. In fact, this collaboration came to life in the pandemic, revealing the potentialities of incorporating innovations into the change of educational practices.

On the other hand, technical challenges, averaging 3.16, also emerged. One of these includes scheduling classes when internet use is low to enable system stability. So far, most of the research conducted on digital administration and e-governance by Sari and Nayır (2020) has identified these two issues as the most pressurized: internet coverage and infrastructural inadequacies.

The research studies the impacts of various factors, such as the education sector, qualifications, and years of experience on the practice of electronic management. It makes visible the drastic differences in practices of electronic administration that are quite advanced, mainly in the private education sector, because of investments made and training carried out in contrast with the focus in the public sector. However, the educational qualifications reflected no significant differences, which implied that there would be a uniform approach to e-administration regarding the levels of education the teachers hold.

It showed that there is a significant difference in teaching experiences, where the teachers have favoured the 5-10 years of teaching experience as a period of high enthusiasm and from being exposed to and skilled at the strategies of using different teachings and technologies. However, no statistically noticeable differences were observed in the area of commitment. An observation of universal commitment among the teachers towards keeping the students and parents engaged was noticed.

Theoretical and practical implications

The present research contributes to the educational management literature by highlighting the teaching context of emergency remote teaching and how it is connected to the broader crisis-impacting management strategies. It reaches and widens to include the theoretical frameworks of digital administration and remote learning, critically shedding light on how these theories can be extended to fit the digital arena. The results stress the importance of educators' technological skills in implementing electronic management. It agrees with and further enlightens the theories relating to technology adoption and integration in education, most apparently models like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The study outlines the different barriers, from technological barriers to psychological and socio-economic challenges, which have hampered effective electronic management. This contributes to the theoretical debate on the digital divide and educational equity, providing a basis for further research focusing on how these obstacles might be removed in early childhood education. This study's findings thus highlight the need for large-scale professional development programs aimed at technology skills and pedagogical strategies that constitute effective online teaching. Educational policymakers and administrators need to invest in continuous training programs so that teachers can acquire the skills required for electronic administration and remote teaching.

The findings have drawn significance toward a robust digital infrastructure supporting e-management. In the public domain, school education has hardware and software technology resources, including uninterrupted internet access, to carry out remote learning. This study exposes the role of parents in navigating technological tools and platforms in distance learning. Schools need to proactively guide and offer support to parents on the most effective ways of being partners with their children's educators

in school during remote learning times. Policy implications include revising curriculum standards and instructional strategies to fit in with remote and electronic management. Specific education policies should be developed to address the needs for early childhood education in the digital age, and curriculum design and assessment strategies should be relevant for online delivery. Finally, strategic planning in the education sector is called for: it needs to be prepared for any future crisis. This brings in contingencies to distance learning and makes the institutions rapid responders to an emergency without much disruption to the learning process.

Limitations and future directions

The study is geographically limited to Karak Governorate, which may not represent diverse educational settings across regions or countries. Additionally, the sample size and selection may limit the generalizability of the findings to other contexts or educational levels. Given its cross-sectional nature, the study captures a snapshot in time, which might not adequately reflect the evolving nature of electronic management practices and technological adaptation. The study primarily relies on teachers' perceptions, which are subjective and may be influenced by personal biases or experiences. This method needs to measure the effectiveness of electronic management practices objectively.

Future research could adopt a longitudinal design to track changes in electronic management practices over time, offering insights into how these practices evolve with continued technological advancement and pedagogical innovation. Expanding the study to include a broader range of geographic locations and educational contexts would enhance the generalizability of the findings and allow for cross-cultural comparisons of electronic management practices. Implementing objective measures, such as student learning outcomes, teacher performance metrics, or technology usage data, could provide a more comprehensive assessment of the effectiveness of electronic management. Research comparing electronic management practices before, during, and after the pandemic could illuminate the specific impacts of the crisis on educational management and identify lasting changes in teaching and learning approaches. Future studies could delve deeper

into the technological and socio-economic barriers to effective electronic management, focusing on strategies to enhance equity and access for all students, particularly those from marginalized or underserved communities.

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