The Levels of Employing New Information Technology in School Administration from the Teachers' Point of View

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Abstract

This level of using ICT in education from the perspectives of school principals was explored in this investigation. The descriptive analytical method was used as the methodology and the study sample included 183 school principals, who were selected randomly from different public schools in the UAE. A questionnaire was prepared and formulated in its initial form, which consists of (58) items distributed among the six dimensions The findings found that school principals agreed on the importance of using ICT for the management of school examinations and results, as it came in first place with a percentage of 81.28, which is a high degree. The findings also showed that school principals have similar views on the use of ICT in school administration regardless of their gender. Both male and female principals use ICT tools and think it is important in school administration.

Keywords: school administration, information technology, e-learning, management systems.

Economic power has become measured by the extent of technological progress because information is now an essential element of production, and new industries based on information technology have emerged. The concept of production based on the density of workers and the strength of their muscles has changed to a new concept based on knowledge, intelligence, and speed (Alam, 2022). The emergence of electronic governments led to a major change in the work style of governments in different countries, as it reduced government spending on administrative processes and procedures, and a large number of paper transactions were dispensed with, replacing them with electronic transactions that helped speed up these transactions (Vlasova et al., 2019). This era has produced many means of communication and modern technology that have made the world like a small village, whose residents deal with each other as if they were neighbors. Perhaps computer technology has played the largest role in transmitting the information revolution to every place on the face of the earth, and it has also worked to increase

awareness among individuals (Hawkridge, 2022; Khasawneh, 2022). Due to the speed of obtaining information and the multiplicity of its sources, it also helped the emergence of a new lifestyle that depended on communication instead of transportation.

Technological progress had a great impact on the educational system, which has contributed to introducing technology into the classroom and using it in the teaching and learning processes. School administration, as part of this system, has evolved to move from a routine process for managing school affairs according to specific instructions to a comprehensive process concerned with everything related to the educational process, including students, teachers, activities, curriculum, the school's relationship with the local community, and others, which has placed education facing many challenges and requirements, and the most prominent is the necessity of a modern scientific school administration (Gudmundsdottir & Hatlevik, 2018). International experiences in the field of using computers in school administration indicate that it helps in running school administration work in admission procedures, storing student data, saving their grades, following up on those who drop out, holding exams, and following up on employee affairs (Almanthari et al., 2020). It is also used in educational planning and decision-making.

The UAE's Ministry of Education has demonstrated several ICT projects to support the 2020 Vision, a strategy plan for schools that was initiated in 2001 to restructure the administrative and instructional processes. The United Arab Emirates has begun implementing changes to its educational institutions to generate inventive and creative learners who can advance knowledge construction. UAE seeks to ensure that educational standards and methodology development align with current international norms, with a particular emphasis on showcasing cutting-edge ICT tools in classrooms (Kuzbor, 2019). The UAE is spending money on technology in education for a variety of reasons. First, technology has the potential to raise educational standards. Through the provision of superior digital content, technology can enhance students' learning outcomes. Second, technology may contribute to a more individualized education. Teachers can customize their education to meet the needs of each student by utilizing platforms for adaptive learning. Third, technology has the potential to increase accessibility to education. Technology can reach students who would not otherwise be able to attend school by offering chances for online study.

1.1. Problem statement

The lack of relevant models and success stories to guide the way is one of the main issues impeding the change process. The current study determines the current state and impact of ICT on teaching and learning in UAE high schools. The UAE offers high school students and instructors' access to ICT-rich learning environments. This environment can send

and share data in a variety of formats, including text, graphs, diagrams, animated pictures, music, and more, thanks to several apps and devices. The use of ICT in schools became an indicator of the success of schools in education. It is very important to identify the level of use of ICT by teachers and students, especially after the great efforts of integrating these technologies into teaching and learning by the Ministry of Education in the UAE. Therefore, this study aimed to identify the levels of using ICT in education from the perspectives of school principals. The role of school principals is very important because they monitor and supervise the whole education process closely.

1.2. Questions of the study

1.   What is the degree of use of new ICT in school administrations in the UAE from the point of view of their principals?

2.   Are there statistically significant differences in the level of use of ICT by school principals in the UAE due to the variables of gender and years of experience?

