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The Implications Of Digital Transformation On Building Knowledge In Educational Institutions

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Abstract

Currently, digital transformation is one of the important topics at the local and global level due to the large changes and transformations taking place in the external environment (globally - internationally - locally) that are reflected in the various political, economic, social, knowledge and technological development fields and the accompanying changes in the various policies and programs of existing institutions. Accordingly, this research came to cover the issue of digital transformation and knowledge building and by adopting the method of descriptive methodological analysis in the Ministry of Education and educational institutions in Baghdad. This research dealt with digital transformation as an independent variable according to two dimensions (digital awareness, digital acceptance) and adopted knowledge building as a dependent variable. This study aimed to identify the digital transformation and its reflection on building knowledge and to identify the roles played by educational institutions digitally, as well as discovering the difficulties that prevent improving knowledge building in educational institutions. The research adopted a set of statistical methods for analysis, and the results were extracted using the statistical program (spss.V24). A set of results were reached, the most important of which are: First, it was found through the results of the correlation analysis of educational institutions and through the results of the regression analysis that there is a correlation and impact between digital transformation and knowledge building, but in varying proportions, and secondly, the concept of digital transformation is one of the important concepts that can be applied in educational institutions of all its different kinds. Accordingly, the study presented a set of recommendations, as well as providing frameworks for future studies and proposals related to the topic of the current study. Among those recommendations is to give importance to the organizational structure as it is one of the most prominent elements of the internal environment of the institution. And the need to rely on working within a group (team work) and diversifying the skills of working individuals.

Keywords: digital transformation, knowledge building.

Introduction:

The prominent role of knowledge has led to the emergence of societies called knowledge societies, which are based on knowledge and keep pace with the rapid technological transformations that the world is witnessing, whether by employing new technologies, or updating and upgrading existing programs and technologies, as well as contributing to the emergence of modern terms in this aspect as the term of digital transformation, as there are many concepts of the term digital transformation, which can be considered a phenomenon resulting from a group of modern digital technologies, which operate simultaneously, and among these technologies are computer, artificial intelligence, and others. As digital transformation leads to the production of large and new quantities of information, that can contribute to decision-making and strategic planning.

In line with the Fourth Industrial Revolution, and the modern technologies it offers, effective in improving performance and the quality of education, countries have tended to adapt and employ these technologies to suit their multiple needs, as well as innovative technology. Among the most prominent features of this revolution are digital transformation technologies, and the most important feature that distinguishes them is the possibility of employing them in all different fields and sectors, meaning that the amount of benefits they provide are great, whether at the social, political or economic level, and the

employment of Fourth Industrial Revolution technologies was not limited to companies or Private institutions, but the government sector and its institutions took the initiative to employ them, as the technologies of the Fourth Industrial Revolution represent the most prominent trend in the information technology sector today.

The First Topic: Research Methodology

First: the Research Problem

The era of digital transformation and digitization and access to the functioning of institutions according to modern trends that aim at accuracy and speed of completion of work and ease of information exchange, which contributes to creating an environmental atmosphere for better work, as human societies today are witnessing a massive information revolution that has cast a shadow on various aspects of scientific life within Iraqi society. And this led to the emergence of the reality of digitization in addition to the traditional reality that the members of society were witnessing. Scientific and technical innovations have become a distinctive feature, which necessitated the employment of information technology and the transition of the state of rigid education to flexible education.

Accordingly, the following questions were raised:

1. What is the availability of digital transformation and knowledge building in educational institutions?

2. Are the dimensions of digital transformation (digital awareness, digital acceptance) associated with building knowledge in educational institutions?

3. Do the dimensions of digital transformation (digital awareness, digital acceptance) affect knowledge building in educational institutions?

Secondly: Importance of Research

The research gains its importance by directing the attention of educational institutions towards the application of digital transformation to build knowledge, and the importance of the research stems from the following:

1. Our study is the crutch of the Iraqi field studies that rose in the Ministry of Education on digital transformation and knowledge building.

2. The results of the study represent an important database that can provide the entire Ministry of Education with the smallest details on documenting the relationship of digital transformation and building knowledge and helping the leadership cadres to identify the most prominent cognitive, field, cultural and social challenges that limit the achievement of the desired goals.

3. The study in our digital age is considered an enhancement of the knowledge capital for the commitment of scientific and administrative knowledge libraries to benefit from them due to the lack of studies that dealt with the issue of digital transformation in the age of digitization.

