The role of digital communication in developing administrative work in higher education institutions

Hanadi AlDreabi[a], Fawzi Khalid Ali Al Twahya[a], Nidal Alzboun[a,b], Manal Anabtawi[a], Reham Abu Ghaboush[a], Mohammad Alhur[c*] and Muhammad Turki Alshurideh[d,e]

[a]*The University of Jordan, School of Arts, Amman, 11942, Jordan*
[b]*University of Sharjah, Sharjah 27272, United Arab Emirates*
[c]*Universidad de Santiago de Compostela, A Coruña 15705, Spain*
[d]*Department of Marketing, School of Business, The University of Jordan, Amman, Jordan*
[e]*Department of Management, College of Business Administration, University of Sharjah, Sharjah 27272, United Arab Emirates*

CHRONICLE	ABSTRACT
	In higher education institutions, effective digital communication is crucial for achieving administrative goals, such as improving student services, managing resources, and facilitating collaboration among staff members. By exploring the impact of copresence factors on digital communication effectiveness, higher education institutions can gain a deeper understanding of the factors that influence their digital communication and develop strategies that optimize its efficiency. The study applied a quantitative research approach through a questionnaire survey to collect required responses from employees who are working in the higher education institutions of Jordan with a total of 304 participants. The findings of this study indicate that copresence factors play a significant role in the effectiveness of digital communication within higher education institutions in Jordan. The results support the framework developed by others and suggest that self-copresence and partner-copresence have a positive impact on the efficiency of communication. This highlights the importance of considering the presence of individuals during digital communication and the impact it can have on the quality of the exchange. In conclusion, the study sheds light on the importance of correspondence in digital communication and its impact on the efficiency of communication within higher education institutions. The findings can help in the development of strategies and practices for enhancing the effectiveness of digital communication and improving administrative work in higher education institutions in Jordan.

1. Introduction

The digital communication revolution has emerged and changed the work world as well as influencing the nature of 21-century works for most people. The transformation of technologies and the associated changes and demands further impose challenging aspects among the communication between the individuals, management, and organization (Crane, 2016). The connection practices are designed to ensure the individuals are ready for work. Networks digital communication and technologies have provided potential chances that help the organizations during their key operations and activities to keep in touch with their employees and make instant and close interaction through social media channels for example (Garg et al., 2022; Nguyen et al., 2022). The organizations have realized the important role of integrating digital communication methods and also have become proactive tools during the work experiences that organizationally approved this to facilitate intra-office communication (Tiago et al., 2021; Tian et al.,2022). Adopting digital technologies and communication through social media for instance can significantly challenge the traditional communication ways at the workplaces and provide alternatives of communication which embrace different perspectives and applications (Venter, 2019). The digital communication

applications contribute to gain further placements that potentially can help the decision making process and explore further perspectives (Ponti, 2011).

At present, the different organizations have gone through dramatic changes in the competitive environments in order to survive effectively as well compete successfully with the traditional rivals (Alzubi, 2022). This core of the higher education institutions encourages them to struggle to meet the organizational objectives within the day-to-day routines and activities through managing the communication and interrelationships with the different main stakeholders for sustainability (Ayman et al., 2020). Besides this, the contemporary competition triggers the management of the institution to consider new management styles of the communication with the stakeholders to receive an important effect and support this role for sustainable organizational operations. In the modern practices of the management, the communication itself is seen as a vital concept of business survival, and a concept like sustainability is widely used within different contexts and has various not agreed meanings (Proakis & Salehi, 2001; Al Kurdi, & Alshurideh, 2023). The purpose of the competitive advantage leads the organizations to incorporate a plethora of digital communication methods to reach this aim which can be met with sustainable lasting communication.

In general, the use of digital communication is ubiquitous in everyday activities. The home, learning, and workplace environments have all been influenced by the rapid innovative changes created by digital communication and the respective technologies in particular those networks that used to facilitate the connection and collaboration (Scolari, 2009). The complicated workplace environments require digital information literacy with good specific skills, and the most important of the soft skills which can facilitate the communication, interaction, and relationship building (Sharadga & Safori, 2022). The motivations trigger this study regarding the benefits of adopting digital technologies to drive a lot of working activities, processes, and communication systems, thereby enhancing the quality of work, and allow knowledge access and enhance the employees' autonomy (Lapidoth, 2017). In addition, understanding the issue of digital communication can facilitate many things such as the skills acquisition with new approaches through networks communication and connections and encourage different kinds of teamwork and collaboration (Lee & Messerschmitt, 2012). Thus, the objective of this study is to address the role of digital communication in developing administrative work in the higher education institutions of Jordan, as well examine an integrated model with different factors. And the research question that triggers this paper is: to which extent can digital communication develop the administrative work in the higher education institutions in Jordan?

