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THE REALITY OF ACADEMIC DIGITAL COGNITIVE ACTIVITIES TIKRIT AND SAMARRA UNIVERSITIES AS A MODEL

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Abstract
The aim of the research is to identify the reality of academic cognitive activities according to global indicators in digital transformation in its dimensions represented in (digital research, digital laboratories, digital academic programs, digital exchange programs). The descriptive analytical approach was relied upon by collecting and analyzing data through a main data collection department represented by (the questionnaire). The research relied on the opinions of a sample of academic professors at the Universities of Tikrit and Samarra. The current research relied on a sample of (300) lecturers to measure the phenomenon under study. Accordingly, the questionnaire was distributed to them, and (270) valid questionnaires were retrieved for analysis.
The data and hypotheses adopted in the research were analyzed using appropriate statistical methods through the use of SPSS V23 statistical analysis programs. The research reached several results, the most important of which are: Cognitive activities are available at varying levels in the universities studied according to the philosophy of digital transformation adopted by most contemporary universities, and digital research ranked first among activities in benefiting from digital transformation. As for the most important recommendations, they are: The two universities studied in particular and similar universities in general should adopt digital transformation activities in their programs to accelerate and develop their cognitive activities and move to advanced classifications compared to other international universities.

Keywords: Academic cognitive activities (digital research projects, digital laboratories, digital academic programs, digital exchange programs), digital transformation.

Introduction

Universities face many challenges and technical and cognitive developments in their educational field, which puts them in a position that requires them to keep pace with these rapid developments and changes in their environment, otherwise they may be forced to go outside the global classifications that are a measure of the success and leadership of these institutions, which in turn leads to the survival and sustainability of organizations. Therefore, ministries and universities have become more focused on digital transformation at the present time than ever before, due to the increased reliance on technology and its advanced advantages in the field of educational and cognitive activities by various universities, which prompts universities to search for more effective methods and techniques to improve their

knowledge and academic activities to achieve superiority over their competitors at a time when all universities are subject to one classification and one standard.

The world is witnessing a knowledge revolution today, which has brought about major changes in the nature of knowledge acquisition. This knowledge revolution has led to a change in life in general and in the way knowledge is acquired, learned, shared, implemented and managed in particular, and has enhanced the role of everyone, including faculty members, in terms of the role they play from mere transmitters of knowledge to researchers, trainers and evaluators in their field of specialization. In addition, it has increased the level of quality strategies for education and learning and kept pace with developments through the pioneering role played by universities by involving everyone in this process so that this cooperation is consolidated between all parties involved in this process in the field of education. Through this participation, collective cooperation and keeping pace with technologies, collective practices and activities are generated that serve academic institutions and society, providing a process of communication and real cooperation to share knowledge through tools and technologies and providing an interface for this joint exchange inside and outside universities.

The main goal of digital transformation in the knowledge activities of universities is to create a structure in which knowledge is shared and exchanged among various members within the university and to adopt external cooperative activities to transfer new experiences and expertise in other fields to our universities to benefit from them in improving the performance of our universities. For this reason, universities have begun to realize that what they do not know can become an advantage for their competitors. This leads to effective management of knowledge by each university as an organizational asset, as scientific knowledge has gained importance through activating internal knowledge management processes based primarily on what it acquires from knowledge from external knowledge activities represented in digital research projects, digital laboratories, digital academic programs, as well as digital exchange programs.

In contrast, technological progress and the expansion of digital transformation activities in universities have led to the adoption of new methods capable of achieving advanced rankings in global rankings compared to their competitors. Therefore, universities outside the rankings must adopt digital technologies in their academic cognitive activities. This requires changing the business models of traditional universities and using new digital business models in their internal educational activities as well as external activities represented by research projects, laboratories, programs and research cooperation activities.

These internal and external trends and transformations in digital cognitive activities prompted the researcher to adopt this topic and delve into the philosophical foundations, as there is an urgent need for it at the level of our universities to adopt such trends, in addition to the trends of our ministry to carry out such research projects to bridge the philosophical and field research gap, especially since most of our Iraqi universities are outside the global classification, which motivated us more to adopt this research as it addresses a real problem that our educational institutions suffer from.

The second axis: the methodological framework

The methodological framework consists of defining the research problem, its importance and objectives, as well as constructing its model, derived hypotheses and research limits, in addition to describing the research field, its community and its sample.