Third: Objectives of the study

As a guide to our study, the objectives can be summarized according to the following:

1. Learn about the digital transformation in the educational institution

2. Learn about building knowledge in the educational institution

3. Finding the correlation between digital transformation and knowledge building in educational institutions.

4. Finding the influence relationship between digital transformation and knowledge building in educational institutions.

5. Presenting the most important conclusions and recommendations of the educational leaders in the institution in question about evaluating the level of digital transformation that occurred to support the work of institutions and their sector in general.

Fourth: Hypothetical Study Plan

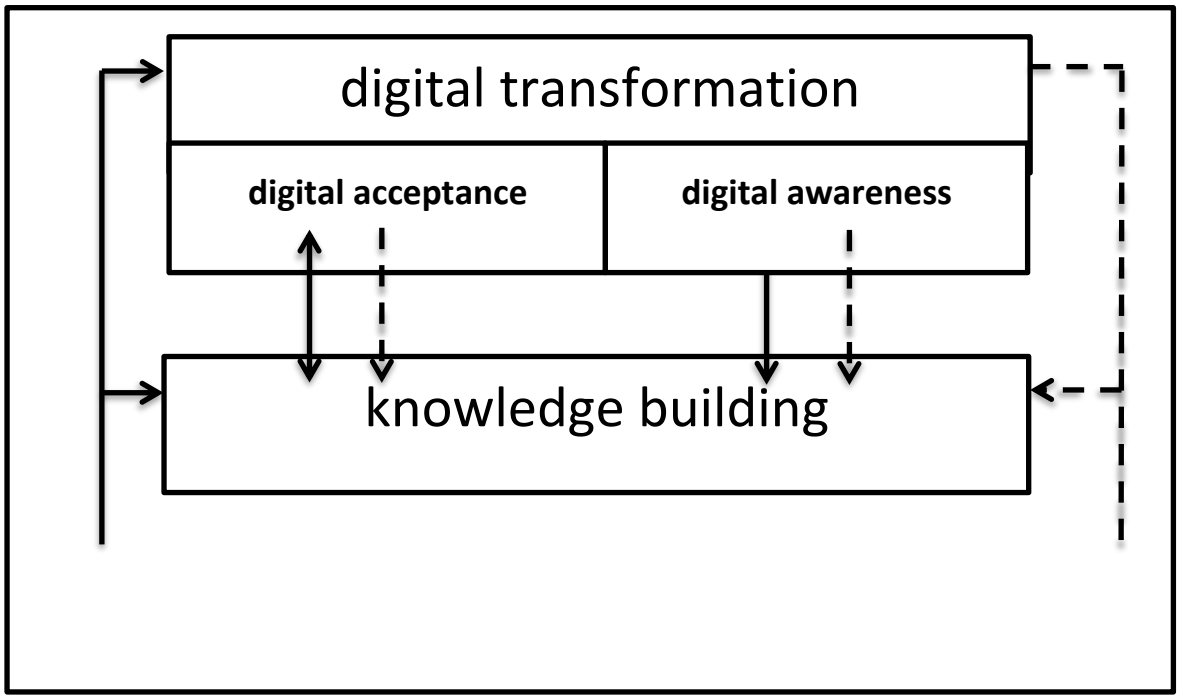

Figure (1) hypothetical **research scheme**

correlation

impact relationship

Source: Prepared by the two researchers

Fifthly: - hypotheses of the study

The hypotheses of the study are formulated according to the main variables and their dimensions according to the hypothetical scheme that shows the correlation relationship and influence between the research variables according to the following

First: The first main hypothesis: There is no statistically significant correlation between digital transformation and knowledge building in educational institutions.

From the first main hypothesis, the following sub-hypotheses emerged:

1- There is no statistically significant correlation between digital awareness and knowledge building in educational institutions.

2 - There is no statistically significant correlation between digital acceptance and knowledge building in educational institutions.

Second: - The second main hypothesis: - There is no significant statistically significant effect of digital transformation in building knowledge in educational institutions.

From the second main hypothesis, the following sub-hypotheses emerged:

1- There is no significant statistically significant effect of digital awareness on building knowledge in educational institutions.

2- There is no statistically significant effect of digital acceptance in building knowledge in educational institutions.

