



# The Reality of Electronic Leadership in Jordanian Schools from the Perspective of Its Teachers

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## Authors' contributions

The sole author designed, analyzed, interpreted and prepared the manuscript.

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## ABSTRACT

E-leadership has become very essential to be practiced in an environment dominated by accelerating change and high competitiveness. Schools need e-leadership to achieve their e-activities and satisfy their students' online requirements. Therefore, the current study aimed to assess the reality of e-leadership in Jordanian schools for purpose of enhancing their educational performance. The study population consisted of all Jordanian schools through all Jordanian governorates, and the study sample was composed of (386) teachers from different educational directorates. A self-reported questionnaire composed of (6) dimensions with (36) items, was used for collecting data from the study sample. Descriptive statistics means, and standard deviation were used for data analysis using SPSS tools. It was found that e-leadership is practiced in a medium level by the teachers of Jordanian schools, with e- management practice in the first rank, and E- Team Building practice in the final rank.

*Keywords: E-leadership; e-leadership practices; ICTS; schools; Jordan.*

## 1. GENERAL FRAMEWORK

### 1.1 Introduction

With the turbulent competitive environment supported by the development of information

communication technology (ICT), traditional leadership is longer feasible. Today. Organizations are practicing their activities in a very accelerating and changing environment that requires the organizational leadership to manage

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all processes in fast and adaptive ways to meet the changing clients' requirements and be capable of responding to their expectations.

Schools' educational environment, as one of the organizational environments, witnesses inevitable changes to meet the current and future students' learning needs. Many Students' learning needs today cannot be met by just depending on the traditional educational processes; rather they need to be supported electronically; anytime and anyplace [1,2]. Such an educational developed environment requires another type of leadership; e-leadership that assists the schools' leaders to lead their schools' processes electronically. Typically, as an orientation toward new students' learning strategies, students' issues are to be managed electronically and students have to practice their learning with support by online learning practicing [3,4]. Additionally, teachers need to be managed, monitored, and oriented by their leaders electronically [5,6], especially in an emergent situation, such as the current risky health situation with CORONA (COVID-19) pandemic. This confirms that e-leadership in schools has become very persistent for the students' learning to get success and achieve the objectives of the schools' students learning.

It is very important today to apply e-leadership in twenty-first-century organizations, be free from the constraints of time and place, and focus on new concepts and trends associated with technical breakthroughs [7]. E- Leadership has become an urgent necessity to raise the efficiency and quality of the administrative work in various organizations [8,9]. For the practice of electronic leadership in governmental and private schools, and what has been argued about the feasibility of this phenomenon, in terms of support on the one hand and opposition, on the other hand, the current study has investigated the reality of e-leadership in governmental and private schools, and provided the recommendations, which the researcher hopes that contribute to the development of e-leadership in this vital educational sector.

### **1.2 Problem Statement**

E-leadership is one of the modern practices on the administrative arena, which many different organizations, including educational organizations, seek to adopt and implement. Reyes et al. (2021) indicated that e-leadership is one of the most important areas of reform and

development in the field of educational process. Some studies conducted in this field have also indicated the importance of e-leadership in all areas of education, where it provides support to teachers and creates appropriate learning environment to the students.

This confirms that activating e-leadership in the educational field has many implications for educational outcomes [10]. Therefore, governmental and private schools in Jordan seek e-leadership to attain a high level of competition and educational performance excellence.

Hence, this study aims to reveal the reality of applying electronic leadership in the governmental and private schools in Jordan from the viewpoint of the teachers. Therefore, the study problem can be formulated in the following main question:

### **1.3 Research Questions**

Based on the problem statement, the following questions can be formulated as:

#### **Q: What is the level of E-leadership practice in Jordanian schools?**

1. What is the level of E-communications practice in Jordanian schools?
2. What is the level of E-social practice in Jordanian schools?
3. What is the level of E-team building practice in Jordanian schools?
4. What is the level of E- change management practice in Jordanian schools?
5. What is the level of E-technological practice in Jordanian schools?
6. What is the level of E-trustworthiness in Jordanian schools?

### **1.4 Aim and Objectives**

The current study aims to determine the level of e-leadership practice in Jordanian schools.

From this aim, the following objectives can be branched:

1. To determine the level of E-communications practice in Jordanian schools.
2. To determine the level of E-social practice in Jordanian schools.

3. To determine the level of E-team building practice in Jordanian schools.
4. To determine the level of E- change management practice in Jordanian schools.
5. To determine the level of E-technological practice in Jordanian schools.
6. To determine the level of E-trustworthiness in Jordanian schools.

## **1.5 Research Significance**

From the theoretical perspective, the current study provides the researchers interested in the educational field with good understanding about the concepts of e-leadership manifesting its importance in improving the school's educational performance and achieving the goals of the educational process as a whole. Also, it sheds light on the role of ICT in developing the schools' leadership in terms of e-learning through different media, which is considered as necessity to maintain sustainability and development of the educational process, especially in emergent situations.

From the practical perspective, the current study may open eyes of schools' leaders on e-practices that should be adopted. Schools' leaders can depend on the results of this study to determine the weakness positions in their e-leadership, and accordingly take their own decisions that transfer their leadership to be e-leadership in its practical manner.