Although the previous studies have been conducted in different sectors, the higher education sector of Jordan did not receive enough among the modern studies, especially with the modern issues associated with the digital transformation and communication in this industry. In addition, the current study model in digital communication and administrative work handles important emerging constructs which distinguish this study by dealing with this sector due to the essential impacts on the economic development in general. Therefore, this study came to fill the gap in this topic after presenting the previous studies, which are characterized by a deficiency in the Jordan setting.

2. Literature Review & Hypothesis Development

As claimed from the previous studies, it is indeed crucial to address the effect of copresence factors on digital communication effectiveness in today's organizations, especially in higher education institutions. Where digital communication plays a vital role in achieving administrative goals and objectives (Barry et al., 2012; Limani et al., 2019). Digital communication has become a ubiquitous part of our daily lives, but it is important to understand that it can have different impacts on communication depending on the type of correspondence experienced (Grosseck et al., 2020).

Self-copresence refers to the sense of being in one's own physical space, while partner-co presence refers to the sense of being with the communication partner (Nowak & Biocca, 2001). These two forms of correspondence can impact communication effectiveness in different ways and understanding the effects can help organizations optimize their digital communication strategies (Bailenson et al., 2005).

The transformation towards digital management not only in the educational institutions but also among other organizations to cope with the challenges of the digital age leads to the transition to creativity in the management communication (Cover, 2023). And from this point, an improvement in this issue and the improvement in the speed of achievements, the practices of management that have a precedent in the administrative processes and technology respond to the factors of administrative digital technology and benefiting from administrative information and its applications (Liu et al., 2019). Alike, to the establishment of the digital infrastructure to convert it to management information technology, and converting it to digital management, communication, information technology has become basic and important in all organizations in various types and in terms of reference for being important in accomplishing work efficiently, accurately and quickly, as well leading to a real increase in the efficiency and effectiveness of organizations community (Krstić et al., 2022).

Since the late 20-century and the beginning of the 21-century, there has been a huge boom in the field of technology at the global level, which resulted in the need for all organizations to use modern administrative works and patterns that keep pace with this technological development, and among these patterns emerged what became known as digital communication and management (Dahanayake & Sumanarathna, 2022). It enables the organizations, including higher education institutions, to process their administrative processes in a digital manner, which has led to a decline in paper-based transactions, and the abandonment of traditional interaction methods to be replaced by the digital ones (Chawla & Goyal, 2022). Thus, the need for comprehensive transformations in the communication methods, structures and initiatives on which the traditional communication management is based has increased to provide further opportunities of the application of digital interaction. With the accelerating pace in the field of administrative information technology, old thoughts and habits in the communication aspect began to crumble in the face of the technical advancements that forced the managers and leaders of these institutions to bring about radical changes in this aspect (Pramanik et al., 2019).

The literature indicates that the computer and communication networks became two examples that imposed themselves on contemporary administrative works and became indispensable. On their behalf in management work in the educational and non-educational community institutions, a desire to achieve quality outputs, save expenses, speed of completion, and transparency of transactions (Camarinha-Matos et al., 2019). For the higher educational institutions to keep pace with the modern developments and benefit from the data of the age, the management realized the important effect to be modernized and to benefit from the information technology and to adopt modern administrative methods that are accurate and flexible at the same time at all administrative levels (Almutair et al., 2023). Through the mechanization of digital communication and linking with the administrative tasks into computer networks, it pursues a speedy achievement and at the same time the quality of administrative performance (Flyverbom et al., 2016).

Nowak et al. (2009) in their study indicated that communication through digital channels like social media differ in terms of the features as well characteristics. The findings showed that the difference in these features influence the communication process and the efficiency of the mediums. Moreover, they stated the interaction between teams' members during the communication processes and situations could enhance the members' satisfaction with the selected medium. Further, the results demonstrated the high-cue interaction using digital media was mainly required effective communicative efforts, which was thus important and efficient to facilitate the digital communication compared to low cues of the traditional communication. Bailenson & Yee (2008) asserted the communication process with low cue does not require complex and more communicative efforts of the members or users into the information processing, but the users require to develop and learn new skills of the communication behavior connected to the communication media.

A further research work of Nedelcu & Wyss (2016) addressed the essential efforts that can develop the levels of presences like the users' beliefs about their meaningful contributions and their partners into the group effectiveness; and they work together towards many important communication aspects and goals. The study further supported the implications that can achieve effective communication outcomes. A framework of efficiency of Nowak's has suggested exploring the relations between the variables copresence (including self-copresence and partner copresence), usefulness, communication effectiveness, and outcomes. The study of Wang et al. (2012) tested the framework hypotheses in works that were conducted in different contexts e.g. education organizations that use face-to-face interaction or other digital communication mediums while working within a group. The results found that digital communications that are synchronous or with few cues contribute to higher levels of the correspondence, but not found the same support of the communication effectiveness.