The second topic

Theoretical framework

preamble:

Digital transformation is an investment in thought and a change in behavior to bring about a radical transformation in the type of business through which institutions aim to achieve great technical development, which provides building effective, sustainable and competitive societies through a radical change in the formulation of necessary procedures for activation and implementation, and this requires enabling a culture of creativity in an environment of the work which includes the main components in terms of infrastructure, machines, modern devices, operating models, and ending with the quality of results.

First: The Concept of Digital Transformation

Jag indicated for the first time in 1999 that with the development of means of technology, the term digital began to evolve and change in its concept and terminology, such as Internet-based training, web-based training, or online learning, network learning, distance learning and the use of synchronous and asynchronous network learning, as the World Wide Web is able to connect a large number of people over long distances, depending on its way on multiple electronic media between students and their teachers in the educational institution, and digital learning has many synonyms, including (Online Learning), (Virtual Learning), and (Web based learning) and there is also the term (Blended learning). As synchronous and asynchronous network learning is used to penetrate the constraints in time, place and schedule, and (American society of training and education) (astd) defined digital learning as (the process of learners learning the application of digital means) (Nasr AdDin, 2011, 122).

(Liderar , et.al,9, 2015) defined digital transformation as (a method of learning using modern communication mechanisms from computers with all its networks and multimedia from image, sound, graphics, research mechanisms and electronic libraries) which means the use of technology of all kinds as well as "delivery of information to the learner in the shortest time and least effort". Thus, it encourages learning how to learn via the Internet because it allows the learner to decide which content to focus on in a certain period in addition to the schedule of the learning process and the number of repetitions of exercises to master the knowledge, as digitization makes it easy to memorize, trade and participate in all the content that It is digitally processed at all times and places (Rafiqa, 2019 , 116-115).

a. The importance of digital transformation in educational institutions

Digital transformation is a helpful factor in solving individuals' problems on the one hand and activating and sustaining the development process on the other hand, and this is evident in many social, economic, environmental and cultural aspects, as technology is a catalyst for all these aspects, but practically it works to achieve performance through flexibility and innovation, and there is no doubt that digitally transformed institutions achieve the principle of transparency and take many decisions daily without relying on the traditional hierarchy (Ibrahim, 2019, 11). (Ali, 2018, 521) believes that it is necessary to realize that digital transformation gives the institution a sophisticated information infrastructure that enables it to perform all activities via the Internet and works to take advantage of the modern technologies of communication and information that qualify it to the stage of excellence.

In order to implement a successful digital transformation strategy in the educational institution, we need the importance of this transformation, as follows, (Soeor, 2020,9):

1- Improving the competition process by distinguishing a government institution from another by using digital methods.

2. Digital transformation creates a culture of data-based decision-making, which is represented in the adoption of the digital process in all aspects of leadership and employees.

3. In its application, digital transformation claims to limit resources in terms of determining communication between officials and reducing costs.

B. Types of Digital Education

According to (Stoyanova, 2016,11) the types of digital education include the following:

1- Synchronous digital education: It is direct education that requires in its application the presence of the learners and the teacher together so that the process of direct interaction is available. The global network techniques of information (the Internet) are used to deliver and exchange lessons. One of its advantages is that the student can obtain scientific information through feedback and Its disadvantages are the inability of the learner to attend at the same time as the teacher in order to ensure the availability of conditions for the interaction process and to achieve feedback.

2- Asynchronous digital education: It is indirect education, that is, the presence of the teacher and the learner is not required at the same time of learning, as here the learner can interact with the educational content and through e-mail. Of Its advantages the learner learns at the appropriate time and place for him and through this the learner can study the material and refer to it when needed, but of its disadvantages the learner's inability to obtain immediate feedback from the teacher.

3- Blended learning (synchronous and asynchronous learning). The two previous types of methods are used together to learn a specific subject and include a mixture of direct delivery in the lecture hall, communication via the Internet, and self-learning. This case is complementary to the traditional education. This type of education uses the Internet to

offer programs and helpfull offers, and digital education tools are employed as part of supporting traditional education is in attendance.