## **1.6 Operational Definitions**

### **1.6.1 Electronic leadership (E- leadership)**

E-leadership refers to a school leader who has a set of personal and skill traits and characteristics; Dealing Electronically with other individuals in an effective way as well as motivating them, making decisions in a fast and immediate manner, controlling the skill of electronic knowledge and effective communication with others. It was adapted from [1,11], and measured by (32) items in the study instrument.

### **1.6.2 E-communications practice**

The leader's ability in Jordanian schools to manage the e-communication carefully by providing highly clear, organized, and understood communication settings that facilitate the communication between the leader and his or her employees and allows feedback to avoid

errors. It was adapted from [9,5,12,10] and measured by (5) items in the study instrument.

### **1.6.3 E-social practice**

The leader's ability in Jordanian schools to reinforce the social aspects via e-meetings. It was adapted from [13,14,15,16] and measured by (4) items in the study instrument.

### **1.6.4 E-Team building practice**

The school' leader ability to build teams on e-media so that the team members can be characterized by responsibility, autonomy, and freedom in taking own decisions. It was adapted from [17,11,18,19] and measured by (6) items in the study instrument.

### **1.6.5 E- change management practice**

The school' leader ability in convincing teachers and other employees in the change when it is necessary. It was adapted from [1,20,16] and measured by (4) items in the study instrument.

### **1.6.6 E-technological practice**

The school' leader ability to use the new technology, mix it with the traditional one, and solve its breakdown when it occurs. It was adapted from [11,20,21,10] and measured by (6) items in the study instrument.

### **1.6.7 E-Trustworthiness**

The school' leader ability to build trust in the virtual environment by providing justice, integrity, and fairness at his or her teachers and other employees. It was adapted from [14,22,23] and measured by (7) items in the study instrument.

## **2. LITERATURE REVIEW**

A study conducted by Kulshreshtha and Sharma, [16] to reveal the impact of overuse of ICT and social applications on e-leadership. The data were collected by interviews with employees. The study findings confirmed that speed, swift decisions, and continuous sense of urgency are critical factors of vital e-leadership. Also, it was confirmed that both lack of empathy and trust as well as misunderstanding may limit the vital e-leadership.

Aurangzeb and Mazhar [1] conducted a study that aimed to examine practices involved in e-

leadership at the higher education level by qualitative approach. The study sample was composed of (50) employees working as leaders. The study findings confirmed that e-leadership is at its replacement phase, and the study model suggested that keeping abreast to a new technology, adopting continuous training and development, and leveraging technology affordances with organizations are critical factors that may help in materializing the transformational stage in e-leadership.

Wart et al. [10] examined an exploratory case study to give operational definition of e-leadership. They used the qualitative approach by depending on the literature of e-leadership. The findings revealed that e-leadership is compound of six factors; e-communication practice, e-social practice, e-team building practice, e-change management, e-technological practice, and e-trustworthiness.

Chau and Chau [24] applied their study on schools to investigate the practices of e-leadership in these dynamic organizations. Semi-structured interviews were used as the study tool for data collection from the study sample, which was composed of teachers, students, parents, administrators, parents, and software experts. The study findings identified eight themes as e-leadership practices: e-leadership quality, strategies, practices, support, readiness, needs and obstacles, and culture.

Another study conducted by Mishra et al. [6] to assess e-leadership in schools as ecologic organizations that need change in the traditional leadership and use of ICTs. The study used replacement, amplification, and transformation model (RAT) model to identify the degrees to which ICT was used in education and related this model to the leadership. It was found that the purposeful, transformational use of ICT and effective development of several types of knowledge are the most critical requirements to develop e-leadership in the schools.

The current study has got a significant benefit from the previous literature by constructing its theoretical background and identifying variables of e-leadership, formulating its problem, using some analytical techniques, etc. The current study has been differentiated from the previous studies by its sample selection that was selected from the schools' teachers, not their leaders, for the responses' impartiality.

### 3. THEORETICAL BACKGROUND

#### 3.1 E-Leadership Practice

It refers to the social process of the leader mediated by information technology to produce a change in the individuals' or groups' behaviour or performance in an organization [24]. Also, it refers to the function of electronic guidance in contemporary organizations, which requires the presence of electronic leaders that activate the role of dynamic goals and work for achieving them [25]. E-leadership depends on the presence of leaders capable of interacting electronically with other individuals, motivating and cooperating with the team members, to accomplish the required work [15]. Additionally, efficient electronic guidance depends on the use of advanced electronic communication networks such as the Internet, so that all guidance operations are executed effectively.

Literature asserted that e-leadership is not nondependent component; rather it is a complicated component that is composed of a set of integrative and consistent dimensions. Such e-leadership dimensions include the follows:

##### 3.1.1 E-communication Practice

###### 3.1.1.1 Communication clarity

This refers to the clarity in the communication settings, and that the communication is highly organized and designed so that it can permit feedback to avoid errors' occurrence. Communication settings must be careful not to convey vague messages that may cause the receiver to feel insulted or having misunderstanding [10]. Communication clarity is considered as a critical competency for online team management.

Misunderstanding is recognized as sending a message that cannot be interpreted successfully where the content of the message conflicts its effect or emotion [26]. For instance, a joke or hasty message may be interpreted as an impolite message [27]. Another issue in communication clarity is the communication overload [10]. Communications overload has been increasing in the digital age with the increasing of the communication demands on managers exponentially through e-communication channels, such as email system [22]. It is known that e-media strip out several types of normal

individuals' bonding, informal interactions, jocularity at both individuals and teams working in the organization. Thus, there is a persistent need for effective support from the leader to create a supportive healthy organizational climate preventing their workers from loneliness and introversion [11,26].