Lipiäinen et al. (2014) indicated in their study the development of the tools and means of communication and "digital" electronic communication that they have contributed to maximize the effectiveness of internal communication within the institution and provided a full opportunity for the leaders of the institutions. In addition, they supported the importance of communicating continuously without obstacles or bureaucratic procedures. The results stand in line with the literature that stated opportunities for the employees to view and know the laws, regulations, directions, and policies related to the institution to which they belong without intermediaries and provided them with the opportunity to submit suggestions for development of the institution's policies (Ihator, 2001).

Al Bakri's study (2013) presented the background about the extent of the information and communication technology ICT and electronic commerce systems in Jordan. The study examined business to business B2B of the electronic commerce systems and the readiness of this system in Jordan. It also highlighted the benefits and risks that are facing B2B and electronic commerce systems adoption in Jordan. In the similar setting, Alyan (2022) aims to identify the effect of the business intelligence on outcomes of the employee such as empowerment. And the study's target the employees working in the Jordanian universities in Zarqa city. It used a quantitative descriptive analytical approach to meet the research objective. The findings showed that the ICT had a mediation effect between the business intelligence and employee's empowerment in the surveyed setting. But Rajab & Baqain (2005) examined the dental undergraduates in the University of Jordan to explore their perspectives regarding ICT. The study used a framework with internet access and computer skills and training. The results indicated that the students at the university largely accessed the internet with substantial IT resources and revealed their positive attitudes toward technology communication through the computer and the Internet to report different levels of activities.

Almuhaisen et al. (2020) through results and review the previous studies conclude that the information and communication technologies ICTs have a critical and important role to enrich the key processes (e.g. English learning) that can help to develop skills of individuals. In addition, it stated the need to integrate the advanced technological tools for communication and achieve the key activities, and there is a need for further studies to explore the benefits of ICT in order to discover the most beneficial properties and develop the respective different processes in the organizations. Zhang et al. (2022) highlighted the impact of ICT and education on CO_2 emissions in the 48 developing countries. The study adopted a second-generation method, with analysis of panel quantile regression tests. The results indicated that ICT could reduce CO_2 emissions, but globalization and economic development can increase CO_2 emissions. Based on the above discussion, the study would postulate the following research hypotheses:
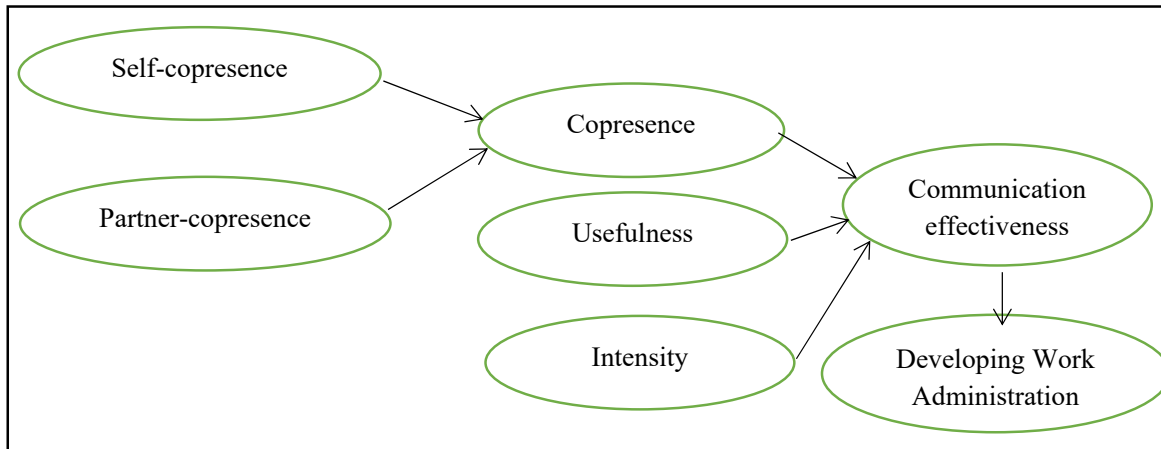

Fig. 1. Research Conceptual Framework

H₁: *Self-copresence has a positive effect on copresence among higher education institutions in Jordan.*
H₂: *Partner-copresence has a positive effect on copresence among higher education institutions in Jordan.*
H₃: *Copresence has a positive effect on communication effectiveness among higher education institutions in Jordan.*
H₄: *Usefulness has a positive effect on communication effectiveness among higher education institutions in Jordan.*
H₅: *Intensity has a positive effect on communication effectiveness among higher education institutions in Jordan.*
H₆: *communication effectiveness has a positive effect on developing work administration among higher education institutions in Jordan.*