C. The digital transformation model and the requirements that qualify digital transformation in education

The model in education represents four basic elements to ensure successful digital transformation to ensure effective continuity of the transformation. The elements center around awareness, acceptance, readiness and harmonization so that the educational system becomes sustainable and successful, it helps to use the opportunities of digital technologies for teachers, students and the scientific community to provide learning, whether academic activity and full or integrated learning via Internet (Soeor, 2020,20), and in order to ensure a successful and continuous digital transformation, there must be a set of basic elements to be based on and these elements revolve according to the digital transformation model in education around (awareness - acceptance - readiness - harmonization) and the commitment to these elements create a sustainable and successful educational system capable of employing modern technologies by teachers, students and the scientific community to provide positive learning with the academic mind, whether through full or blended learning or online learning.

(Martin et.al, 2020) indicated that there is a set of axes that qualify the events of digital transformation in education, and they represent the research variables and are represented by the following axes:

1) Digital Awareness: It refers to the technological awareness of the individual and his ability to use technology and increase his perception and awareness of modern technologies.

2) Digital acceptance: Technology has changed very quickly and has developed significantly. Today's students are known as the digital natives, which means the process of accepting technical tools from individuals, which affects their behavioral intentions, including the learning process, which means that the effective use of technology in individual's learning depends on the type of technology, the method of use, and the individual's need for this technology, and the result can be positive or negative.

D. Obstacles to Digital Transformation

(Gaoxia, 2021, 50) believes that there are many obstacles that impede the process of digital transformation within the educational institution, and the most important of these obstacles are:-

1- Rejecting a culture of change: since digital innovation can only achieve success by promoting a culture of cooperation, employees must be able to work and cooperate, but the current reality indicates that most institutions are stuck in a culture that rejects change.

2- Limited participation and cooperation: that is, the unwillingness to participate and cooperate does not constitute a challenge at the level of the work system between institutions only, but rather it constitutes a challenge within the institution itself. Issues of controlling and owning processes, information and systems make workers reluctant to share their knowledge and experiences.

3- The institutions are not ready yet: many leaders paid attention to the uproar caused by the issue of digital business, but when the director of technology and heads of data and digital operations want to start the digital transformation process, it turns out that institutions still do not have the skills and resources required to do so.

4. The Talent Gap: Most organizations traditionally make mistakes at work. As work is organized into several tasks such as information technology, and in this type of work environment, change can be slow, meaning that organizations adopt a different approach that depends on mixing workers, processes, and technology together to create new services.

5- Current practices within the organization do not support talent: Having talents may be important, but with the right practices, talents are allowed to work more effectively, as well as traditional, highly structured processes that are slowly being formed, cannot support digital transformation processes.

6- The difficulty of innovation: Change is not easy, as the implementation of digital business is often difficult and technically costly. Developing platforms, changing the organizational structure in the organization, and creating a work system with the private sector requires a lot of time, resources and money.

Second: What is the Knowledge Building?

Introduction

The concept of knowledge building (KB) theory originated and was developed by (Karl Periter) and (Marlene Skardamalia) to describe the needs of a community of learners. The theory addresses the need to guide people to a knowledge age society, in which knowledge and innovation spread, and knowledge building simply refers to "the creation, testing and improvement of conceptual artifacts. It is not limited to education but applies to creative knowledge work

of all kinds." (Zhizhchenko, 2009, 64), and (Parinov, 2015, 221) distinguish between building knowledge and learning and they see learning as an internal (almost) unobservable process that leads to changes in beliefs, attitudes, or skills. By contrast, KB is viewed as the creation or modification of general knowledge. The KB produces knowledge that lives 'in the world', and is available to work on and use by other people. A good way to understand the difference between learning and building knowledge is to look at mathematics and science content as examples of general knowledge. In addition, in his book On Education and Reason, Pereter based his observation of the educational value of KB on Karl Popper's ontological analysis of our existence as made up of three interacting worlds (Renáta & Koltai, 2021, 49) namely (1) the material world, (2) the subjective world, and (3) the world of cultural products.

a. The importance of building knowledge: (2017, 71, Kalenov) indicates that knowledge building is the process of creating new knowledge works as a result of common goals, group discussions and synthesis of ideas. Such endeavors should serve to enhance the existing understanding of individuals within the group at a level beyond their initial level of knowledge, and should be directed towards enhancing an understanding of what is known about the topic or idea. The theory includes "the foundational learning, sub-skills, and socio-cognitive dynamics pursued in other curricula, along with the additional benefit of movement along the path of mature education".

