

The Impact of Modern Technological Management Strategy on the Quality of Scientific Research in Some Faculties of Physical Education and Sports Sciences in Libyan Universities

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ABSTRACT

This research aims to clarify the role of technological management strategy by identifying the quality of scientific research in the faculties of physical education and sports sciences in Libyan universities. In addition, this study aims to study the role of human resources management in the transition to bringing about the modern technological change in management strategy. Concentrating the process of bringing and attracting modern technology has become an inevitable necessity on the one hand, and a planned and non-random matter on the other hand. In this research, we relied on the descriptive method using the survey method. The study sample was composed of professors from some faculties of physical education and sports sciences of the Libyan University. The total sample number was ninety-one (91) individuals. Several statistical tools were used in this study using SPSS, version 2020, This research resulted in that the strategy of modern technological management has a role in achieving change in universities colleges during their management of various educational programs, especially when it concerns a radical change in the methods of administrative work. Therefore, adopting the digital style by introducing modern technology in the management of local administration is inevitable and imposed by the rapid developments in various means of communication and modern technologies.

Keywords: Technology, management, strategy, scientific research, administration.

INTRODUCTION

Scientific research is considered as a basic foundation for the development of any society and it is a basic requirement for advancement and development in order to achieve research progress and creative thinking. Scientific research plays a major role in opening new and fruitful horizons in our contemporary world in various fields and has a major role in progress and civilization, which helps people advance their lives and improve their standard of living [1]. Ensuring the quality of scientific research forms the basis for all types of strategic development, technological, economic and social management that any country needs. Therefore, it was necessary for countries to pay great attention to scientific research through the platforms of universities and educational institutions, which realized that the goal of development can only be achieved through the field of scientific research entrusted with reforming the higher education and scientific research sector [2].

The term technology has brought about a major revolution after its introduction into the educational field in general and the academic field in particular, where the process of communication and dissemination of information has become an easy process and takes place very quickly. Modern technologies have also contributed to the development of science, research and scientific studies, due to the ease of collecting information and data via the Internet. The Internet is one of the forms of the technological revolution that the world is witnessing today. It has become the highway that connects us to thousands of research papers, electronic fields, library catalogs, and specialized experts in various fields with ease. This led to an increase in the world's interest in the role that the Internet provides in improving education and the research process [3].

Modern technology is considered an important topic and the focus of attention of educational thinking and a subject of concern for many researches and studies in the field of development

of the educational environment in general and the academic environment in particular. This is because modern technology is the fastest in completing many administrative and office tasks, which works to create rich educational environments that keep pace with the developments of the times. Thus, thanks to modern technology, the researcher has become able to access comprehensive digital libraries, specialized programs, and websites of universities and specialized research centers to obtain the information he wants in his field, because this technology provides enormous possibilities for research and the possibility of storing and retrieving information with ease [1].

Like other countries, many Arab countries seek to enter the world of modern technology in response to current requirements and to raise the challenges of the contemporary reality, which is characterized by the rapid spread of various modern technologies, which provide opportunities to improve the educational process.

However, the use of modern technology in Libyan universities is still in its infancy if we compare it to developed countries such as Japan, the United States, and many other countries. This is due to the technological development of these countries and the possession of a complete infrastructure that provides the necessary conditions for the application of technological programs, in addition to the possession by the professor and student of the necessary skills to control digital media. All of these conditions contributed to providing a real environment stimulating the application of modern technology on the ground [4].

In Libya, there are many obstacles and challenges that may prevent the application of modern technology in a way that makes the most of its potential.

Although these challenges vary from one country to another depending on the administrative, economic, political, educational and cultural conditions of each society, the transition to modern technology in Libya requires great financial capabilities to provide information technology, especially at the level of the country as a whole. We note that these technologies are constantly evolving, which makes joining these developments difficult.

The appreciation of developed countries for scientific research, providing the capabilities of research centers, and directing all human resources to scientific research is the aim of most of these countries. This led to them being called developed countries, as any country's progress is measured by the research and technology it provides. Technology itself is the product of science and applied research, so the Middle East was referred to in previous centuries as the cradle of civilization and thought, and this is due to the interest in science and scientific knowledge. [2].