### *3.1.1.2 Management of communication flow*

Management of communication is very expansive leadership practice. However, it can be described as managing communication to be useful so that achieves the organization's objectives [28]. One of its aspects is ensuring that communication ease does not spur employees to practice communication excessively inhibiting their work practice and achievement of their jobs' tasks [7]. Also, it extends to include filtering data when it is extensive or complex to avoid confusing and overwhelming employees.

## **3.1.2 E-Social practice**

### *3.1.2.1 Good leader support*

It relates to ensuring that all employees using ICT are supported with customized communication when they need from time to time [19]. Using effective interaction approaches by telephone, virtual conferencing, face to face meetings, etc. make the online communication environment richer [29].

## **3.1.3 E-Team building practice**

### *3.1.3.1 Team motivation*

Building e-teams in a virtual environment entails people to practice their work activities as much in their real work environment, the work activities are aligned with the employees' effectiveness, the employees practice their work collaboratively and cooperatively, achieve their tasks in a genuine sense meeting, and match their personal purposes with their organization objectives [17]. Also, employees are rewarded and encouraged in a proper way.

Team motivation is a type of the individuals' support. It includes structuring teams according to the tasks' charges and introductory activities, in addition to providing teams with job's accountability and tasks' autonomy followed by monitoring and control [30]. Also, rewarding and encouraging the team members, in addition to

supporting them with ongoing training and development to increase their professional performance and work progress [30,19].

### *3.1.3.2 Team accountability*

Employees need to work in a comfort virtual environment. Hence, they need to have their freedom in participating their suggestions and taking their own decisions that serve their organization's goals [7]. This confirms that employees have enough functional responsibility in their work behaviors and acting in autonomy that motivates their creativity and innovation. E-leader is required to provide all these aspects to embed a trustful and cooperative virtual environment [31].

### *3.1.3.3 Team and team member recognition*

E-leader should be confident that virtual team members get as much opportunities for encouragement, rewarding, training and development as, at least provided to the team members in face-to-face environment [27,14]. This indicates that e-leaders should put effective considerations for justice in managing their virtual team supporting feeling of employees' satisfaction and effective work performance.

## **3.1.4 E-change management practice**

Managing the change process should be provided internally and externally. Internally, e-leaders should provide proper planning and strategies implementation through which the organization is capable to meet the environmental changes by possessing proper resources and capabilities that make the organization eligible to meet the changes of the external environment [32,21].

Also, e-leaders are to devote their efforts to make their employees accepting the new change whenever it occurs without resistance [33]. For instance, during CORONA disease emergent situation, online schools' learning has become very dominant so that schools' e-leaders would have preplanned well all the educational resources and capabilities to assist the students' learning via e-educational stations. Because this process is integrative as it needs a collaboration between the schools' leaders and the ministry of education, e-leaders are to pursue e-learning process for their schools' students in terms of the students' attendance, students' achievement of their learning tasks, teachers' mentoring to follow

up their students, and monitoring of the students' academic performance.

### 3.1.5 E-technological practice

#### 3.1.5.1 Currency with relevant ICTs

Basic awareness of technology used is a very important for e-leaders [34], and perceived ease of use of a new technology is very essential for e-leaders, especially when lack of understanding technological methods may lead to underutilization.

E-leaders have to keep themselves abreast of new ICTs or a new development in the present ICTs [35]. Also, e-leaders may find themselves forced to investigate and compare many ICT alternatives, depending on cost-benefit analysis, to select the most effective one. This process may be manifested to be more significant in competitive environmental conditions that may lead to product or services merit [36].

#### 3.1.5.2 Blending traditional and virtual methods

Adopting ICTs is practiced in a sensible mix with other ICTs and traditional communication methods [10]. Adopting new ICTs is not enough to increase the performance or get a new advantage. Rather, integrating the new ICTs with the traditional ones is very important [6]. Definitely, the new ICTs operations are based on the previous ones giving the work more support in productivity or quality [32]. E-leaders have to know how they can blend the new technology with the traditional methods [17,11], such as inviting and joining school teachers in e-conference or short e-session about some educational issues.

#### 3.1.5.3 Basic technological savvy

Technology or online environment is not only related to awareness and use of a new technology, but also it includes management of technological breakdown as it occurs [20]. This issue may depend on the leader's knowledge gained through training of enough use of technology and manage the breakdown competently.

E-leaders should have sufficient skills to deal with different technology related breakdowns in both personal and enterprise settings, and directly or with some assistance by technology specialist [37]. Also e-leaders should have

inclination to support their subordinates when necessary in case of some technology related breakdowns or performance issues.

### 3.1.6 E-Trustworthiness

E-leaders' ability to build interchangeable trust in online environment is a very critical aspect. The trust has to be built between the leader and his or her employees as well as between employees themselves in online environment. In this context, e-leaders should acknowledge that intrusions in the individual's work-life balance (in the home and work) is not exposed to the communications' violence [18,22]. Also, e-leaders should be keen the online environment is characterized by respecting the cultural diversity as much in virtual interaction [30,26].