First: The research problem

The application of education quality standards has become increasingly important, but the process of applying these standards requires the availability of a set of internal and external cognitive activities and requirements to achieve this. Due to the lack of compatibility of the standards of the accredited bodies with the requirements and activities of the Iraqi academic institutions, it has prevented it from obtaining academic accreditation, and thus it has become a challenge for our university. In most cases, it thinks about moving towards the global field, i.e. working outside the country, it collides with the limitations and restrictions imposed on it. Therefore, it was necessary to think and research the adoption of mechanisms and activities that achieve distinction and academic accreditation in its cognitive activities, which enhances its position and academic reputation among similar universities. By reviewing some studies and intellectual proposals of previous researchers (Lin, 2007: 136) and (Steve, 2009: 38) and (Alexander, 2014: 8), it became clear that this can only be achieved by adopting more modern technical methods and activities capable of improving the level of communication between academic individuals in a way that ensures the sharing of knowledge and intellectual resources they possess, which contributes to improving internal cognitive activities and sharing them within the university in a way that ensures the achievement of higher education quality standards. Sharing knowledge is an important way to raise core capabilities, gain competitive advantage and enhance academic performance. (Malhotra, 1998) believes that the importance of sharing intellectual and cognitive perceptions and their creativity among multiple parties contributes to increasing their internal cognitive capabilities and diversity, which will enable the university to adapt to the complexity and ambiguity in its environment and achieve excellence in its activities. This cannot be achieved independently of other external parties in the field of providing educational services, which necessitates adopting external cognitive activities and opening up to external educational institutions and transferring and exchanging experiences that contribute to enhancing cognitive activities inside and outside the university, which enables the university to achieve academic accreditation, which is confirmed by (Salimova, et al, 2014, 109), as the internal and external cognitive activities of educational institutions can enhance them by adopting digital transformation activities in their various activities, which positively reflects on improving the quality of educational services, which are still below the required level at the level of global classifications. If the leading universities that possess advanced cognitive capabilities face difficulty in entering the world, then how about our universities that lack many of the elements to achieve this.

At the field level, and through reviewing the global rankings of education quality indicators, we note that most Iraqi universities have left the global rankings or have been ranked in the last positions, which indicates a decline in the level of educational and cognitive requirements in these universities compared to similar universities. This requires universities to take a set

of necessary measures to address this problem, which can be achieved by adopting digital cognitive activities internally and externally, which contributes to enhancing academic standing. Hence, the main question arises: **(What is the reality of academic cognitive activities according to the digital perspective?)**

Second: The importance of the research

The importance of the research is determined by clarifying the reality of digital cognitive activities and improving them in light of the digital perspective adopted by universities as a basic orientation in their scientific activities, which is emphasized by the Iraqi Ministry of Higher Education, and what prompted us to address this topic is the need of Iraqi universities that suffer from many contemporary cognitive and technical requirements, including internal and external digital cognitive activities that can contribute to raising the levels of knowledge and their classifications, especially since universities that do not meet these requirements will be forced to exit the local and international classifications required to keep pace with global universities, and the importance of the current research is evident in the following:

1. The current research is considered an actual contribution to strengthening the philosophical proposals that emphasize the need for universities to adopt digital transformations in internal and external cognitive activities in order to enhance university performance.
2. The current research derives its importance from the field under study and its community, as well as the importance of the sample under study.
3. Defining the importance of digital cognitive activities in the universities under study.
4. Diagnosing the reality of digital cognitive activities in the universities studied and forming a clear perception among leaders of the importance of these activities and their development in improving university performance.
5. Knowing the impact of digital cognitive activities in improving university performance.

Third: Research objectives

The main objective of the research is to diagnose the reality of academic digital knowledge activities in a way that leads to enhancing opportunities to improve the university's performance and make knowledge available to its members, which enhances its outputs, position and scientific solidity according to international classifications. Therefore, the most important objectives of the research are as follows:

1. Diagnosing the reality of knowledge activities according to the philosophy of digital transformation in the university under study.
2. Identifying the extent to which each dimension of knowledge activities based on digital transformation contributes to enhancing academic knowledge in the university under study.

Fourth: The hypothetical plan of the research:

The hypothetical plan represents a road map for deriving hypotheses, which is built based on the questions raised in the research problem and its objectives. The dimensions of the main variable of the research were represented in the first: digital cognitive activities, which include (digital research projects, digital laboratories, digital academic programs, digital exchange programs) (Salimova, et al, 2014, 109), as in the following figure:

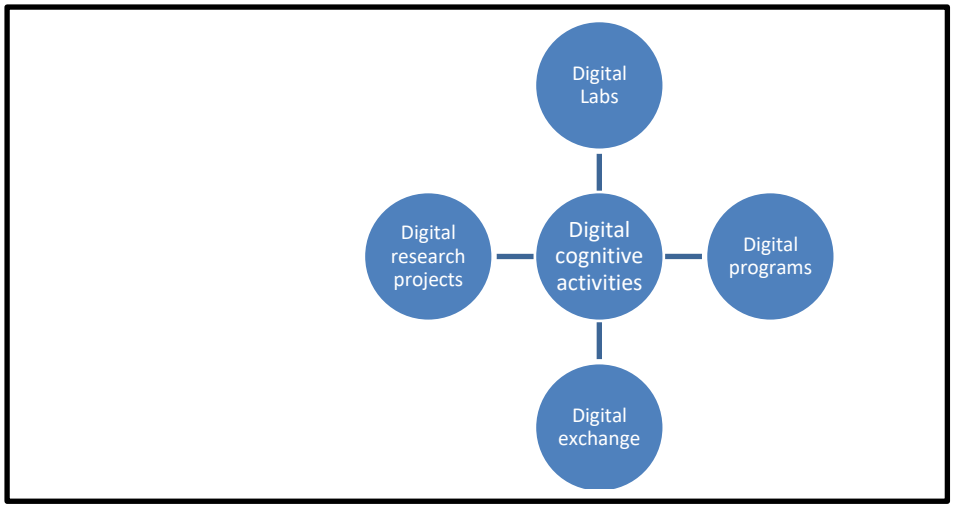

Figure (1) Hypothetical research plan

Fifth: Research hypotheses

Based on the hypothetical research plan, the following hypotheses were derived:

1. The first main hypothesis: Organizational and environmental digital cognitive activities are available in the universities studied.
2. The second main hypothesis: The impact of the contents of digital cognitive activities on academic performance varies in the universities studied.