The human resources within the scientific research system are also considered one of the basic pillars upon which the development of scientific research is relied upon, given that scientific research takes place within institutions and research systems. Scientific research takes place within institutions and research formats that have specifications and conditions that must be met by researchers in order to be integrated and given membership within the scientific research format. Among these conditions are intellectual affiliation and academic credit represented by specialization and academic degree, as well as the appropriate academic certificate for each format of scientific research in research centers.

This is from the point of view of the researcher as a member of that system, as well as from the point of view of the scientific system and the privileges it offers in order to maintain the membership of researchers and integrate them into research groups and teams, so that there is scientific and knowledge production [3].

The importance of this study lies in investigating the role of strategic planning in bringing about a transformation in the administrative and organizational structure of colleges in universities while managing their various programs. This includes the type and form of its organizational structure, as well as the level of the various administrative and communications operations it carries out, whether in its internal or external environment. The importance of developing strategic policies and practical executive operational plans to keep pace with the requirements of the times in terms of administrative, organizational and technological aspects, provides horizons for the advancement and development of scientific research and administrative infrastructure, and the quality and service of knowledge within colleges in universities. [5]

One of the important roles played by modern technology management strategies in the field of scientific research is expanding the provision of educational services and improving the educational learning process to achieve its goals and raise its level. All of this is in light of the rapid cognitive and scientific changes and developments that the world is witnessing, which push the educational process towards modernity, change, and qualitative and qualitative development, in order to deal with technical innovations with a high degree of proficiency and effectiveness.

Research Aims

The current research aims to the following:

- Determining the role of modern technological management strategy in achieving the quality of scientific research in colleges and universities.
- Determine whether strategic planning has a role in achieving fundamental change in scientific research during the course of the educational process.

Hypotheses

based on the cited above, the following hypotheses can be presented:

- The university's use of human resources management strategies in technology management affects the quality of scientific research.
- The university's use of strategies to stimulate human resources in technology management affects the quality of scientific research.

RESEARCH METHODOLOGY

In this research, the descriptive approach was used, following a survey method and based on an electronic questionnaire, as a study tool to identify the impact of modern technology management strategy on the quality of scientific research.

The 5-point Likert scale is a psychometric response method where respondents can easily answer questions and state their level of agreement in five points. This method was adopted to measure the degree of the sample's agreement with the questionnaire statements. The 5-point

Likert scale consists of the below points – (1) Strongly Disagree; (2) Disagree; (3) Neither Agree nor Disagree; (4) Agree; (5) Strongly Agree.

Participants

Participants of this research includes faculty members in some faculties of physical education and sports sciences at the Libyan University. The study sample was selected by simple random method, and the total number of the sample was ninety-one (91) individuals.

Table 1: Distribution of participants according to gender variables

	Repetition	The ratio
Males	55	60.4 %
Females	36	39.6 %
Total	91	100 %

Table 1 shows that the percentage of males out of the total of participants reached 60.4%, compared to 39.6 % of females.

Table 2: Distribution of study sample members according to their academic degrees

	Repetition	The ratio
Professor	7	7.8 %
Associate Professor	9	10.0 %
Assistant Professor	18	20.0 %
Lecturer	28	31.1 %
Assistant lecturer	28	31.1 %
Total	90	100 %

Table 2 shows that the majority of the research sample held academic degrees as lecturer 31.1%, and assistant lecturer with the same percentage, while their percentage was assistant professor 20.0%, and their percentage was associate professor (10%), while no percentage of their rank exceeded professor 7.8%.

Statistical Procedures

Several statistical tools were used in this study using SPSS, version 2020, as follows:

1. Frequencies, percentages, arithmetic mean, and standard deviation: Their purpose is to describe the study sample and its relative distribution.
2. Cronbach's Alpha test: It was used to extract the reliability of the questionnaire.
3. Pearson Correlation Coefficient: It was used to measure the relationship between the dependent variable and the independent variable.
4. Watson for regression model demonstrates predictive and explanatory power.
5. Linear Multiple Regression: The idea of multiple linear regression is based on testing the effect of two or more independent variables on a dependent variable.

Validity and Reliability of the Research Tool

The stability of the scale means that we obtain the same results if the measurement tool is used more than once on the same sample and under similar conditions. In this study, the stability of the data collection tool (questionnaire) was extracted using the Cronbach's Alpha method by measuring the consistency of the statements of each axis. Among the questionnaire aspects, the

reliability is considered weak according to the Cronbach's alpha method if it is less than 60%, acceptable if it ranges between 70% and 80%, and excellent if it exceeds 80%.