#### 3.1.6.1 Technological security

Internet and various social networks may fetch some malicious programs and viruses that cause vulnerability to the stored information. Additionally, some applications on the internet are described as spy applications, because they allow their users to pursue secure information of others. Particularly, in this context, Roman [38] mentioned that while security management is critical for all organizations, it seems to be more critical for government agencies.

E-leaders are to assure that information is stored, transferred, and communicated safely [23]. Also they should be vigilant against information systems hacking and breaches [38]. This indicates that e-leaders should have a good knowledge about hacking issues, and take in consideration how to devote their skills or other assistant skills to protect their organizations' information.

#### 3.1.6.2 Trustworthiness in a virtual environment

E-leaders are to have ability to create a sense of trust in them. This is created across accumulative trust in regard to consistency, general integrity, fairness, and follow-through [39].

#### 3.1.6.3 Work-life balance

Online environment may lead an individual's life to be exposed to excessive intrusions. It is a duty of the e-leaders to make control of this issue; demands for the clients' responsiveness have not to overwhelm the employees' life [40]. It is

the cleverness of the e-leaders to keep the work-life balance in the virtual environment.

### 3.1.6.4 Diversity management

E-leaders should support and monitor the cultural diversity in the virtual environment as much as in face to face environment [34]. Generally, Schools have diversity in teachers' cultures as well as students' culture. Therefore, schools' e-leaders have to put consideration for their schools diversity to increase the educational performance.

## 4. METHODOLOGY

### 4.1 Research Design

Descriptive analytical approach was used in this study as it fits its problems statement and objectives. This approach describes the phenomenon as it exists in reality, analyzes it accurately in terms of quality and quantity, clarify its characteristics, and determine its relationship with other phenomena.

### 4.2 Study Population and Sampling

The targeted population of the study comprises all Jordanian schools' teachers throughout all Jordanian governorates. Because the number of the targeted population is very large, the clustering random sample method was used in the study. From the (12) Jordanian governorates, four governorates were selected randomly, which are (Amman, Mafraq, Karak, and Irbid). Next, one education directorate was selected randomly

from each governorate. Then, the teachers of two schools, which were selected randomly, for each education directorate, were selected giving number of (414) teachers teaching different stages in Jordanian public schools. Table below (1) illustrates the descriptive statistics of the study sample. After the questionnaire distribution, (394) were retrieved, and (386) were filled properly.

Gender: it can be noted from the table below (1) that 57.77% of the study sample is female and (42.22) are male. This indicates that female have good experience and knowledge to be teachers in Jordanian schools because they have skills that make them eligible to teach in different educational options.

Type of school: The majority of the study sample is from the governmental schools (58%), where the (42%) are from the private schools. This indicates that the governmental schools accommodate a large number of teachers because the teachers' salaries are supported by the government, whereas the private schools employ the fewest number of teachers, reducing the educational costs, that is just enough to meet specific needs of their students' learning.

Also, it can be noted that most of the study sample is from the age that ranges between (30) to less than (40). This means that most of the schools' teachers are from youth who have good experience in managing the schools' activities and with vitality to build social and functional relationship with others.

**Table 1. Descriptive statistic of the study sample**

Variable		Num.	Percent (%)
Gender	Male	163	42.22
	Female	223	57.77
	Total	386	100
Type of school	Governmental school	224	58
	Private school	162	42
	Total	386	100
Age	<30	82	21.24
	30 - < 40	215	54.70
	40- 60	89	22.05
	Total	386	100
Scientific Degree	Bach.	267	69.17
	Master	94	24.35
	Doctorate	25	6.48
	Total	386	100

*Scientific degree*: the majority of the study sample (69.17%) has bachelor degree, and (24.35%) has master degree. This confirms that most of teachers in Jordanian schools have good knowledge and more inclined to complete their study in higher degrees.

### 4.3 The Study Instrument

A self-reported questionnaire was developed to collect data from the study sample. The questionnaire was composed of two main sections. The first section included the personal and demographic variables' items, where the other one included all items of e-leadership measurement scale with (32 items), which were adapted from the study literature, and modified to fit the study environment. 5- Likert-scale was used to measure the level of e-leadership among the school's leaders in the governmental schools. The measurement scale ranged between "strongly disagree" denoted by (1) and "strongly agree" denoted by (5). Likert scale was processed using the following equation [41]:

$$\text{Class Length} = (\text{Upper Limit} - \text{lower limit}) / (\text{The number of levels})$$

$$\text{Class length} = (5-1)/3 = 1.33$$

This means that:

$1.33 + 1 = 2.33$ , so the first degree of respondents agreement is (1 to 2.33) expressing the low level.

$2.33 + 1.33 = 3.66$ , so the second degree of respondents agreement is (2.34 to 3.67) expressing the medium level.

$3.67+1.33 = 5$ , so the third degree of respondents agreement is (3.68 to 5) expressing the high level.

Based on the previous equation, the relative agreement was determined; Low agreement score includes the group of items with mean of < (2.34), Medium agreement score includes the group of items with mean of (2.34 to 3.67), and The high agreement score degree of approval includes items with mean of (>3.68).

### 4.4 The Instrument Validity and Reliability

#### 4.4.1 Content validity

The study instrument was presented to a number of arbitrators, who are specialized in the study field, to add their suggestions. Then, based on the arbitrators' amendments, the instrument items were modified and formulated, to be in its final version.