Building knowledge can be considered as deep building that involves making a collective inquiry into a particular topic, arriving at a deeper understanding through interactive questioning, dialogue and continuous improvement of ideas. Ideas are then the vehicle for operation in KB environments. The teacher becomes a guide rather than a manager, and allows students to take on a large part of the responsibility for their own learning, including planning, implementation, and evaluation. (Zhu & Jim,2021,37)

B. Building knowledge from a Wiig's point of view

Wiig focused on three conditions required to be able to show or represent organizations (Karl M, Wiig, 2020, 532) which are:

- to have businesses (products) and customers,
- To have resources (individuals, capital, facilities),
- To have the ability to act.

Wiig's knowledge building cycle model focused on the third point, as knowledge is a major force that determines and directs the ability to act intelligently. To develop knowledge, we know better what we are doing, and how we are doing it. Wiig defined the main purpose of knowledge management as efforts to make organizational intelligence effective by facilitating innovation, accumulation, dissemination and use of qualitative knowledge. Working intelligently means that we must take an approach in our work and tasks based on great experiences, and this requires that we seek to acquire knowledge of high quality whenever possible and apply it in different better ways. Working intelligently also includes "using all the best knowledge we have."

From Wiig's point of view, the knowledge management course deals with how knowledge is built and used, whether by individuals or organizations. This course includes four steps as shown in the following figure.

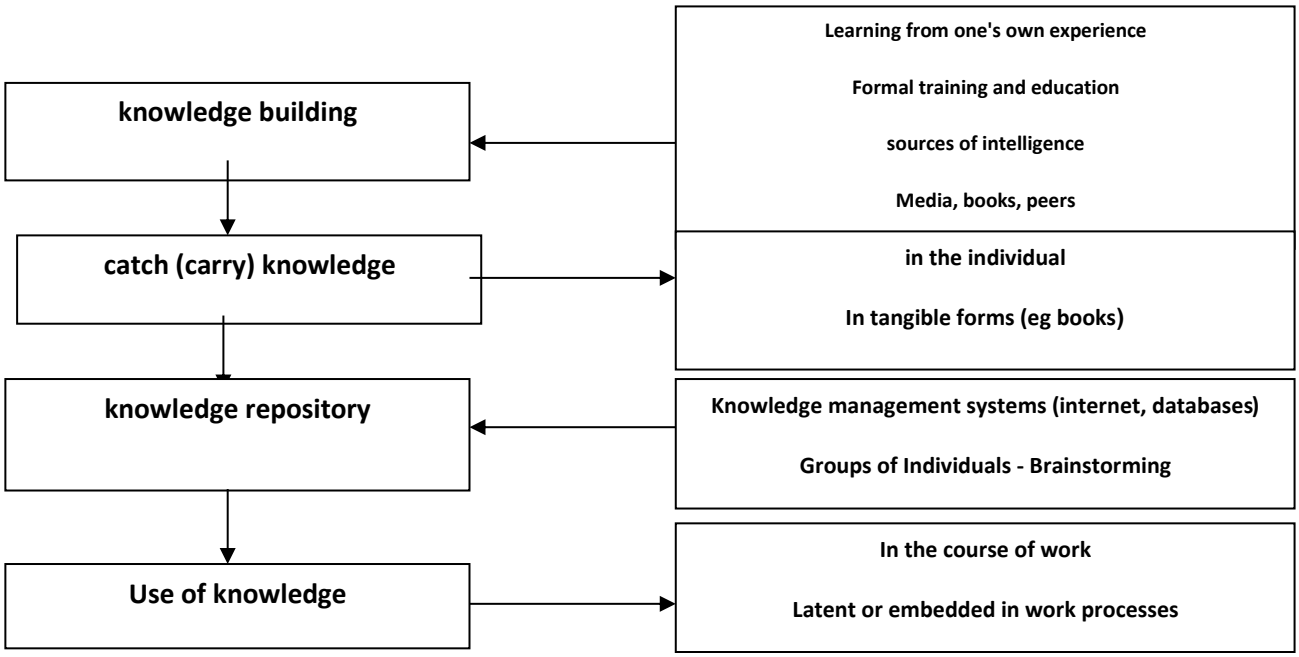

Figure (2) How to build knowledge according to Wiig

Figure prepared by the two researchers, with quotes from:

Source: Wiig ,Karl M.2020,The importance of personal knowledge management in the knowledge society,"Personal Knowledge Management: Individual, Organisational and Social Perspectives" Chapter Proposal

And in the same context (Antopol'skiy, et.al, 2019, 730), indicates that knowledge building occurs through: -

1. Research and development projects, individual innovations to improve the way tasks are performed, experiment, think about existing knowledge, and bring in new people.