1.3. Significance of the study

This study gains its importance from its novelty because it deals with the issue of employing computers to serve school administration. It addresses an important topic that will benefit those in charge of educational administration in general and school administration in particular. It sheds light on the various uses of computers and employs them to serve school administration, which leads to alleviating and facilitating the burden of school administration. It can benefit those in charge of education by re-evaluating programs to provide school administrations with computers. The use of computers in school administration may benefit the school community. It opens a new field for researchers and graduate students to do more research in the educational field.

1.4. Study limitations

Objective limit: The degree to which computers are used in school administration from the point of view of school principals.

Spatial limitation: This study was applied in the UAE (Dubai, Abu Dhabi, Sharjah). .

Time limit: This study was applied in the second semester of the academic year 2022-2023.

The human limit: This study was applied to school principals and principals in the UAE.

Literature Review

2.1   School administration

The modern era is witnessing a great development in the concept of school administration, as the concept of school administration is no longer limited to managing the various school affairs, but rather includes various elements influencing the administrative process and those affected by it within the school

(Lawrence & Tar, 2018). The definition of school administration is an elite group of highly qualified educators implementing a set of integrated educational processes to meet the needs of society through a variety of procedures and activities like organizing, planning, carrying out, directing, and then evaluating to make decisions based on results (Meneses & Mominó, 2012). It is all the efforts, activities, and operations carried out by the principal and his workers, including teachers and administrators, for building and preparing the student in all aspects to help him successfully adapt to society, preserve his surrounding environment, and contribute to the progress of his society.

The development of educational administrative thought was reflected in school administration, which led to the expansion of its scope and its transition from a routine process concerned with managing school affairs to a group of integrated operations aimed at preparing good people, which placed on the shoulders of the school and its administration a great responsibility in building society (Morris et al., 2020). The importance of school administration is due to the school's effective executive role in all areas of constructive, purposeful educational work that is based on scientific and humanitarian foundations, and requires those who manage it to have special specifications, training, and special preparation to carry out this work with high efficiency to achieve the goals of society. The reality is

that the school administration is an integrated body consisting of the school principal and those who work with him, including administrators, teachers, and workers (Ogungbeni et al., 2020). That is, it includes everyone who works in the technical and administrative aspects. However, this does not conflict with the inevitability of the presence of good senior leadership, represented by the school principal, which is an essential factor in the success of the school administration. The school and the performance of its function. During the performance of his duties, the school principal faces many problems and issues, which requires him to be worthy of the responsibility entrusted to him and to have the ability to issue decisions at the right time (Bradley, 2021).

The school administration is no longer just a routine process whose goal is to manage school affairs according to the routine instructions issued by the educational authorities, such as maintaining order, recording the attendance and absence of students and workers, maintaining buildings and equipment, etc. Rather, it has become a humanitarian process aimed at organizing and developing work in the school, and providing material and human conditions, which helps achieve educational goals, organize the relationship with the local community and other duties (Brunetti et al., 2020).

2.2 Information Technology in School Administration

The world is experiencing an information and communications revolution, and computers have begun to play an important role in our daily lives, as they are used in all areas of life. Therefore, educators seek to move from the traditional school to a school that can face the challenges and problems of the future (Caldwell & Spinks, 2021). This will not be possible without relying on computer and information technology and switching to electronic operation. The computer has enormous capabilities that make it a very useful educational tool. Among these capabilities is the ability for individual education, providing opportunities for understanding and training, presenting tests, evaluating their results, and clarifying concepts and skills clearly and tangibly, which does not affect the nature of the academic material (Chi et al., 2020). It can present many topics that are difficult or impossible to present to the learner using traditional means and methods in the classroom.

Computer management instruction means managing the educational process with the computer, primarily by using it in all work related to the educational process other than the teaching process itself, to improve the educational process and increase its effectiveness (Huang et al., 2020). This step requires dealing with huge amounts of data related to students, teachers, exams, etc., which a computer can help process quickly and accurately. The school's integrated administrative information system consists of application systems related to the management of all school functions (Ibáñez et al., 2020). These functions include the educational function, the operational function, and the financial and administrative function. It also includes devices and equipment, including computers, printers, storage units, networks, auxiliary software, operating systems, word-processing programs, and electronic spreadsheets.

Employing ICT in school administration includes activities related to organizing, planning, and monitoring the activities and work of teachers, students, and administrators in the school. There are special management programs that the school administration uses and help it perform its tasks (Morris et al., 2020). Among these works are the annual work carried out by the school, coordinating and distributing students, preparing school timetables, registering and following up on students, school library work, personnel affairs, school budget records (financial records), and school furniture records.