**Table 2. Correlation coefficients between E-leadership's variables**

		1	2	3	4	5	6	Total
E-Communication practice	Pearson Correlation	1						
E-Social practice	Pearson Correlation	.702**	1					
E- Team Building practice	Pearson Correlation	.686**	.787**	1				
E- change Management practice	Pearson Correlation	.628**	.608**	.779**	1			
E- Technological practice	Pearson Correlation	.541**	.661**	.549**	.670**	1		
E-Trustworthiness	Pearson Correlation	.556**	.562**	.683**	.604**	.591**	1	
E- leadership (Total)	Pearson Correlation	.848**	.765**	.800**	.824**	.769**	0.843**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed); \* . Correlation is significant at the 0.05 level (2-tailed)



**Table 3. Cronbach's alpha coefficients for "e-leadership" variables**

Variables	(Cronbach Alpha)	Num. of items
E-Communication practice	.931	5
E-Social practice	.854	4
E- Team Building practice	.898	6
E- change Management practice	.905	4
E- Technological practice	.910	6
E-Trustworthiness	0.894	7
E- leadership (Total)	0.907	32

#### 4.4.2 Construct validity

Construct validity measures whether the instrument is able to measure its content for which it was designed [42]. Correlation coefficient (Pearson Correlation) was used to determine the degree of construct's correlation with the total score of the instrument. Items with negative or less than 0.25 degree of correlation are considered low and preferably deleted. Tables below (Table 2) show the results of the construct validity.

It can be noted from the table above (2) that correlation coefficients between the constructs ranged between (0.541) and (0.787) and significant at ( $\alpha = 0.01$ ), which indicates that all constructs are valid to measure e-leadership. Also, the correlation coefficients between each variable with the total scale ranged between (0.76) and (0.848) and significant at ( $\alpha = 0.01$ ), which indicates that the total scale is valid to measure e-leadership.

#### 4.4.3 Testing reliability

Cronbach's Alpha coefficient was used for testing the instrument reliability (Table 3). Reliability is confirmed when Cronbach's Alpha coefficient is found to be ( $\geq 0.60$ ) [41].

Table (3) shows that Cronbach's Alpha coefficients for all variables ranged between (0.854) and (931) ( $\geq 0.60$ ), and for the total scale is (0.90) indicating that all the instrument constructs are reliable to measure e-leadership,

and the total scale is reliable to measure e-leadership.

According to the results of validity and reliability of the study instrument above, it can be concluded that the study instrument data is reliable and can be analyzed to achieve the study aim and objectives.

## 5. RESULTS AND DISCUSSION

### 5.1 Answering the Main Question

Means and standard deviations were used for assessing the e-leadership practice and its variables (Table 4).

Table (4) shows that e-leadership practice in Jordanian schools in its medium level with mean of (3.21) and standard deviation of (0.51). This indicates that the leaders of Jordanian schools do not practice all e-leadership skills in a sufficient level that can enhance the educational process. In this context, it can be solicited that the schools' leaders may don not have all the skills related to e-leadership. E-leadership is described as an integrative process; that is dependent on multiple predictors (practices). This emphasizes that an e-leadership activities should be practiced properly and consistently [24,7]. Accordingly, this confirms that e-leadership still needs enough support to improve the educational and learning processes in Jordanian schools.

**Table 4. Means and standard deviations of e-leadership and its variables**

Variables	Mean	SD.
E-Communication practice	3.41	0.55113
E-Social practice	3.42	.61151
E- Team Building practice	2.3	.63108
E- change Management practice	3.73	.65361
E- Technological practice	3.09	.54884
E-Trustworthiness	3.35	.54884
E- leadership Skills (Total)	3.21	0.5102

## 5.2 Answering the Sub-Questions

### 1) Answering the First Question (Q1): Measurement of “E-communication practice” Level.

Table No. (5) shows mean, standard deviation, and ranking of the respondents' answers about “E-communication practice” variable, which was measured by (5) items.

It can be noticed that “E-communication practice” has arithmetic mean of (3.41), with a standard deviation of (0.55), which indicates that it has a medium level of relative importance from the view point of the sample respondents. It is evident from the results in table (5) that item (3) “The communication settings allow feedback to avoid errors occurrence” has occupied the first rank with arithmetic mean of (4.38) and a standard deviation of (0.521), whereas item (1) “The communications are managed carefully giving a wide range of usefulness” has occupied the lowest arithmetic mean of (2.13) and standard deviation of (0.835).

This confirms that communication settings factor at schools' leaders in Jordan is still at its medium level, not enough organized, and leaders do not filter the exchanged information to avoid excessive communications between them and teachers. Teachers assessed that communication management is useful but it is

not a systematic process that help them to keep continuity with their leaders as much as needed. Thereby, teachers may not attain problem solving of their educational issues and provide their suggestions and ideas. Moreover, data that is exchanged with their leaders does not undergo filtering to be more organized and easier to be understood.

### 2) Answering the Second Question (Q1): Measurement of “E-social practice” Level

Table No. (6) shows arithmetic mean, standard deviation, and ranking of the respondents' answers about “E-social practice” variable, which was measured by (4) items.

It can be noticed from the table above (6) that “E-social practice” has an arithmetic mean of (3.42), with a standard deviation of (0.61), which indicates that it has a medium level of relative importance from the viewpoint of the sample respondents. It is evident from the results in a table (6) that item (3) “Our school's leadership supports e-communication via traditional and new ICTs” has occupied the first rank with an arithmetic mean of (4.14) and standard deviation of (0.65), whereas item (4) “Our school's leadership motivates the social issues as much as practiced in face-to-face meetings” has occupied the lowest arithmetic mean of (2.76) with a standard deviation of (0.88).