2. Importing knowledge (extracting knowledge from experts or through procedural evidence, or transferring individuals among departments).

3. Real-world discovery (doing site visits, discovering processes after the change has been introduced).

E: A model (Wiig, 1993) for building and using knowledge

(Wiig) opened his model for building and managing knowledge with the following principle: (In order for knowledge to become useful and valuable, it must be organized). (Wiig. K, 2004, 220)

Therefore knowledge must be organized differently, depending on what knowledge is used that must be made. For example, in our mental models, we tend to store our knowledge and the secrets of our knowledge in a form of semantic networks. Then we choose the appropriate (suitale) perspective based on the cognitive task available. The regularity of knowledge in a symmetrical network enables access and retrieval by using multiple entry paths that are depicted in different cognitive tasks until they are completed. Some useful dimensions that should be taken into consideration within the framework of the (Wiig, 1993) model of knowledge management include:

1. Completeness.

2. Connectedness.

3. Congruency.

4. Perspective & Purpose.

Completeness dimension addresses the question of how much relevant knowledge is available from its specific sources. These sources of knowledge can be human minds or knowledge bases (whether explicit or implicit). We first need to know that knowledge is outside of that. Knowledge can be complemented by the feeling that all this is available about the subject, but no one knows its existence and/or its availability, and this kind of knowledge cannot be used.

As for the Connectedness dimension, it refers to a good understanding and identification of the relationships among the different cognitive motives or

stimulus. And very few cognitive motives or stimulus are generally unrelated to each other. And if the most relevant epistemological bases are (for example: the greatest number of interconnections in semantic networks), then a lot of great and coherent content is the value.

The knowledge base refers to congruency when all the facts, concepts, perspectives, values, motives, and existing and relational connections between the cognitive motives are consistent. Then there will be no logical asymmetry, there will be no internal conflicts and there will be no lack of understanding. Most knowledge content will not meet such models when interconnection or coherence is involved. However, concept definitions must be consistent, and the knowledge base constantly needs to be fine-tuned to maintain consistency. Perspective & Purpose refers to the phenomenon by which we "know anything" but often from a particular point of view or purpose. So we organize a lot of our knowledge using the dual dimensions of perspective and purpose (eg: retrieval of knowledge on time or sufficiently when knowledge is sought or needed).

Wiig's knowledge management model has gone in the direction of defining the different levels of knowledge internalization. The entry (Wiig) can be seen as the other purity of the fourth quadrant of the Nonaka and Takeuchi (internalization) model. Table (6) briefly defines each of these levels. And in general, there is a continuity of subjectivation, beginning with the lower level, then the novice, who does not know that he does not know"—not even having any awareness of the existence of knowledge—and extending up to the level of mastery who has a deep understanding not only of what Knowing, but knowing-how, knowing-why, and why care (eg values, judgments, and motivation to use knowledge).

The Third Topic

Field Framework

This research highlights the nature of the main variables represented by digital transformation as an independent variable in its two dimensions (digital awareness, digital acceptance) and knowledge building as a dependent variable, which contributed to the formation of the study model and building its hypotheses. To achieve this, the data was initially treated with a preliminary analysis of the data related to the dimensions of the study and its variables, as the two researchers adopted the SPSS-24 statistical software for the purpose of testing the hypotheses of the study.

First: Testing the correlation among the study variables

The idea of the correlation hypotheses related to the research variables was based on the absence of a statistically significant correlation between the digital transformation represented by its dimensions (digital awareness, digital acceptance) and knowledge building, and with the aim of reaching an accurate judgment regarding the rejection or acceptance of the hypothesis and the sub-hypotheses that this paragraph seeks to clarify the value of the emerging correlations among these variables, and to indicate the extent of their morale, as stated in the research methodology, as these hypotheses relate to the correlation between the main and sub-variables of the study as follows:

Test the first main hypothesis and the sub-hypothesis that emanate from it

• The first main hypothesis states that (there is no statistically significant correlation between digital transformation and knowledge building in educational institutions)

A) Presenting the results of the overall correlation at the level of educational institutions between digital transformation and knowledge building, according to the first main hypothesis.