According to Nikhashemi et al. (2019), marketers are nowadays offering a pleasant and pleasant purchase experience to increase their intention to purchase consumers. According to Schmitt (1999), customer experiences are classified into five elements, one of which is the sensory experience (five senses). Marketers stimulate their five senses by motivational stimuli to increase their experiences (Altschwager et al., 2017). The other two elements include affective experience (feeling) and customer's cognitive experience (Schmitt, 1999). Feeling is the most primary level of conscious experience which might be a result. Cognitive experience is an innovative way for targeting consumer intelligence and awareness to create a different experience (Bustamante & Rubio, 2017). Schmitt (1999) has introduced behavioral experience and social experience as other aspects of customer experience. According to Bustamante & Rubio (2017), behavioral experiences are behavioral responses driven by brand-related stimuli. They include a part of design of a brand, identity, packaging, marketing communications, and the environment. Social experience means the aspect of social interactions and individual processes are part of the consumer experience, since they not only demand intrinsic performance benefits in interaction with other customers, but also seek social benefits and achieve a deep sense of social involvement in the sales environment. Providing diverse strategies and a combination of different experiences increases the consumers' purchase. According to Nikhashemi et al. (2019), marketers are nowadays offering a pleasant and pleasant purchase experience to increase their intention to purchase consumers. According to Schmitt (1999), customer experiences are classified into five elements, one of which is the sensory experience (five senses). Marketers stimulate their five senses by motivational stimuli to increase their experiences (Altschwager et al., 2017). The other two elements include affective experience (feeling) and customer's cognitive experience (Schmitt, 1999). Feeling is the most primary level of conscious experience which might be a result. Cognitive experience is an innovative way for targeting consumer intelligence and awareness to create a different experience (Bustamante & Rubio, 2017). Schmitt (1999) has introduced behavioral experience and social experience as other aspects of customer experience. According to Bustamante & Rubio (2017), behavioral experiences are behavioral responses driven by brand-related stimuli. They include a part of design of a brand, identity, packaging, marketing communications, and the environment. Social experience means the aspect of social interactions and individual processes are part of the consumer experience, since they not only demand intrinsic performance benefits in interaction with other customers, but also seek social benefits and achieve a deep sense of social involvement in the sales environment. Providing diverse strategies and a combination of different experiences increases the consumers' purchase. According to Nikhashemi et al. (2019), marketers are nowadays offering a pleasant and pleasant purchase experience to increase their intention to purchase consumers. According to Schmitt (1999), customer experiences are classified into five elements, one of which is the sensory experience (five senses). Marketers stimulate their five senses by motivational stimuli

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3. Method

The current research concerns with a research model that is referenced with Nowak's (2009) efficiency framework. As the study suggested a conceptual research framework (Fig. 1) to address the role of digital communication on developing the administrative works as well the perceived communication effectiveness and usefulness in a situation of university staff use communication technologies for messaging during the digital communication medium for interaction effectiveness and collaboration purpose. Furthermore, in this study, the copresence is conceptualized as multi-factorial variable (including first-order reflective construct of self-copresence, partner copresence, and copresence). Suppose that the higher education institutions who are satisfied with using digital communication could perceive communication effectiveness for developing their administrative work. It is hypothesized that a higher level of compresence can support a higher level of administrative work that could eventually result in a high perceived outcome of communication effectiveness. The study participants are 304 individuals working in the different higher education institutions in Jordan. They are selected and participated in this study randomly, and they are asked to give their experience and perceptions over past periods while using different types of digital communication mediums to complete their administrative works. The study procedure includes that all samples represent different institution departments at large public universities in Jordan. They were asked to complete a questionnaire that assesses the digital communication with self-copresence, partner- self-copresence, communication effectiveness, and administrative work development. The measurement instrument is a multi-scale of items that were created to fit the study aim and objective, and it is validated and tested in the previously published research works and scales (e.g., Tang & Bradsha, 2016a; Tang & Bradshaw, 2020) as well they were adapted to this study. The analysis of the item was based on Cronbach's alpha that was mainly conducted to check the final constructs measures, with initial reliability of alpha more than 0.70, and the study concerned with deleting a particular item that can decrease the alpha reliability to ensure valid scale. In Jordan, there are ten public universities (The University of Jordan, German Jordanian University, Al-Balqa Applied University, The Hashemite University, Yarmouk University, AL-Hussein Bin Talal, Tafila Technical University, Mu'tah University, Jordan University of Science and Technology, and Alalbayt University). According to the statistics of the Ministry of Higher Education and Scientific Research and universities websites, these universities include around 5748 staff work in those universities.

Table 1
Staff at Public Jordanian Universities

University	Number of staff
Yarmouk University	851
Jordan University of Science & Technology	752
Al al-Bayt University	299
The University of Jordan	1180
The Hashemite University	484
AL-Balqa Applied University	1044
German Jordanian University	160
Mutah University	520
AL-Hussein Bin Talal University	221
Tafila Technical University	237
Total	5748

The data collection is conducted through an online questionnaire that is used to gather the responses from the target sample who have been involved in digital communication with others at the same institution. The sections of the questionnaire asked some demographic questions and statements about their digital communication practices including correspondence forms either self or partner. The items were ranked by using a five-point Likert-scale, as 5 represents "strongly agree" and 1 represents "strongly disagree". As the main focus of this research is on the role of digital communication for developing administrative work of the people in the higher education institutions, only those who applied and conducted this type of communication using form example social media (e.g., WhatsApp, emails etc.) as their main communication channels and medium when interact with each other in teams or individually are involved in the data analysis.