Seventh: Scope and limits of the research

The limits of the research are represented by four limits, which can be represented as follows:

1. Cognitive limits: The cognitive limits of the research are determined in (the implications of digital cognitive activities at the organizational level and at the environmental level).
2. Spatial limits: They are related to the research field, represented by the Universities of Tikrit and Samarra.
3. Human limits: The human limits of the research were represented by the instructors in the two universities studied.
4. Time limits: The time limits of the research extended from 1/1/2024 to 11/15/2024

Seventh: Research Methodology and Tools

1. Research Methodology and Tools

The research relied on the descriptive analytical method based on collecting, classifying, recording, interpreting and analyzing data, to know the impact and relationships between them, in describing the research problem and then collecting data in its initial forms from the field of the researcher and then analyzing it statistically to reach the real results. As for the basic tool for collecting data, the questionnaire was adopted as a main tool designed to collect data and information related to the current research variables and standards, which was distributed to a group of lecturers at the Universities of Tikrit and Mosul, in addition to adopting the five-point Likert scale to suit the questionnaire questions in the research.

2. Research field, community and sample

Tikrit and Samarra Universities were chosen as the field for the current research, and the lecturers were chosen as the community for our current research. Accordingly, a random sample of (300) individuals was chosen. Table (1) shows the percentages of distributed, retrieved and valid questionnaires for analysis:

Table (1): Results of distribution of questionnaire forms

Valid for Analysis	Damaged	Recovered	Lost	Distributed
270	5	275	25	300
96%	2%	%92	%8	% 100

The third axis: The theoretical framework

First: The concept of academic digital cognitive activities

Knowledge is considered a major strategic resource that is important for achieving stability, growth and organizational development, and is a means of improving organizational performance. Knowledge activities and their processes represent a starting point for organizations to develop their intellectual capabilities by increasing the effectiveness and efficiency of managing knowledge resources in the organization (Bagorogza, et.al., 2024). It is an organizational function that includes a set of activities that support the achievement of organizational and strategic goals (Nakash & Bouhnik, 2024: 2). It is defined as the systematic activities of managing the organization's knowledge resources to create value that is consistent with the organization's strategic requirements, and includes processes, policies, and systems for storing, sustaining, transferring, evaluating, creating, and modifying knowledge (Tajpour, et.al., 2022: 3).

As for the philosophy of digital transformation, (Zoppelletto et al., 2020:562) indicated that digital transformation means taking advantage of digital technology, including digital platforms and others that work to enhance cooperation and coordination among all stakeholders. Accordingly, Albukhitan (2020: 2) indicates that digital transformation refers to the introduction of digital technology in all areas of academic activities, which leads to major changes in how value is provided to beneficiaries and how organizations operate.

Knowledge activities are closely related to innovation management and digital organizational learning. It is a system that aims to promote changes in the way people think and acquire knowledge initiatives that help enhance learning in organizations, thus achieving organizational sustainability in an increasingly competitive environment. In general, it focuses on technologies that provide innovative knowledge management initiatives based on information and communication technology, or on managing individual processes through knowledge initiatives based on social activities for organizational learning and knowledge management (Gazi, et. al., 2024: 3). The literature confirms that knowledge activities are very important due to their ability to achieve survival and maintain the competitive advantage of business organizations. The framework for creating effective knowledge processes for the organization, knowledge infrastructure, intellectual capital, and organizational performance is called knowledge activities (5: 2022 Rehman, et. al.,). In order for organizations to be

competitive, they must be able to retain, develop, organize and utilize the skills of their employees effectively. Identifying the resources that enable the organization to identify, create, transform and distribute knowledge is of paramount importance for understanding the success and failure of knowledge activities within organizations (2: Pelaez, et. al., 2024). (Olubiyi, et. al., 2024:11) confirms that the benefits of knowledge activities can be achieved if there is a knowledge management policy and institutional enablers for the knowledge management process, and that all employees support knowledge management activities.

As for academic cognitive activities, according to the perspective of digital transformation, it is the process of integrating the basic activities of academic institutions into digital technologies. Hasan (2023:106) explains that it is a radical transformation in educational processes, models, activities, and organizational competencies to determine the priorities that these digital technologies can provide in order to respond to future changes and labor market requirements to provide educational services in a way that contributes to achieving the goals of educational institutions. Digital transformations in academic activities aim to improve the activities of educational institutions by using a combination of information, communication technologies, and cloud computing, which leads to a significant change and improvement in the characteristics of the educational organization and its level of performance (Garcia-Perez et al., 2023:2). Here, it must control its cognitive processes and activities within the framework of a conscious knowledge management strategy, which is a basic condition for managing successful cognitive activities and understanding the factors that facilitate the creation, sharing and transfer of knowledge in educational organizations. Supporting cognitive activity processes in universities can significantly improve the exchange of explicit and implicit knowledge through digital technologies that contribute to the dissemination of knowledge among academics, which enhances scientific activities in educational institutions (Budur, et.al., 2024: 4-5).