Table (1): The overall correlation coefficients for digital transformation and knowledge building in educational institutions

independent variable / dependent variable	digital transformation
knowledge building	educational institutions
	*0.774
sample size	274

Source: Prepared by the two researchers based on the results contained in the (SPSS) program, $P \leq 0.05$

Through Table (1), it becomes clear to us that by analyzing the correlation relationships at the macro level between digital transformation and knowledge building, there is a correlation relationship at a rate of (0.774 *), meaning that the more digital transformation is introduced in educational institutions, it leads to the development and expansion of knowledge building, and this indicates the presence of significant correlation between digital transformation and knowledge building, and thus the first main hypothesis will be rejected and the alternative hypothesis accepted, which states (there is a significant correlation with statistical significance between digital transformation and knowledge building in educational institutions).

B) Presenting the results of the partial correlation at the level of educational institutions between each dimension of digital transformation and knowledge building, according to the sub-hypotheses emanating from the first main hypothesis.

Table(2) Partial correlation coefficients for digital transformation and knowledge building in educational institutions

dependent variable / independent variable		knowledge building
educational institutions		
digital transformation	digital awareness	*0.860
	digital acceptance	*0.737
Sample size		274

Source: Prepared by the two researchers using the (SPSS) program *=significant $P \leq 0.05$

We note from the table that the highest correlation value of digital awareness in educational institutions was obtained by (0.860 *), followed by the digital acceptance dimension by (0.737 *), and this indicates the existence of a significant correlation between each dimension of digital transformation and knowledge building. Thus, the sub-hypotheses emanating from the first main hypothesis will be rejected, and the alternative hypotheses will be accepted.

Second: Testing the influence relationships among the study variables

The idea of impact hypotheses (regression) related to educational institutions is based on the absence of a statistically significant influence relationship between the digital transformation represented by its dimensions (digital awareness, digital acceptance) in building knowledge, and with the aim of reaching an accurate judgment regarding the rejection or

acceptance of the hypothesis and the sub-hypotheses derived from it . This paragraph seeks to clarify the value of the effects arising between these variables and the extent of their morale, as stated in the study methodology, as these hypotheses relate to the influence relationships between the main and sub-variables of the study as follows:

1) Testing the second main hypothesis and the sub-hypotheses that emanate from it

• The second main hypothesis states that (there is no significant statistically significant impact relationship between digital transformation in building knowledge)

Therefore, the results of the total impact at the level of educational institutions between digital transformation in building knowledge will be presented according to the second main hypothesis.

Table (3) The overall impact factors of digital transformation in building knowledge in educational institutions

Independent variable / dependent variable / Marketing Opportunities	digital transformation			F	
	B_0	B_1	R^2	calculated	tabular
Educational institutions	0.467	0.774 (10.802)	0.599	116.692	3.124

Source: Prepared by the two researchers (in light of the results of the electronic calculator) using the (SPSS) program.

( ) indicates the calculated t value df(1,272) N = 274 P ≤ 0.05 *=significant

It is evident from Table (3) regarding the results of the regression analysis that there is a significant effect of digital marketing combined in building knowledge as a whole, as the calculated (F) value reached (116.692), which is higher than its tabular value of (3.124) at the two degrees of freedom (1,272) and the level of significance (0.05). And the coefficient of determination was R $(0.599)^2$, which means that (60%) of the differences explained for building knowledge are due to digital transformation, and the rest (40%) are due to random variables that cannot be controlled or are not included in the regression model at all. By following the coefficients (B) and the (T) test for them, it was found that the calculated (T) value (10.802) which is a significant value and greater than its tabular value of (1.992) at a level of significance (0.05) and two degrees of freedom (1,272). The results indicate that the second main hypothesis was not achieved at the level of educational institutions, so the second main hypothesis will be rejected and the alternative hypothesis accepted, which states (there is a significant statistically significant effect of digital transformation in building knowledge in educational institutions).

2- Testing the sub-hypotheses arising from the second main hypothesis

• The sub-hypotheses states that (there is no significant statistically significant impact relationship between each dimension of digital transformation in building knowledge collectively).

In order to clarify the impact relationships between each dimension of digital transformation in building knowledge at the level of educational institutions and in light of the sub-hypotheses emanating from the second main hypothesis, the impact relationships have been analyzed for each dimension of digital transformation (digital awareness, digital acceptance) in building knowledge collectively and individually. As shown in table (4).