**Table 5. Means and standard deviations of “e-communication practice”**

Num.	Item	Mean	Std. Deviation	Agreement level	Rank
1	The communications are managed carefully giving a wide range of usefulness	2.13	0.8356	low	5
2	The communication setting are highly organized	4.12	0.6312	high	3
3	The communication settings allow feedback to avoid errors occurrence.	4.38	.521	high	1
4	Our school's leadership filters information exchanged electronically to avoid excessive communication.	2.23	.79472	low	4
5	The communication settings are clearly understood	4.20	.61559	high	2
Total		3.41	.55113	Medium	

**Table 6. Means and standard deviations of “e-social practice”**

Num.	Item	Mean	Std. Deviation	Agreement level	Rank
1	Our leadership provides virtual conferences to solve problems or improve processes.	3.09	.76842	medium	3
2	Our leadership support e-session to encourage brainstorming technique	3.69	.76842	high	2
3	Our school's leadership supports e-communication via traditional and new ICTs	4.14	.65465	high	1
4	Our school's leadership motivates the social issues as much as practiced in face-to-face meetings.	2.76	.88909	medium	4
Total		3.42	.61151	medium	

Although teachers in Jordanian schools assess the customized communication as very important to support the educational activities and enhance the communication facilities, they find it not at its satisfactory level. This may be attributed to that schools' leaders in Jordanian schools do not use all customized communication technologies through which the education process becomes faster and more flexible. It can be noted that some of the communication technologies are used so enough but others are still not adopted sufficiently. In this context, for instance, most of the teachers see that telephone is used widely between the schools' leaders to facilitate and orient the educational processes, whereas virtual conferencing is rarely practiced. E-leadership entails all communication technologies to be used in an integrative model [16]. For instance, during Corona (COVID-19) pandemic, online teams have become more persistent and have been used widely in the high educational stages in universities and some other educational institutions. However, such technology has not been practiced sufficiently in public schools.

### 3) Answering the Third Question (Q3): Measurement of “E- team building practice”

Table No. (7) shows arithmetic mean, standard deviation, and ranking of the respondents' answers about " E- team building practice " variable, which was measured by (5) items.

It can be noticed from table (7) that "E- team building practice" has arithmetic mean of (2.3),

with standard deviation of (0.63), which indicates that it has a low level of relative importance from the viewpoint of the sample respondents. It is evident from the results in table (7) that item (1) "Our school's leader builds e-team to support cooperative communications among teachers." has occupied the first rank with arithmetic mean of (3.14) and standard deviation of (0.57), whereas item (4) " I have my responsibility in taking my own decisions using e-means " has occupied the lowest arithmetic mean of (1.41) with standard deviation of (1.00).

Teachers see that they do not practice e-teams as much as in the real work environment. Even though, some teachers from some schools expressed that they perform their educational activities cooperatively and collaboratively and receive some boosting from their schools' leaders when they achieve their activities better. Generally, most of the teachers confirmed that they are not motivated enough by their leaders to better do their functional tasks.

Team motivation is very important to reinforce educational activities and increases teachers' morale to keep them in contact with their team members. However, it can be assured that e-team at Jordanian schools is not enough supported but exclusive to some social media, such as that is found on Facebook or Whatssup groups just to follow the educational process in emergent situations (e.g. such as what is occurring now during CORONA health situation).

**Table 7. Means and standard deviations of “e- team building practice”**

Num.	Item	Mean	Std. Deviation	Agreement Level	Rank
1	Our school’s leader builds e-team to support cooperative communications among teachers.	3.14	.57321	Medium	1
2	Our e-team is provided applications allow us to practice our knowledge sharing expansively.	2.95	.58959	Medium	2
3	I have my freedom and autonomy to practice my educational tasks electronically.	2.25	.86465	Low	3
4	I have my responsibility in taking my own decisions using e-means.	1.41	1.00712	Low	5
5	Our school leadership encourages our innovations to improve the educational process.	1.75	1.29269	Low	4
Total		2.30	.63108	Low	

Schools, today, as other organizations practice their activities in a very competitive and accelerating environment [5]. This impels them to adopt leadership characterized by openness, flexibility, and creativity. These advantages of leadership cannot be realized but with giving employees right of freedom and autonomy in their suggestions, participation, and involvement [13]. E-leadership is obviously inclined to provide its employees with responsibility in decision making and autonomy in practicing their innovations. Definitely, schools’ e-leaders should embed all these properties into their teachers and administrators.

Although some teachers expressed that they find team accountability in their educational process, most of them contradicted this opinion by assuring that their ideas and suggestions are not participated, and they are not involved in planning and strategic decisions. Also, they do not have their responsibility and autonomy in practicing their functional tasks and developing the educational processes.

E-team members should get feelings that their leadership provides them with an environment not less than face-to-face [43]. This simply indicates that schools' leaders have to be keen that virtual team members get their merits that

are usually got in a face-to-face environment. In this context, teachers need to be motivated when they achieve their educational tasks effectively, rewarded for their innovations, and provided with effective training to overwhelm gaps in their performance or to know how to use new technology.