Second: Implications of Academic Digital Cognitive Activities

Cognitive activities and practices are viewed as an urgent necessity that should be given attention in order to ensure the successful implementation of the educational strategy and cognitive objectives of the organization. They represent a set of vital organizational activities and procedures that universities must adopt in order to achieve effectiveness (Egbu, 2013: 106). Defining these implications is useful as they provide researchers and practitioners with the basic requirements for implementing academic digital strategies and building successful cognitive practices that contribute to achieving cognitive excellence in educational activities. However, developing cognitive activities requires providing a set of digital infrastructures that contribute to developing cognitive activities and sharing them within the university in a way that contributes to maximizing the value of knowledge.

By reviewing the relevant research literature to identify the cognitive activities that contribute to enhancing cognitive capabilities inside and outside academic institutions, which is reflected in the solidity of these universities and their pioneering position within global classifications according to the perspective of digital transformation, which has become an approach adopted by most institutions in performing their work and duties, the scale (Salimova, et al, 2014, 109) was adapted according to the digital perspective to measure

digital cognitive activities in Iraqi universities. The dimensions of the academic cognitive activities model can be explained as follows:

1. Digital research projects: The concept of digital research projects stems from the philosophy of knowledge sharing, which is defined as the process of exchanging knowledge using digital technologies between individuals or transforming the knowledge that an individual carries through digital processes into a form that can be understood and used by other individuals (Ahmed and Al-Assimi, 2019: 5). It was defined by (2010: 797, Rusuli, Tasmin) as projects that involve the process of exchanging knowledge digitally between two or more parties and allow for the reshaping of knowledge and the creation of new knowledge. Knowledge here is in its two aspects, explicit and implicit, and these projects must achieve a goal of achieving the innovation process through the solutions proposed within the joint research program that is shared using digital means between researchers. The importance of digital research projects, as indicated by (53: Zheng, 2017), appears in achieving the process of exchanging ideas, experiences and knowledge digitally among researchers, increasing the digital brainstorming process to generate new ideas that lead to scientific innovations and inventions, enhancing the spirit of academic and cognitive cooperation among researchers or among academic universities using various digital means, as well as enhancing the reputation and position of the university within academic classifications.

Here, the joint digital research program provides a space for faculty members and researchers in various colleges and academic departments inside and outside the university to conduct research projects with an applied, intersectional and blended nature. The research projects consist of: First, joint bilateral research projects/seminars with affiliated counterpart institutions. Second, open joint research projects/seminars. The benefit of digital research programs is often to seek to develop scientific and technical research at the university through research partnerships with prestigious international universities and research centers, as well as to develop the research capabilities and skills of faculty members and researchers by exchanging experiences and knowledge via electronic platforms with their counterparts in international universities (Salimova et al, 2014: 110):.

A. Supporting the formation of research teams of faculty members, researchers and graduate students.

B. Encouraging the exchange of scientific visits between the university and international partner universities.

C. Increasing the rate of scientific publication of research outputs in international scientific journals with a high impact factor.

All these benefits achieved will not be effectively achieved unless digital activities and interactions are adopted in transferring and exchanging knowledge, which is the basis for achieving progress in research projects, which was reflected in the level of the global ranking of Iraqi universities in general and the researched ones in particular.

2. **Establishing digital laboratories:** Digital laboratories are defined as the first building block for establishing digital knowledge and cognitive research parks, an incubator environment for investment in the field of scientific research that supports all industrial

sectors, and a fundamental supporter in the process of transferring and localizing technology in the country concerned, the gateway to which is the university that established these laboratories (Mohajan et al, 2017:79). They are defined as the process of implementing a scientific research proposal in a joint digital manner by specialized researchers and academics within the university with external parties related to this research project, and the budget of this project is jointly funded by the university and external parties, or fully funded by external parties, with the provision of appropriate financial compensation to researchers intending to work in this laboratory (113:2014, Salimova et al). The main objective of establishing joint digital laboratories is to enhance the reputation and position of the university in the field of scientific and academic research, raise the level of training of researchers within the university in the field of scientific research, register patents by presenting new research projects that contribute to raising the reputation of the university, contribute to the transfer and localization of technology in the field of scientific research, and a successful laboratory contributes to attracting new investments in the field of research it provides (Al-Asimi, 2019: 5).

The joint laboratory project is based on a proposal for a research activity to be carried out jointly by researchers and faculty of the university and other researchers from other universities who intend to share their skills as well as their research facilities in creating a joint laboratory. The laboratory location is physical and virtual using digital means and technologies. Joint research laboratories are designed to achieve outstanding research results by supporting joint research by faculty members between universities and their partners. The structure that provides this activity allows for the creation of an independent research organization within the university. After that, the university and the entity that funds the research will be able to conduct research with high flexibility and speed. Thus, this system aims to achieve results different from those provided by traditional joint research (Salimova et al, 2014:111).