Table(4) The impact of the dimensions of digital transformation in building knowledge at the level of educational institutions

Independent variable / dependent variable	B_o	digital transformation		R^2	F	
		digital awareness	digital acceptance		calculated	tabular
		B_1	B_2			
knowledge building	2.019	0.210 (3.531)	1.504 (4.914)	0.785	44.439	3.130

Source: Prepared by the two researchers (in light of the results of the electronic calculator) using the (SPSS) program.

( ) indicates the calculated t value df(2,271) P≤ 0.05
N = 274 *=significant

Table (4) indicates that there is a significant effect of digital marketing in building knowledge, as the calculated (F) value reached (44,439) which is higher than its tabular value of (3.130) at two degrees of freedom (2,271) and a level of significance (0.05), and the coefficient of determination was R (0.785)², which means (79%) of the explained differences in building knowledge are explained by the dimensions of digital transformation, and the rest is due to random variables that cannot be controlled, or that they are not included in the regression model at all. From the follow-up of the (B) coefficients and the (T) test for them, it was found that there is a significant effect of the dimensions of digital transformation in building knowledge as a whole. It is clear to us from Table (4) that the highest impact of digital transformation in building knowledge combined is represented in digital acceptance first, as the value of (B2) reached (1.504) and the value of (T) * (4.914), which is a significant value and greater than its tabular value of (1.992) at two degrees of freedom (2,271), then the effect of digital awareness in building knowledge as a whole ranked second, as the value of (B1) (0.210). And the value of (T) was (3.531), which is a significant value and greater than its tabular value of (1.992) at a degree of freedom (2,271). Accordingly, the sub-hypotheses emanating from the second main hypothesis will be rejected, and the alternative hypotheses that states (there is a significant influence relationship) will be rejected. Significant statistic between each dimension of digital transformation in building knowledge as a whole).

The Fourth Topic (conclusions and recommendations)

The most important conclusions

1) Digital transformation is one of the most important factors that greatly affect the knowledge building in educational institutions, as it represents the ability of the individual to influence the group within the institution through which they can achieve the goals of educational institutions.

2) Knowledge building is an important core component of institutions, and the effectiveness of this variable comes from the institution's ability to teach its members values and beliefs, and through the interaction of a group of factors that are represented in the personal characteristics of employees and the prevailing ethics in the institution and through a set of laws and procedures approved for this purpose.

3) There is no agreement on digital transformation as dimensions by writers and researchers, where the dimensions that are in harmony with the nature of the study are chosen.

4) Technology constitutes an important role in the implementation of digital transformation through the use of certain methods, means and curricula as technologies to implement digital transformation, as continuous improvement comes through the uses of these new educational methods and means. As well as for the training of employees, it needs modern methods (advanced and new technologies).

5) It was found through the results of the correlation analysis for educational institutions that there is a correlation between digital transformation and knowledge building if the correlation ratio reaches (0.774) in total. In addition, there is a close and strong connection between each dimension of digital transformation with building knowledge, as the dimension of digital awareness obtained the highest value of correlation with building knowledge.

6) It is clear from the results of the regression analysis that there is an impact on knowledge building by digital transformation in educational institutions in a totality if the total coefficient of determination reaches (0.599), and this indicates that 59% of the explained differences in knowledge building are due to digital transformation and when testing the relationship effect between the dimensions of digital transformation in building knowledge, it became clear that there are differences in the impact, but in varying proportions.

Most important recommendations

1- Working on increasing the projects that serve the digital transformation project in educational institutions, in accordance with global trends, which helps raise the levels of transformation in the Ministry of Education.

2- Applying all the main components to facilitate digital transformation, specifically the main aspects of the development strategy for digital transformation.

3 - Activating the basic pillars of digital transformation (awareness, acceptance, readiness, alignment) at the level of the Ministry of Education in general and educational institutions in particular.

4- Applying knowledge building elements in all pillars to gain confidence in educational institutions.

5- The educational institutions in the Ministry of Education should continuously conduct research and create knowledge by activating the system of incentives and rewards to help build knowledge.

6- Forming permanent transformation teams in institutions, and limiting the continuous change process in them, which negatively affects the quality and continuity of work, with the aim of achieving digital transformation and benefiting from the accumulated experiences.

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