The use of computers and ICT greatly impacts management processes. It affects the planning process based on collecting sound and accurate information to form correct assumptions and requires a good database. It also affects the organization process (Lawrence & Tar, 2018). The importance of computers and information technology and their impact on the organization process is highlighted, as it is necessary for the organizational structure and the information structure to match so

that the information utilizes administrative processes within the organization. ICT also impacts the guidance process, as guidance depends on the presence of effective means of communication (Almanthari et al., 2020). The control process using the computer consists of identifying positive or negative deviations from the initially drawn-up plan, analyzing them, and recommending ways to treat them to benefit from them in the plan. The computer also helps by providing the best information to prepare the control standards or performance patterns accurately and early and providing sufficient information about actual performance (Hawkridge, 2022; Alanazi et al., 2023). Information technology helps educational administrations make decisions and implement educational policies, and enables them to communicate with each other to implement joint projects, exchange information and educational experiences, discuss educational and technological innovations, and employ them in developing the educational process.

2.3   Previous studies

Alfalah (2018)) examined a case study from a Middle Eastern university's Faculty of Information Technology to investigate how professors feel about VR integration. Faculty members made up the study's sample of respondents. An online questionnaire was modified and delivered to IT teaching personnel as part of a quantitative way to gauge their opinions regarding the potential applications of

virtual reality as a teaching tool. The results from the questionnaire were analyzed using descriptive statistics. The quantitative data's results showed the users' past technological expertise, hurdles to technology usage, and instructors' readiness to utilize virtual reality (VR) systems as a teaching tool. They also indicated their desire to integrate VR into the educational process in the future. Additionally, the findings showed that technology training might be optimized for these technologies.

An integrated model of social influence (subjective norm), felt enjoyment (hedonic value), expectation-conformation model, and technological acceptance model was presented by Ashrafi et al. (2022). The proposed model is investigated using statistical data from 153 university students at Mehralborz University, Tehran, Iran. To validate the proposed theoretical model, we employed partial least squares (PLS) and structural equation modeling (SEM). According to the study's findings, students' intentions to continue their education are most strongly predicted by perceived usefulness. Interestingly, our findings also show that students' satisfaction levels and views regarding LMS have no discernible effects on their decision to continue.

Kuzbor (2019) explored how technology is affecting education in Abu Dhabi. The goal is to gain an understanding of both the benefits of effective technology use in the classroom and how it affects students' learning. This study's methodology combines qualitative and quantitative

methods; two surveys were given to students and instructors, and one teacher interview was held. Although there is a discrepancy between policy and practice, the majority of instructors concur that ICT has an impact on their lesson planning when it comes to course preparation. To effectively integrate modern technology and teaching methodologies, school instructors need time and help to enhance their work before learning how to use them in the classroom.

Szymkowiak et al. (2021) investigated how technology and the Internet impact Generation Z's knowledge acquisition process as well as the types of information acquisition that this generation finds most appealing. The issue we address in our study is the diversity of ways that people learn and gain information. 498 youth who were regularly participating in an online peer-to-peer knowledge-sharing network were the subjects of the research. The respondents were more inclined to choose to study using mobile applications and video material than through traditional methods, according to the results of the ANOVA analysis. It was also found that students tended to follow in the footsteps of their professors who employed contemporary technology for learning outside of the classroom and included them in their curricula.

Zheng et al. (2018) explored the relationship between organizational support and faculty perceptions of the advantages, technical assistance, and self-efficacy of learning management systems. An empirical study is carried out using data from 379 professors at various universities. The measurement model is developed and evaluated using structural equation modelling, which also analyzes the connections between the structural model's component elements. The findings are consistent with the theories that faculty LMS self-efficacy and technical support are primarily enhanced by organizational support. Faculty perceptions of the advantages of utilizing LMS are subsequently influenced by increased LMS self-efficacy and technical assistance. This means that colleges may make more use of LMS.

Methodology

3.1 Research design

The descriptive analytical method was utilized, which attempts to describe the phenomenon that is the subject of the research, and interprets, compares, and evaluates, in the hope of arriving at meaningful generalizations that increase the stock of knowledge about the phenomenon that is the subject of the research.

3.2 Sampling

The study sample included 183 school principals, who were selected randomly from different public schools in the UAE (Dubai, Abu Dhabi, Sharjah, Al-Ain). The participants responded to an online invitation to participate in the study. Their consent and approval were taken before conducting the study. The following table presents data on the participants.