In most of their responses, teachers accepted that they do not receive enough support and motivation in their virtual teams from their leaders. This may lead them to not practice activities of e-team as much as required, which finally reflects negatively on the students’ academic achievement. It should be noted, here, that some teachers are not enough satisfied with their support and motivation in their traditional team, which indicates that e-leadership might not provide them with the motivation that is not found radically in their traditional team activities.

**4) Answering the Fourth Question (Q4): Measurement of “E- change management practice”**

Table No. (8) shows arithmetic mean, standard deviation, and ranking of the respondents’ answers about “E- management practice” variable, which was measured by (4) items.

**Table 8. Means and standard deviations of “e- management practice “**

Num.	Item	Mean	Std. Deviation	Agreement level	Rank
1	Our school’s leadership accepts electronically new change to improve the educational process.	3.93	.65523	High	2
2	Our leadership encourages us by e-media to accept changes for development in the educational process.	3.12	.91026	Medium	4
3	Our leadership explains electronically the advantages of any new changes.	3.60	.74960	Medium	3
4	Our leadership attempts to get new information about the new technology before its adoption	4.30	.54365	High	1
Total		3.73	.65361	High	

It can be noticed that “E- management practice” has arithmetic mean of (3.73), with standard deviation of (0.65), which indicates that it has a high level of relative importance from the viewpoint of the sample respondents. It is evident from the results in table (8) that item (4) “Our leadership attempts to get new information about the new technology before its adoption” has occupied the first rank with arithmetic mean of (4.30) and standard deviation of (0.54), whereas item (2) “ Our leadership encourages us by e-media to accept changes for development in the educational process ” has occupied the lowest arithmetic mean of (3.12) and standard deviation of (0.91).

Teachers see that leader who can manage change of the traditional situation can do that easily in their virtual teams as long as their team members are accepting the change for sake of improvement and development of the educational process. Most of the study sample of teachers accepted that their schools’ leaders motivate e-team members to help change as long as the change is necessary. This indicates that teachers have the culture of change so that they accept it on e-team. This may be attributed to that ministry of education in Jordan has been devoting its efforts to make changes in the educational process throughout its all stages, and hence encouraging the teachers to accept this change to achieve the goals of the ministry; that is in the development of the educational process.

Change management by e-leaders of Jordanian schools may be more manifested than it was before the CORONA pandemic. The emergent situation, that is happening now with the CORONA situation, enforces schools leaders to follow what is new to support the continuity of online learning via e-educational stations, and hence spur their e-team members to pursue that and accept the change when it occurs to keep the continuity of the educational process as much it proceeds as in the face-to-face environment.

**5) Answering the Fifth Question (Q5): Measurement of “E- technological practice”**

Table No. (9) shows arithmetic mean, standard deviation, and ranking of the respondents’ answers about “ E- technological practice ” variable , which was measured by (6) items.

It can be noticed that “E- Technological practice” has arithmetic mean of (3.09) with standard deviation of (0.54), which indicates that it has a medium level of the relative importance from the viewpoint of the sample respondents. It is evident from the results in table (9) that item (3) “Our leadership mixes the new ICTs with the traditional ICTs.” has occupied the first rank with arithmetic mean of (4.09) and standard deviation of (0.53), whereas item (1) “ Our leadership keeps itself abreast electronically to a new technology ” has occupied the lowest arithmetic mean of (2.08) and standard deviation of (0.88).

**Table 9. Means and standard deviations of “e- technological practice”**

Num.	Item	Mean	Std. Deviation	Agreement level	Rank
1	Our leadership keeps itself abreast electronically to a new technology	2.08	.88909	Low	6
2	Our leadership has good knowledge of a new technology alternatives but no authority to adopt it	3.02	.92066	Medium	4
3	Our leadership mixes the new ICTs with the traditional ICTs.	4.09	.53896	High	1
4	Our leadership considers the traditional ICT as supportive to the new one	3.24	.92066	Medium	3
5	We assess our leader has good knowledge of solving technology breakdowns when occur.	2.30	.81358	Low	5
6	Our school’s leader asks help from some specialist to solve technology breakdowns.	3.81	.94365	high	2
Total		3.09	.54884	medium	

It is known that the educational institutions are the most ones witnessing improvement and development in all its fields and options. This is attributed to the students’ continuous need to use the newest technology to enhance their learning. This may be more critical to the online learning more than to the traditional one [1]. Also, teachers need new technology to practice their education effectively and interact smoothly and fast [24]. Accordingly, the schools’ leaders need to keep themselves abreast to a new technology; a technology that can meet all requirements of learning and education processes. Moreover, schools’ leaders should have a good knowledge of new technology alternatives that assist them to manage their employees electronically in an effective way.

Teachers of Jordanian schools in Jordan assess their schools’ leaders’ attachment to the new technology at its medium level. This may be attributed to that schools’ leaders put a low level of considerations to the new technology as it is related to the ministry of education which has the authority and sovereignty in making decisions based on some committees’ recommendations and suggestions. Nevertheless, most of the teachers accepted that their schools’ leaders

have good knowledge about the new technology, but have no authority to adopt it.

Most of teachers agreed that schools’ leaders mix the traditional communication methods with ICT methods. This is because they know well that ICT is highly integrative with the traditional methods. Despite its effective method in connecting individuals and groups electronically, the new ICTs may not realize some aspects efficiently unless supported by and mixed with the traditional methods, or, at least, it may not achieve the goal of communication properly [44]. For that, teachers confirmed that their schools’ leaders ask them face-to-face meeting to solve some emergent problems or perform some persistent affairs.