3. Digital academic programs:

The study program refers to cases in which two or more universities cooperate in a joint study program that leads to obtaining a degree at one of the partner universities. These programs include doctoral programs and joint supervision (Malik et al, 2020, 3). The more efficient these programs are, the more they achieve quality standards in addition to achieving the objectives of this program, as well as the courses approved in this program, their quality, and the extent to which they are compatible with the level of the degree granted. All of this determines the academic accreditation of this program by local and international bodies (Al-Janabi, 2018: 55).

The added value of academic programs is much more than just entering into a contract, as it includes developing a new study program and a new arena for knowledge. The primary goal of establishing joint programs should be to improve the quality of education and research included in the degree, and the result of the joining of two or more universities should be to provide a study program with a higher academic level than what the universities can achieve separately. In other words, the programs lead to the following added values (Adobor & McMullen, 2014: 264). These programmes can be enhanced by using digital technologies

that enable communication and interaction between different parties with high flexibility and at very low costs.

4. Academic digital exchange programs: Academic digital exchange programs are defined as programs in which academic teachers choose to study abroad in educational institutions that are partners with the parent university, whether in person or virtually (Ahwireng, 2016: 6). They are defined as one of the ways to internationalize higher education, as academic teachers continue their teaching and give lectures outside their countries, as well as through lending and exchanging experiences for professors using digital means and communication networks (Al-Jumaili, 2019: 7). Digital participation in the academic knowledge exchange program requires the academic university to have cooperation and knowledge exchange agreements with a university. Therefore, universities are keen to activate and develop their academic relations with higher education institutions and with the national environment and the world, with the aim of enhancing their position at the local, regional and international levels by developing academic partnership programs and finding opportunities for academic exchange and supporting it for students and university employees, and participating in academic activities and international conferences, as the university is academically linked with many international universities through cooperation and strategic partnership agreements (112 Salimova et al, 2014:). The academic digital exchange programs aim to enhance the entrepreneurial spirit of teachers within the universities they have moved to work in hypothetically, which their home university does not provide them with, as they can obtain various initiatives through which they can develop their skills instead of keeping them within the limits imposed on them by the home university, as the teacher can be provided with field and virtual visits to industrial sites and projects and all the necessary fields required to ensure scientific orientations (Ahwireng, 2016: 62). The most important benefit achieved from the academic digital exchange programs is for teachers specifically, through the cognitive and professional experience they gain from foreign universities, in addition to the large financial return they achieve.

The third axis: The practical framework of the research

First: Confirmatory factor analysis (CFA):

To conduct the confirmatory factor analysis (CFA) test, confirmatory factor analysis (CFA) is an integral part of SEM, and it is valuable for the suitability of variable measurements related to the number of factors. In (CFA), factors can be considered as constructs, and this analysis represents the correlation technique to determine the basic structure in the building variables (Rianto, et.al., 2024: 4). Confirmatory factor analysis requires two types of validity, namely: convergent validity and discriminant validity, and their conformity with the analysis criterion, which are as follows:

1. **Convergent validity:** A structural measure that measures the ability of dimensions to explain the basic variable built from it, and measurements from the same construct are strongly related to each other, and it is measured through two methods:

A. Composite Reliability: It measures the ability of the variable to measure what is required of it, and its value ranges between (0-1), and the closer it is to one, the more stable it is. The

variable, and that the paragraphs that were measured represented it correctly, and that its value was (0.70) or more, which means that the test was accepted.

B. Average Variance Extracted: It is the square of the stability of the variable structure and its value should be greater than (0.50).

2. **Discriminant Validity:** It refers to the representation of the questions of the variable and their non-interference with other variables referred to by the problem of multiple linear relationships or autocorrelations and is measured through two criteria:

A. External loadings (saturations): It refers to the ability of the paragraphs to represent the dimension that was measured and that it does not interfere with other dimensions and its value should be greater than (0.70). The paragraphs that obtain a saturation criterion of (0.70) or more mean that they were understood by the research sample.

B. Fornell-Larcker criterion: It measures the correlations between the external loadings between variables, and the correlation of the variable with itself should be greater than all the correlations of the same variable with other variables.

Table (2) Confirmatory factor analysis of digital literacy activities

AVE	CR	XX4	XX3	XX2	XX1	Indicators
					0.716	X1
					0.771	X2
0.598	0.816				0.786	X3
					0.793	X4
					0.771	X5
		0.758	0.678	0.781	0.788	XX1
				0.822		X6
				0.860		X7
0.668	0.838			0.824		X8
				0.828		X9
				0.747		X10
		0.717	0.768	0.817	0.781	XX2
			0.819			X11
			0.845			X12
0.694	0.890		0.818			X13
			0.857			X14
			0.824			X15
		0.757	0.833	0.768	0.678	XX3
		0.754				XX16
		0.748				XX17
0.616	0.856	0.789				XX18
		0.787				XX19
		0.778				XX20
		0.762	0.757	0.717	0.758	XX4

The following table shows:

1. All paragraphs obtained factor saturations that exceeded the acceptable limits (0.70) within the dimensions of the main variable, and therefore all of them represented the dimension for which they were built according to the perceptions of the sample being studied.