Table 1. Demographic information of the sample of the study

Variable	Number	Percentage
Gender		
Male	77	42.08
Female	106	57.92
Years of experience		
Less than 5 years	50	27.32
From 5 to 10 years	73	39.89
More than 10 years	60	32.79
Total	183	100%

3.3 Instrument of the study

To achieve the objectives of the study, the researcher built a questionnaire to identify the degree of use of computers in school administration in the UAE schools and ways to develop them from the point of view of the principals of those schools. The questionnaire was prepared and formulated in its initial form, which consists of (58) items distributed among the six dimensions.

The questionnaire was submitted first to ten arbitrators from UAE universities. They were asked to identify the accuracy of each paragraph to the field under which it was classified, the extent of the clarity of the paragraphs linguistically, the suitability of each paragraph to measure what it was designed for, and the opinions of the arbitrators were taken into account. Using a survey sample of thirty school principals, the validity of the internal consistency of the questionnaire was confirmed. The Pearson correlation coefficient between the score of each item and the overall score of the field to which this item belongs was computed by the researcher. The split-half after modification reliability coefficients are all over 0.70, and the total reliability coefficient is (0.91), demonstrating the high degree of dependability of the questionnaire.

The reliability coefficient was calculated using the Cronbach Alpha method, as calculating reliability in this way avoids the drawbacks of other methods and determines the stability of the subjects' responses to the questionnaire items. This method is also the most appropriate for the current study tool. The results are presented in the following table.

Table 2. Cronbach's alpha coefficient for each area of the questionnaire as well as for the questionnaire

NO.	Dimension	Number of items	Cronbach's alpha coefficient
1	Managing school exams and results	10	0.79
2	Student and employee affairs management	12	0.85
3	Carrying out administrative clerical work	12	0.85
4	School communication and communication management	12	0.83
5	Managing finances, supplies and the school library	12	0.83

Total		58	0.95

It is clear from the previous table that the Cronbach Alpha coefficients are all above (0.79), and that the Cronbach Alpha coefficient for the questionnaire as a whole is (0.95), which is higher than the reliability coefficient with halves, which indicates that the questionnaire has a very high degree of reliability that reassures the researcher in applying it to the study sample.

3.4 Data analysis

To answer the study questions, the study used the Pearson correlation coefficient, split-half, Cronbach's alpha coefficient, mean scores, and percentages to measure differences in the responses of sample members according to the gender variable. To measure differences in the responses of sample members, one-way-ANOVA analysis was used to find the differences according to the years of experience variable.

Results and discussion

4.1 Results of the first question

To answer this question, arithmetic averages, and percentages were extracted for each area of the questionnaire and its paragraphs. The following table presents the results.

Table 3. The mean scores, standard deviation, percentage, and rank for each area of the questionnaire

NO.	Dimension	Number of items	Mean score	Standard deviation	percentage	rank
1	Managing school exams and results	10	4.12	1.20	81.28	1
2	Student and employee affairs management	12	3.81	0.99	76.16	2
3	Carrying out administrative clerical work	12	3.43	1.00	68.67	3
4	School communication and communication management	12	3.29	0.92	65.75	4
5	Managing finances, supplies and the school library	12	3.19	1.12	63.85	5
	Total	58	3.54	0.98	3.54	

It is noted from the previous table that the degree of computer use in school administration in the UAE was average (70.79%). The field of management of school examinations and results came in first place with a percentage of 81.28, which is a high degree. The researcher attributes this to the availability of a basic central database to save student data and results and use them to print transcripts of results and school certificates. The field of (carrying out clerical administrative work)

came in second place with a rate of (76.16%), which is an average score. The researcher attributes this to the availability of some software necessary to perform these tasks, but it is not being exploited optimally, and this may be due to school principals' need for training.

The field of student and employee affairs management came in third with a rate of (68.67%), which is a weak score. The researcher attributes this to the lack of special software for managing employee and student affairs. The field of school communication and communication management came in fourth with a percentage of 65.75, which is also a weak score. The field of managing financial affairs, supplies, and the school library ranked fifth and last with a rate of (63.85%), which is also a weak score. The

researcher attributes this result to the lack of use of computerized software for managing financial affairs, supplies, and the library, and the lack of optimal use of the computer network in schools. It seems that the school administration needs to issue instructions related to the use of these technologies by different staff. School principals play here a very vital role in supervising this process and reporting to the designated supervisors to keep staff encouraged to use all available technologies.