The arguments of the efficiency framework about the satisfaction and preferences of the users for communication systems introduce the important direct prediction of the outcomes and success of those systems ability which also facilitate the collaboration. Based on this, the studies (e.g., Tang & Bradshaw, 2020b; Nowak et al., 2005) addressed this model and maintained the mediated communication which differs from the traditional face-to-face communication. Adopting this framework in the current study enables it to provide further explanations with the effects of digital communication, because the individuals adapt their interaction behaviors and point out the importance of distinguishing communicative cues and evaluate the collaborative communication systems (Ryu et al., 2019). Involving both of self-copresence and partner copresence in the study framework traced to their relations with work outcomes and communication effectiveness. The intensity and usefulness of the digital communication as a tool to serve more efficient of works methods through sharing information, reports, tasks update and more non-digital approach particularly when work within teams of individuals that are spread out in various fields as result of the remote administrative works (Thunberg & Arnell, 2022).

4. Analysis

By using SPSS software, the study analyzed the demographics of study respondents. The results showed most of the study participants representing around 62.5% were male with 37.5%. And the most of the aged between 31-39 years old around 41.8% followed by the age above 55 years old about 25.6%. And in terms of their experience, the results showed that most of the sample had experience of 11-20 years with a percentage of (39.2%), and the occupation among the study respondents showed 72.7% were administrative staff while the rest were academics 27.3%. The overall results of analysis indicate the youth ageing group of the sample with different job positions and different levels of work experience who are working in the higher education institutions of Jordan, thus this would enrich the perceptions obtained from the sample towards the topic being addressed in this research work.

Table 2
Profile of Sample Demographics

Variable	Frequency	Percentage %
Gender		
Male	190	62.5
Female	114	37.5
Age		
Less than 30 years old	17	5.6
31-39 years old	127	41.8
40-45 years old	27	8.9
46-55 years old	55	18.1
Above 55 years old	78	25.6
Experience		
0-5 years	24	7.9
6-10 years	76	25.0
11-20 years	119	39.2
Above 20 years	85	27.9
Occupation		
Academics	83	27.3
Administrative	221	72.7

The study used the analytical approach of structural equation modeling (SEM) which is generally used to examine and identify the respective causal relations determined in a model between the latent constructs that are contained in the structural equation. The analysis method further conducted mainly on the software of Smart PLS. This method conducted in the study with a quantitative research nature, and the procedures of the data collection technique is by distributing the survey questionnaires into the determined sample. Nevertheless, the research instrument designed to measure all research latent constructs involved in this study which were adopted and adapted from similar literature, including different numbers of the items for each factor (self-copresence 3 items; partner-copresence 4 items; copresence 4 items; usefulness 3 items; intensity 4 items; communication effectiveness 3 items; developing administrative work 4 items). The approach of processing the data was conducted by the tool of SmartPLS3. Fig. 2 illustrates the study framework that converted into SmartPLS3 software with the respective items for each latent construct.
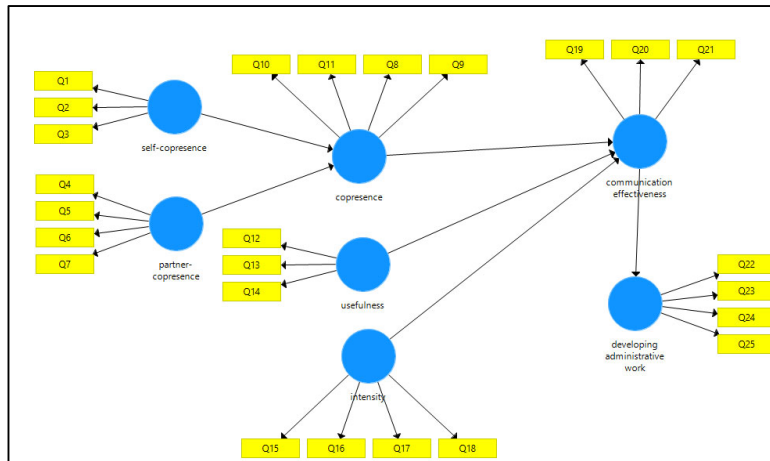
Fig. 2. SmartPLS3 Research Framework