2- The stability of the structure and the average of the extracted variance were characterized by accuracy and all of them exceeded the acceptable limits (0.70) for the stability of the structure and (0.50) for the average of the extracted variance.

3- The correlation between the variables according to the (Fornell-Larcker criterion) was characterized by accuracy, as the correlation of each dimension with itself was higher than the correlations of the other values.

As for the explained and total variance, the total variance ratio should exceed 50% to 60%. The following table shows the variance for each dimension, where the explained variance ratio for the joint research projects dimension reached (54.55), which is the highest ratio obtained by this dimension, reflecting its relative importance in explaining academic digital cognitive activities, and for the dimension of establishing digital laboratories (11.16), and for the dimension of digital academic programs (6.25), and for the dimension of digital exchange programs (5.75), as for the total variance, where the variance ratio reached (77.71).

Second: Description and diagnosis of the dimensions of the research variables (digital cognitive activities)

1. Description and diagnosis of the dimension of digital research projects:

The results of the data analysis in Tables (3) show the arithmetic means, standard deviation, and coefficient of variation for each paragraph of the main dimensions based on the answers of the sample members studied. The dimension (digital research) obtained an arithmetic mean (3.665), which is high, and a standard deviation (0.908), which is less than one, and achieved a coefficient of variation (23.474), which indicates a decrease in dispersion in the answers of the sample members and the presence of homogeneity and convergence in opinions. These results indicate the extent to which the sample studied is aware of the importance of digital research projects, and this is reflected in the high arithmetic means and low standard deviations, which indicates a decrease in dispersion and homogeneity of the sample's opinions. This indicates the importance of (digital research projects) and their availability at the university studied. The results reflect the answer to the research question raised about the extent to which the sample members are aware of the importance of Contents of academic cognitive activities.

Table (3) Descriptive statistics for the digital research projects dimension

Paragraphs after digital research projects	M	S.D	C.V
Our university realizes that digital research projects provide opportunities to enhance the knowledge of faculty and students	**3.665**	**0.908**	**24.774**
Digital projects help our university diagnose the problems facing society and identify their causes	**3.843**	**0.823**	**21.440**
Digital research projects contribute to encouraging creativity among researchers and students	**3.781**	**0.891**	**23.577**
Our university supports digital research projects in the field of publishing and authorship as a standard of sobriety	**3.655**	**0.924**	**25.298**
Our university takes into account the risks involved in these digital projects as a researcher's loyalty to the supporting partner	**3.779**	**0.826**	**21.868**
Our university seeks, through digital research projects, to raise the university's global ranking	**3.778**	**0.678**	**18.775**
Digital Research Projects	**3.665**	**0.908**	**23.474**

2. Description and diagnosis after establishing digital

laboratories Table (4) shows the paragraphs of this dimension, which obtained a coefficient of variation of (13.739), indicating the consistency of the sample members' answers and the low level of dispersion. This is reflected by the high arithmetic mean (3.872) and the standard deviation (0.532). This indicates that the university being studied has an interest and orientation towards establishing joint digital laboratories that can contribute to transferring, sharing and developing sciences with counterparts, which was reflected in the answers of the sample members, which came at a high level of importance from the answers of the surveyed individuals. The paragraph (these laboratories aim to transfer and share laboratory technology) achieved the lowest coefficient of variation (18.214), which indicates the absence of dispersion in the answers of the sample members, which indicates that the university being studied is trying to transfer and share laboratory technology in a way that contributes to improving and developing cognitive activities. This is reflected by the high arithmetic mean (4.151) and the standard deviation (0.756), and these results reflect the extent of the researched individuals' awareness of the importance of establishing digital laboratories, which contribute to transferring knowledge and academic cognitive experiences, which is positively reflected in the level of cognitive activities provided to beneficiaries.

Table (4) Descriptive statistics for the dimension of establishing digital laboratories

Paragraphs after establishing digital laboratories	M	S.D	C.V
Paragraphs after establishing digital laboratories Our university implements joint digital laboratory research activities that contribute to the development of the skills of university researchers with other universities	**3.858**	**0.798**	**20.61**
Our university supports the design of digital laboratories to enhance outstanding research results	**3.905**	**0.775**	**19.810**
Our university realizes the possibility of conducting digital laboratory research with universities with high flexibility and speed	**4.235**	**0.755**	**18.312**
Our university seeks to establish digital laboratories with industrial organizations to develop knowledge activities and link with the market	**3.209**	**1.080**	**33.611**
Our university aims from digital laboratories to transfer and share laboratory technology	**4.151**	**0.756**	**18.214**
Establishing digital laboratories	**3.872**	**0.532**	**13.739**

3. Description and diagnosis of the dimension of digital academic programs The results of the data analysis are shown in Tables (5). Based on the answers of the sample members, the dimension (digital academic programs) obtained an arithmetic mean (3.757), which is high, and a standard deviation (0.771), and achieved a coefficient of variation (20.521), which indicates a decrease in dispersion in the answers of the sample members and the presence of homogeneity and convergence in opinions. These results indicate the extent to which the

sample members are aware of the importance of digital academic programs, and this was reflected in the high arithmetic means and semi-low standard deviations, which indicates a decrease in dispersion and homogeneity of the sample's opinions. This indicates the importance of (digital academic programs) and the extent of their availability in the university under study. The paragraph (benefit from cases of joint supervision in specific academic programs) achieved the highest coefficient of variation (25.652), which indicates the presence of dispersion in the answers of the sample members, which indicates that the university under study does not realize the importance of supervision.