The school’s leaders in Jordan have been suffering how to solve problems related to technology breakdowns. Although they have good knowledge in using new technology to implement their leadership activities, school leaders in Jordan face a challenge how to repair breakdowns in technology when occur. However, this indicates that schools’ leaders need ongoing training and development programs that enable them to be more eligible in overcoming technological issues.

**Table 10. Means and standard deviations of "e-trustworthiness"**

Num.	Item	Mean	Std. Deviation	Agreement Level	Rank
1	Our school's leader has a good knowledge about hacking programs.	3.15	.7442	Medium	4
2	Our school's leader takes all necessary procedures to prevent store and transfer of information.	4.23	.5223	High	1
3	Our school's leader deals in integrity on the virtual environment.	3.02	.92066	Medium	6
4	We believe that our school's leader practices fairness on the virtual environment..	3.58	.6854	Medium	3
5	Our school's leader provides us with homeless tasks suitable to our life style.	2.36	0.9012.	Medium	7
6	Our school's leader can evaluate our abilities based on our performance effectiveness.	3.05	.8895	Low	5
7	We believe that our school's leader respects the cultural diversity.	4.11	0.6.252	Low	2
Total		3.35	.54884	Medium	

#### 6) Answering the Sixth Question (Q6): Measurement of "E-trustworthiness"

Table No. (10) shows arithmetic mean, standard deviation, and ranking of the respondents' answers about "E-trustworthiness" variable, which was measured by (7) items.

It can be noticed that "E-trustworthiness" has arithmetic mean of (3.35) with standard deviation of (0.54), which indicates that it has a medium level of the relative importance from the viewpoint of the sample respondents. It is evident from the results in table (10) that item (2) "Our school's leader takes all necessary procedures to prevent store and transfer of information." has occupied the first rank with arithmetic mean of (4.23) and standard deviation of (0.52), whereas item (5) " Our school's leader provides us with homeless tasks suitable to our life style " has occupied the lowest arithmetic mean of (2.36) and standard deviation of (0.90).

Schools have data that need to be safely secured and transferred. It is a process that needs knowledge of protecting data against hacking and vulnerability [20]. Teachers assess their schools' leaders as the medium level in their dealing with security issues. School leaders may have good knowledge about using or even repairing technology breakdowns, but do not know how to control its security issues. This

confirms that school leaders in Jordan have to undergo several and up-to-date training programs on information security.

Teachers assessed their leaders as having proper ways to spurring their employees' trust in virtual work. This may be attributed to accumulative fairness, integrity, and consistency. Moreover, e-trust can be created by dealing safely and respectfully with the information argued on the e-media in terms of information store and transfer between the leader and his or her teachers as well as between the teachers themselves in the same e-session [45].

Teachers assessed their leaders as respect their cultural diversity. This may be attributed to the Jordanian community culture that supports a diversity of cultures far from bias and partiality. The schools' leaders who attempt to not respect cultural diversity are mostly exposed to be isolated from their leadership position.

Teachers agreed that their leaders do not help them to make work-life balance. They confirmed that their leaders assign improper educational tasks, in terms of time and types of duties that allow them to achieve their work electronically without excessive effort. Also, the leaders are not enough skilled in monitoring and controlling educational electronic sites. For example, some e-groups on whatsapp or Facebook are not

monitored sufficiently against unrelated intrusions.

## **6. CONCLUSION**

Organizations today are practicing their works in a dynamic business environment accompanied by changing ICT. This impelled the organizations to adapt their strategies so that they can meet the renewable markets' requirements and expectations. Schools are educational organizations that need to develop their processes to meet the new changes in learning and education. Therefore, depending on the traditional leadership is no longer effective in an environment characterized by cyberspace dominance; especially in situations where practicing the organizational activities by the traditional methods face many challenges. This asserted that e-leadership in schools has become inevitable, especially in CORONA health situation. The current study has investigated the reality of e-leadership in Jordanian schools from the perspective of their teachers, and its findings proved that the leaders of these educational organizations are not practicing e-leadership at its sufficient level indicating that Jordanian schools leaders need more support to transfer their leadership from the replacement phase to the transformational phase that acknowledges effectively practicing e-leadership to enhance the educational and learning process at Jordanian schools.

## **7. LIMITATIONS AND FUTURE RESEARCH**

The study was limited to the environment in which it was conducted; schools' environment including governmental and private schools. Mostly, e-leadership is practiced in private schools more than in governmental schools. This might have increased the level of e-leadership in Jordanian schools to be at a medium level. The future research may be focused on private or governmental schools, but not both. Also, the study population included all teachers from all directorates throughout all Jordanian governorates. Although this approach adds an advantage to the study as comprehensive in its sample selection, not all directorates have the same electronic services and ICTs, which inhibits many schools' leaders to practice e-leadership properly. Hence, it is suggested that future research will have to consider homogeneity in the study population. Furthermore, e-leadership is required to be practiced by all sectors.

Therefore, future research may be focused on other sectors, such as SME companies, universities, medical institutions, the banking sector, etc.

## **CONSENT**

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## **COMPETING INTERESTS**

Author has declared that no competing interests exist.

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