The important test considers in this analysis it testing the results of validity and reliability of all variables' indicators The first phase is checking and testing the measurement model of the research framework that encompasses testing different type of validity e.g. convergent and discriminant validity with considering issues related to the reliability of the indicators such as the composite reliability CR. PLS analysis results are presented in the study to test the research hypotheses once all variable indicators of the PLS model achieved satisfactory requirements of the types of validity with a reliable scale of the indicators. The results of the validity and reliability are conducted through the initial run of this model to take a close look at the factor loading values of all indicators associated with their constructs. Mostly, the reference in this issue indicated a factor loading greater than 0.5 is acceptable and considered to have a sufficient good validation that contributes to explaining the latent constructs (Ghozali, 2014). The current study results regarding the lower minimum limit of the strong loading factor is 0.6 which indicated that the convergent validity through average variance extracted AVE and CR for all research study achieved > 0.6 (Hair et al, 2014) as illustrated in the Fig. 3.
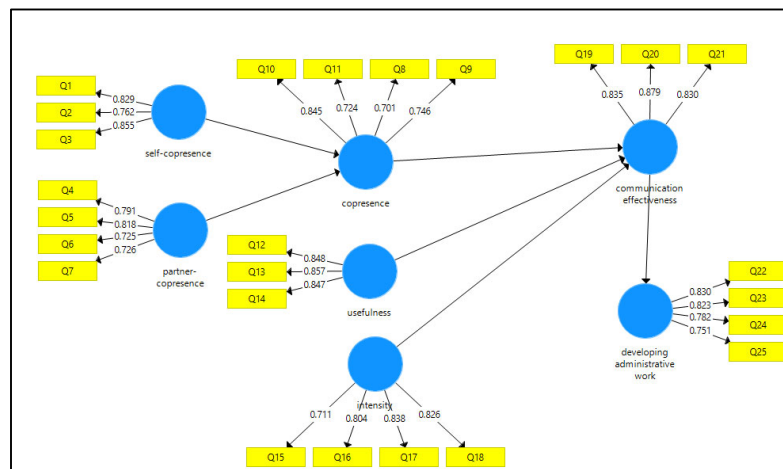

Fig. 3. Indicators Factor Loadings

The PLS estimation results of the study model supported acceptable ranges of indicators that have met good loading factors which exceed a value greater than 0.6, thus the measurement model has also gained good results of the convergent validity which its requirements gained satisfactory levels. Apart from this, a close look on the values of the loading factor of the indicator enables the study to examine the convergent validity which is checked by the value of AVE for all variables. The result of this validity showed AVE value with more than 0.5, hence the convergent validity is met in this study framework with outstanding conditions and requirements. On other hand, the results that are associated with the common validity including the key features of the measurement model like factor loadings, Cronbach's alpha, and AVE for the complete final model are given in Table 3. The constructs' reliability also in this study was assessed by looking at the Cronbach's alpha as well the composite reliability of all variables in which they achieved good results more than 0.70.

Table 3

Constructs Validity & Reliability

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted
Self-copresence	0.75	0.76	0.85	0.66
Partner-copresence	0.76	0.77	0.85	0.58
Copresence	0.74	0.75	0.84	0.57
Usefulness	0.81	0.81	0.88	0.72
Intensity	0.80	0.81	0.87	0.63
Communication effectiveness	0.80	0.80	0.88	0.72
Developing administrative work	0.81	0.81	0.87	0.63

The reliability results revealed that the proposed model variables have met values of composite reliability and Cronbach's alpha more 0.70 which indicated greater reliability of the indicators. To sum up, the study constructs have achieved the required values of this analysis. Testing the discriminant validity in this research work is important and it is conducted to check how each single concept of the latent construct differs from others. Testing this issue among the models enables the results to provide a clear picture about this type of validity, and the good result indicates a value of AVE squared for each construct that suggested to exceed the correlation between a particular variable and other variable (mostly in the bold format). The discriminant validity results after running and testing it by using the square of AVE square supported the criterion considered widely in this analysis which namely Fornell-Larcker that obtained in this analysis which also met good results.

Table 4

Discriminant Validity

	1	2	3	4	5	6	7
Communication effectiveness	0.848						
Copresence	0.634	0.756					
Developing administrative work	0.804	0.626	0.797				
Intensity	0.771	0.662	0.728	0.796			
Partner-copresence	0.545	0.734	0.552	0.557	0.766		
Self-copresence	0.541	0.653	0.537	0.480	0.614	0.816	
Usefulness	0.616	0.694	0.617	0.699	0.544	0.521	0.851

The next important procedure of PLS analysis is testing the hypotheses for testing the linner model. In this test, the important outputs include the significance level of all direct and indirect effects and measure the amount of the effect of the independent variables on the dependent ones. To examine the effects among the study variables, a requirement of both direct and indirect effect test should be made, this test was conducted by using the t-statistic and p value results obtained in the PLS analyses through an approach of the bootstrapping which provide the key statistics. Furthermore, the value of R Square as well as the significance values are presented in this analysis, as the R Square indicates the variance explained by the independent variable on the dependent variable. The result of this test showed 0.623 of communication effectiveness and 0.730 of developing administrative work which means that the communication effectiveness construct can be explained by the intensity, usefulness, and copresence variables by 62.3%, while the remaining 37.7% is explained by different not included variables in the current study. The R Square value for developing administrative work means that it is explained by the communication effectiveness variable of 73%, while the remaining 27% is explained by other not discussed variables in the study model.