The participant in transferring experiences and knowledge between professors, which reflects the results of the answer to the research question raised about the extent of the awareness of the researched individuals about the importance of the dimension of digital academic programs that can contribute to improving and developing cognitive activities in the researched university, which is positively reflected in the cognitive activities provided by those institutions.

Table (5) Descriptive statistics for the dimension of digital academic programs

Paragraphs after digital academic programs	M	S.D	C.V
The university seeks to develop its capabilities to implement digital academic programs.	**3.794**	**0.863**	**22.746**
The university works to overcome the various challenges that accompany digital academic programs due to differences in legislative and educational structures	**3.740**	**0.859**	**22.967**
The university benefits from cases of joint supervision in digital academic programs	**3.676**	**0.943**	**25.652**
The university benefits from accumulated experiences and to benefit from advanced research facilities	**3.745**	**0.893**	**23.845**
The university aspires to learn about the learning and research cultures with the parties participating in digital academic programs	**3.832**	**0.879**	**22.938**
Digital academic programs	**3.757**	**0.771**	**20.521**

4. Description and diagnosis of the digital exchange programs

dimension Table (6) shows that this dimension achieved a coefficient of variation of (21.357), which indicates the consistency of the sample members' answers to some extent and the low level of dispersion, which is reflected by the high arithmetic mean (3.816) and the standard deviation (0.815), which confirms the results that the researched individuals realize the importance of the academic digital exchange program and its great impact on developing cognitive activities through developing the knowledge and experiences of the teaching staff at the researched university, which is positively reflected in the level of academic performance of those universities. This is confirmed by the researched individuals' answers if the paragraph (the university is working to develop its academic relations with

local and foreign higher education institutions) is obtained. Which was reflected in the answers of the sample members, which came at a high level of importance, indicating the importance of this paragraph and the sample's awareness of its importance and presence in the university of the study, if this paragraph achieved the least coefficient of variation of (22.404), which is reflected by the high arithmetic mean (3.910) and the standard deviation (0.876). Through the results, it is clear that the sample members realize the importance of this dimension in achieving excellence in academic cognitive activities between universities by establishing digital and in-person academic exchange programs between universities, which contributes to the transfer and sharing of knowledge and the development of the knowledge of academic staff in the university of the study.

Table (6) Descriptive statistics for the dimension of digital exchange programs

Paragraphs after digital exchange programs	**M**	**S.D**	**C.V**
Paragraphs after digital exchange programs Our university is working to develop its digital relations with local and foreign universities.	**3.794**	**0.876**	**22.404**
Through digital exchange programs, our university aims to provide opportunities for faculty and students to learn about other cultures.	**3.740**	**0.932**	**24.302**
Through digital exchange programs, our university aims to improve cognitive, professional and linguistic capabilities.	**3.676**	**0.954**	**25.449**
Our university is expanding its efforts to obtain the largest number of scholarships from similar universities.	**3.745**	**0.986**	**26.548**
Works to sustain digital academic exchange programs to respond to the dynamics of change.	**3.832**	**0.926**	**23.902**
Digital academic exchange programs	**3.757**	**0.815**	**21.357**

Through the results of the description and diagnosis that the research reached through analyzing the data related to the field aspect, the answer to the research questions raised in the research problem about the availability of dimensions of academic digital cognitive activities in the university under study according to the perspective of digital transformation is available, which gives the researcher the green light to proceed to complete the statistical analysis procedures to test the second research hypothesis and verify the validity of the hypothesis that was built based on the verification of the first hypothesis in addition to the intellectual propositions and logical philosophical relationships in the research directions. From here, the first hypothesis of the research is accepted.

Second: Testing the impact hypothesis

In order to complete the research procedures and verify the second main research hypothesis, the researcher resorted to relying on the 23SPSS V program to analyze the data and reach the practical results of the research.

1. Testing the second main hypothesis: There is a significant impact of the dimensions of cognitive activities on their main variable in the researched university).

To test this hypothesis, the researcher analyzed the multiple regression to show the impact of each dimension of cognitive activities on the main variable in the researched university, and Table (7) shows the results of the impact of the dimensions of the main variable.