4.2 Results of the second question

To answer the second question, the study used the (t) test for two independent samples to find the differences in the scores of the participants according to their gender. The following table presents the results.

Table 4. The results of the t-test of the differences in the means of school principals' estimates according to the gender variable

Dimension	Gender	Number	Mean score	Standard deviation	T value	Sig.
Managing school exams and results	Male	77	4.188	0.478	2.772	Statistically significant
	Female	106	3.974	0.544		
Carrying out administrative clerical work	Male	77	3.556	0.550	2.192	Statistically significant
	Female	106	3.344	0.707		
Carrying out administrative clerical work	Male	77	3.963	0.545	2.893	Statistically significant
	Female	106	3.695	0.668		
School communication and communication management	Male	77	3.346	0.530	1.263	Statistically significant
	Female	106	3.245	0.545		
Managing finances, supplies and the school library	Male	77	3.399	0.616	3.186	Statistically significant
	Female	106	3.043	0.831		
Total	Male	77	3.691	0.441		

	Female	106	3.460	0.525		Statistically significant

It is clear from Table 4 that the calculated (t) value is greater than the tabulated (t) value in all areas of the questionnaire except the fourth area (communication management and school communication). The calculated (t) value for the total score of the questionnaire was 3.134, which is higher than the tabular (t) value, which is equal to (1.98) at the level of significance (0.05). The researcher attributes this result to the Ministry of Education's interest in developing the performance of schools and continuous supervision of these schools, as well as the male principals giving their workers more room than the female principals to use modern technology, as well as being more daring to use these technologies in their work.

The differences between the participants' responses according to their years of experience were also measured using the one-way-ANOVA analysis, as shown in the following table.

Table 5. The One-Way ANOVA analysis for the differences according to the variable number of years of experience

Dimension	Source of variance	Sum of squares	Freedom Value	Mean square	F value	Sig.
Managing school exams and results	Between groups	1.824	2	0.912	3.374	Statistically significant
	Within groups	48.658	180	0.270		
	Total	50.482	182			
Carrying out administrative clerical work	Between groups	0.379	2	0.190	0.443	Statistically significant
	Within groups	77.117	180	0.428		
	Total	77.497	182			
Student and employee affairs management	Between groups	0.258	2	0.129	0.320	Statistically significant
	Within groups	72.373	180	0.402		
	Total	72.631	182			
School communication and communication management	Between groups	0.711	2	0.355		Statistically significant
	Within groups	52.257	180	0.290		
	Total	52.967	182			
	Between groups	0.124	2	0.062	0.105	Statistically significant

Managing finances, supplies and the school library	Within groups	106.871	180	0.594		
	Total	106.995	182			
Total	Between groups	0.363	2	0.181		Statistically significant
	Within groups	45.755	180	0.254		
	Total	46.118	182			

It is clear from the previous table that the calculated (F) value for all areas of the questionnaire except the first field is smaller than the tabular (F) values, which indicates that there are no statistically significant differences between the average estimates of school principals in their level of computer employment degree in areas two, three, four, and five, which is attributed to the variable of years of service in the school administration. The researcher attributes this to the fact that the Ministry of Education introduced ICT into its schools in the same period, which led to the neutralization of the variable of years of service in school administration. The experience became new to all school principals, new and old as well, and most of the school administration work is carried out using the computer in the public schools of the UAE. Technology has become compulsory for school principals, especially communication by e-mail and everything related to exams and school results. Consequently, the desire, or lack thereof, of school principals to use computers in many areas has no effect.

Conclusion

This study aimed to identify the levels of using ICT in education from the perspectives of school principals. The results found that school principals agreed on the importance of using ICT for the management of school examinations and results, as it came in first place with a percentage of 81.28, which is a high degree. The findings also showed that school principals have similar views on the use of ICT in school administration regardless of their gender. Both male and female principals use ICT tools and think it is important in school administration. The variable of years of experience also did not have a significant impact on the participants' views on the use of ICT in school administration, as the experience became new to all school principals, new and old as well, and most of the school administration work is carried out using the computer in the public schools of the UAE.

Recommendations

The study recommends increasing interest in providing computerized software that serves the goals of school administration. It is important to organize training

programs on an ongoing basis for school principals and teachers about using computers in school administration. The study also recommends designing a special Internet page for each school, through which information of interest is published to students and parents, enabling them to monitor their children's progress and providing the necessary maintenance for computers quickly, by appointing a sufficient number of technicians, and training computer teachers on maintaining computers and their accessories.

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