Table 5

Hypotheses Testing

Path	Original Sample	Sample Mean	Standard Deviation	T Statistics	P value	Result
Self-copresence → copresence	0.256	0.257	0.050	5.098	0.000	Supported
Partner-copresence → copresence	0.621	0.621	0.048	12.850	0.000	Supported
Copresence →communication effectiveness	0.194	0.192	0.059	3.262	0.001	Supported
Usefulness →communication effectiveness	0.096	0.068	0.040	2.401	0.000	Supported
Intensity →communication effectiveness	0.597	0.596	0.065	9.176	0.000	Supported
Communication effectiveness → Developing administrative work	0.854	0.856	0.017	49.136	0.000	Supported

Meanwhile, the results regarding hypotheses testing presented previously revealed the statistics of T and P-Values had effects between the study variables that mentioned in the respective framework. The effects between self-copresence and partner-copresence on the copresence according to the analysis results found a positive direction of T Statistics of 5.098 and 12.850 respectively > 1.96 with significant P-Values of 0.000 for both paths. Therefore, it can be concluded that H1 and H2 are accepted, self-copresence and partner-co presence have a significant effect on copresence. An increase in self-copresence and partner-co presence variables will follow with an increase in copresence. Moreover, the results also found that the effects between copresence, intensity, and usefulness on the communication effectiveness according to the analysis results showed a positive direction of T Statistics of 3.262, 2.401, and 9.176respectively > 1.96 with significant P-Values of 0.000 for all aforementioned effect and paths. Therefore, it can be concluded that H3, H4 and H5 are accepted, copresence, intensity, and usefulness have a significant effect on the communication effectiveness. An increase in compresence, intensity, and usefulness

variables will follow with an increase in the communication effectiveness. With these results, the study is consistent with the findings of Tang & Bradshaw (2016a) about the significant effect of the co presence with the team effectiveness.

5. Discussion & Implications

The current study aimed to address the possible role of digital communication in developing administrative work in the higher education institutions of Jordan. The findings supported this role and confirmed the important effect of different forms of digital communication and the benefits and usefulness of it. Moreover, the study findings are associated with the developments at the workplace due to the development in the communication methods between members and teams to execute the key daily activities as stated by (Newnam & Goode, 2019). All study theoretical assumptions were supported and provided agreed insights in the topic of digital communication, the present study also contributes with novel thoughts and contributions to the existed body of the relevant literature, in addition it expands the limited research works and studies that generally focused on the aspect of the digital communication environments as an emerging phenomenon and conducted a qualitative research approach of the subject issue. The quantitative approach has dominated in similar works of the previous studies, the study results inferred from the data indicated wide digital landscapes with consideration of the new advanced interaction activities. The distinctive characteristics of the digital communication landscapes where the most processes have taken a place with digital forms like emails, social media channels, and others which this confirm literature findings (e.g. Betti et al., 2019).

The study findings on other hand were not variance, they were consistent and in line with the previous studies that also asserted the increasing concerns of the role of the new means of the communication activities, for instance the work duties diversification has emerged the need to incorporate further non-traditional communications means (e.g. Okkonen et al., 2017). Understanding the previous studies' contexts, the findings of this study broaden the ideas about the new skills and capabilities at the workplace with important different technologies that can be used in the interaction. And the need to be integrated with the effective means of communication trigger the higher education institutions to be involved with this new landscape. Resulting of the COVID-19 and the lockdown of the daily life activities, the successful organization didn't stop their main activities rather they keep in touch with the different work teams and carry out the basic processes with vital direct communication through the digitalization aspects at the workplace (Minina & Mabrouk, 2019). Furthermore, the results mostly highlighted the effect of digital communication on developing the administrative works in higher education institutions in Jordan as a resource contribute towards growing employees' co presence that is in line with discussion of (Al Marri et al., 2022).

This finding identified the new demands in these institutions linked with information technology and communication of self and partner copresence to increase the usefulness and communication expectations of the increased workload with limited or poor communication. The study responses believed with the increasing effect of the digital communication as growing demands and life essential aspects. This aspect perceived to handle the problems and emerging challenging while managing huge numbers of text messaging as well maintain the effective modern communication channels (Diallo et al., 2017). To control the amount usage and application of the digital communication, the perceptions of the study sample realize the digitalization aspect of the communication process towards developing the administrative work using for example emails and social media even after work hours to achieve satisfactory levels of the clients. The study through this result found that the nature and quantity of digital communication applications is increasing both of self and partner copresence within the institutions and this usually spills over the out of work hours (Bailenson et al., 2005).