Table (7) Results of the impact of dimensions on the variable of academic cognitive activities

Model Summary			ANOVE		Coefficients			
Model	R	R^2	F	P	B		T	P
1	0.623	0.389	151.476	0.003	(Constant)	0.410	3.189	0.017
					XX1	0.441	6.193	0.003
					XX2	0.111	1.997	0.048
					XX3	0.295	3.489	0.011
					XX4	0.165	2.156	0.038

It is clear from Table (7) that all dimensions of academic cognitive activities affect the main variable, academic cognitive activities, and that the value of the coefficient of determination reached (0.389), which means that the dimensions of academic digital cognitive activities combined explain approximately (0.39) of the changes that occurred in the main variable, which is academic digital cognitive activities in the university under study, and that the value of (F) reached (151.476) at a significance level of (0.003), which means that the model is significant and valid for analysis. By observing the value of the regression coefficients (B), we can know which dimensions added a significant explanation and impact on the main variable, as it became clear that all dimensions have a significant impact on the main variable, which is academic digital cognitive activities, at varying rates, as the dimension of digital research projects had a significant impact of (0.441), which means that increasing research projects using digital means among researchers, whether from inside or outside the university, by one unit increases the variable of academic cognitive activities. By (0.441) and this is confirmed by the value of (T) which was (6.193) which is greater than its tabular value (61.9), while the rest of the dimensions had a lesser impact and respectively the establishment of digital laboratories (0.111), digital academic programs (0.295) and finally academic digital exchange programs (0.165) which are considered significant according to the level of significance which is valued at Sig = 0.000.

Through the above results, it is clear that the dimensions of academic digital cognitive activities have a significant impact on enhancing the value of the cognitive activities of the university under study, which is positively reflected in its value and position among similar and competing universities in the same field, and through the above results, the answer to the second main hypothesis of the research is achieved and the hypothesis is accepted.

Fourth axis: Conclusions and recommendations

First: Conclusions

1. It was found that the university under study encourages its members to establish digital research projects in various specializations, which contributes to increasing knowledge sharing and raising the level of classification of these universities compared to their counterparts from other universities, through the support of senior management for its members and benefiting from digital activities in this regard.
2. It was found that the university under study seeks to establish joint digital laboratories with universities and entities that possess advanced laboratory capabilities and technology, and this is done by transferring technological capabilities and employing modern laboratory techniques based on artificial intelligence to develop the skills of its researchers with partners from other universities at high speed and flexibility.
3. It was found that the university under study attaches importance to establishing joint digital academic programs in order to benefit from them in obtaining accumulated experiences and to benefit from advanced research facilities, in addition to its aspiration to learn about diverse cultures in education and research and establish strong relationships with external parties to obtain the knowledge it needs, which increases its cognitive capabilities in work.
4. It was found that the university under study has a high awareness of the importance of developing its academic relations with local and foreign academic institutions to improve cognitive, professional and linguistic capabilities, in addition to expanding its efforts to obtain the largest number of scholarships from universities through academic exchange programs.
5. It was found that the sub-dimensions (digital research projects, establishing digital laboratories, digital academic programs, digital exchange programs) contribute to a varying impact on the main variable (academic digital cognitive activities), which is greatly reflected in the value of its outputs and its position in global rankings among universities. We conclude from the influence relationships the following:
6. Digital research projects are the most influential in academic cognitive activities, as they are the least expensive and do not depend only on formal aspects and agreements, but often depend on personal relationships between researchers, in addition to adopting technology in the process of communicating with various researchers.
7. The results showed that the digital academic programs had a clear impact on digital cognitive activities at a medium to high level, which indicates that the university under study has an interest in developing its knowledge by adopting academic programs that contribute to updating and developing the existing knowledge in the university, but at a low level. 8. The results showed that the university's interest in digital exchange programs was at an acceptable level, through which it seeks to integrate its internal knowledge by establishing relationships with external parties, from which it can benefit in producing new ideas, in addition to the sustainability of digital exchange programs to respond to the dynamics of change in its renewed environment.

Second: Recommendations

1. Emphasizing the need for the university administration to have a vision on supporting digital research projects by providing financial and moral support and incentives to encourage researchers in such projects to increase research contributions published in reputable international journals, which will be reflected in the university's classification.
2. The need to work on establishing digital laboratories that can transfer new and advanced knowledge and technology in reputable international universities and scientific research methods to our universities, which will enhance their creative capabilities in providing experiments and patents that represent solutions to many of the problems that our organizations and societies suffer from, which can be presented to the beneficiary local parties.
3. Working on enabling digital academic programs that contribute in turn to transferring new experiences, experiments and cultures approved in reputable international universities through cooperation in giving lectures and scientific meetings in international universities, whether in person or electronically, to enhance the cultures and information of our university members, as well as enhancing their skills in how to deal with digital technologies by exchanging experiences and information on how to deal with them.
4. The necessity of professors joining leading foreign universities in education through scholarship agreements for their students and professors to develop their skills and scientific expertise, in addition to expanding their efforts to obtain the largest number of scholarships from leading universities and establishing diverse relationships with other external parties.
5. It requires encouraging universities to quickly shift towards digital knowledge activities in their various academic activities as a quick and appropriate solution to overcome all obstacles placed before our universities in their transition towards advanced classifications, especially bureaucratic barriers and lack of financial support that hinder the progress of knowledge activities.
6. It requires spreading digital culture in knowledge exchange activities at all levels and considering it a general trend that must be adopted and acted upon, and re-engineering the internal culture, processes, structures and organization in line with digital trends to accelerate the development and spread of digital knowledge activities between our universities and abroad and evaluate them on that basis.
7. Emphasizing the need to increase support in government programs for activities to establish digital laboratories, a digital academy program, and digital exchange programs, as they are the basic incentives for creativity and innovation among professors and academic researchers, which maximizes their activities and cognitive outputs, which are positively reflected in the value of universities and their scientific status.

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