The results also highlighted the digital transformation in the higher education institutions as a necessity for survival and the pandemic has stimulated the digitization of processes within most aspects of those institutions, and thus it has hit higher education institutions harder than other industries. The digital transformation in higher education institutions is essential, not only to provide services easily and conveniently, but to keep pace with the evolving expectations of the students. The administration in higher education institutions found in the use of this technology a space to enhance the lines of communication with administrators, professors and students, and by strengthening this communication, these parties made it easier for the administration to interact with them and improve the performance of its work as concluded by (Onyema et al., 2019). Despite the benefits and services provided by digital communication technology to the members of the administration within the higher education institutions, its use is faced with a number of obstacles such as: lack of training, and lack of support from the higher management, as well as a lack of specialists in this field and it is due to a lack of interest in one specialty over another with preference (Njoku, 2015). In addition to the lack of personal interest of the departments in the use of digital communication tools, some departments deal with traditional methods of communication.

6. Conclusion

The higher education institutions have come a long way from its inception to the present day through a series of achievements, among which was the introduction of digital communication technology in all its facilities in order to upgrade and advance them to the top ranks of the good universities. But it is still facing some challenges to overcome some efforts and the obstacles they are facing in this field, especially in light of the rapid development and novelty of digital means of communication. Today, in the digital era with witnessing technological developments that have cast a shadow over various organizations and sectors, and through this research, it has worked to shed light on the communication aspect, despite the fact that it has become endowed, especially with the education sector applauding it for benefits. The most prominent of this sector is that it has gone

to extremes in the present research, as well as due to its benefit from communication technologies, especially since communication has become digital and is very different from traditional communication.

The demand of higher education institutions to introduce digital communication in their facilities has increased with the increase in the production and exchange of information. The data is also transmitted into the various departments, and the value of this technology lies in the facilities it provides, from the huge ability it enjoys in collecting data, classifying it, storing it, retrieving it, and disseminating it in the largest and most accurate quantities to reach an indefinite number of individuals, regardless of the distances between them. Communication has become a phenomenon. Remotely is one of the most important ambiguous phenomena in managing and managing the affairs of modern organizations. The higher education institutions as well as in its various affiliated institutions are viewed as the highest and most consistent level of education, and from this point of view it was necessary for it to keep pace with technological developments in order to maintain its position within society as a scientific entity and a center of cultural and scientific radiation for all individuals who join it, especially as it is on the authority of the workforce in the development of the community.

The research limitations highlighted in terms of this study did not address the effects between digital communication and other factors of the perceived effectiveness among the teams and organizational outcomes. This study only highlighted aspects involved in the Nowak's (2009) efficiency framework and did not consider other digital communication aspects for discussion. This study did not isolate the effect of different digital communication that may be applied by the teams for collaboration. In addition, a limit related to the sample nature and size determination of only public universities in Jordan, and this would trigger the private universities with using different research methods like mixed or qualitative using interviews. The future research directions further the existing understanding in the topic of digital communication for work development purposes, and these directions can consider examining or comparing different groups of digital communication and social media e.g. Facebook, video chat. And examine the usage of the digital communication in businesses for various purposes such as project management which expands the research framework and include measures of the organization outcomes.

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Appendix

Survey Questionnaire

Dear Potential Participant,

You are invited to take a survey that aims to identify the role of digital communication in developing administrative work in higher education institutions in Jordan. The researcher is interested in learning about your perceptions. Please select the best answer that expresses your perception of each statement. There is no correct or incorrect answer. Your responses and all information you provide will be kept anonymous and strictly confidential.

Thanks for your time

A. Personal Information
Gender:
o   Male
o   Female
Age:
o   Less than 30
o   31-39
o   40-45
o   45-55
o   Above 55
o   **Years of experience:**
o   0-5
o   5-10 years
o   11-20 years
o   More than 20 years
o   **Occupation**
o   Academicians
o   Administrative staff

From your point of view, evaluate the following factors according to the financial constraints of the educational supervisor

Factor	Strongly disagree	Disagree	Satisfied	Agree	Strongly agree
Self-copresence					
I was detached during the digital interaction.					
I find out the digital interaction is stimulating.					
I am intensely involved in the existed digital interaction.					
Partner-copresence					
Partner is willing to listen to me.					
Partner is intensely involved in the interaction.					
Partner wants a deep relation.					
Partner seems to find an interaction stimulating.					
Copresence					
The responsive of the environment into the actions is initiated.					
The digital interactions seem natural with the environment.					
The visual aspects of the environment involve me.					
It is easy to identify objects through digital interaction.					
Usefulness					
I find the meetings useful and helpful.					
The group meetings are very beneficial.					
The meetings are generally successful.					
Intensity					
Team members are intensely involved in the digital interactions					
Team members seem to find interactions engagement.					
There is a sense of closeness among the team members during the digital interactions.					
Team members are interested in team digital interactions.					
Communication effectiveness					
The digital interaction contribution to the group is effective					
The group did a good job on the task given constraints.					
I did not feel bored during the team digital interactions.					
Developing work administration					
Digital communication tools power both internal and external initiatives.					
Digital communication is an essential element for developing positive interactions.					
It is easier for people to connect with each other and work on projects together.					
It learns about many facets of social media communications.					