Table 3: Reliability coefficients using the Cronbach's Alpha method for the axes of the research questionnaire

Research axes	Number of paragraphs	Stability coefficient
Modern technological management strategies	13	0.81
scientific research	15	0.96

It is clear from table 3 that all reliability coefficients using the Cronbach's Alpha method were acceptable, as they all exceeded the 80% barrier. Thus, the reliability of the study tools was confirmed, which makes us confident in their results while analyzing their data.

RESULTS AND DISCUSSION

Firstly, we begin with a descriptive analysis of the data, especially related to human resources management strategies in technology management.

Table 4: The correlation coefficients and percentage weights between the items content in the field of human resources management and the overall score for the field.

Items content	Degree of correlation	Signification	Percentage level
Strategic planning methods based on scientific foundations	.702**	0.000	64 %
Strategic planning of human resources by highly qualified and experienced frameworks	.756**	0.000	63 %
The process of strategic planning for human resources is carried out by the responsible authorities continuously and in the long term	.746**	0.000	62 %
Taking into account development and modernity in the systems and methods of strategic planning for human resources	.546**	0.000	61 %
The Human Resources Department is directly responsible for selecting and appointing employees	.698**	0.000	61 %
Those responsible for recruiting and hiring have scientific capabilities and control of modern technologies when making selections	.622**	0.000	60 %
Taking into account the strategic dimension when attracting or modifying new individuals	.583**	0.000	63 %

It was shown from table 4 that all correlation coefficients were statistically significant at the significance level of 0.00, that is, less than the level of significance <0.05 , which indicates that all paragraphs of the field of capabilities have good internal consistency, given that they are consistent with the rest of the paragraphs of the field to which they belong. Thus, it is possible to rely on the field scale in collecting data for this study and trust in the validity of the results collected through it, with percentage levels that ranged from 60% to 64%.

Regarding human resource motivation strategies in technology management, Table n° 5 shows that all correlation coefficients were statistically significant at the significance level of 0.00, i.e.

below the level of significance <0.05 , which indicates that all elements in the abilities domain benefit from good internal consistency given that they are consistent with the rest of the paragraphs in the domain to which they belong. Thus, it is possible to rely on the field scale to collect the data for this study and to rely on the validity of the results collected thanks to it, with a percentage between 58% and 67%.

Table 5: Correlation coefficients and percentages between the items of the human resources motivation axis and the total score of the axis

Items content	Degree of correlation	Signification	Percentage level
College employees must have both material and moral aspects.	.743**	0.000	76 %
The incentives provided to college employees contribute to meeting their current and future needs.	.561**	0.000	70 %
College employees are rewarded for the distinguished work they do.	.776**	0.000	70 %
Rewarding loyal college employees who have the ability to be creative and take responsibility	.713**	0.000	69 %
The incentive system provided to college employees is fair and objective	.561**	0.000	67 %
Motivating college employees who have the desire to achieve and strive for excellence	.652**	0.000	64 %

Concerning the quality of scientific research in technology management, it was shown from table 6 that all correlation coefficients were statistically significant at a level of 0.00, that is, less than a significance level <0.05 , which indicates that all paragraphs of the capability's axis have good internal consistency, given that they are consistent with the rest of the paragraphs of the axis to which they belong. Thus, it is possible to rely on the axis scale in collecting data for this study and trust in the validity of the results collected through it, with a percentage that ranged between 62% to 71%.

Table n°6: Correlation coefficients and percentages between the items in the field of scientific research requirements and the total score for the field.

Items content	Degree of correlation	Signification	Percentage level
The university uses modern technology methods in scientific research	.421**	0.000	71%
There is a sufficient number of qualified people available to work in the field of information and communication technology	.466**	0.000	70%
The college has a special department for scientific research to update devices for new technology	.556**	0.000	69%
New technology applications for scientific research and communication are constantly being updated and developed	.390**	0.000	69%
The college is interested in supporting and encouraging programs related to scientific research	.490**	0.000	67%

The college is interested in supporting and encouraging programs related to scientific research	.376**	0.000	66%
Scientific research in Libyan universities suffers from a number of obstacles and problems from various aspects.	.477**	0.000	66%
The local, regional and global challenges and variables facing universities, including globalization.	.520**	0.000	66%
a scientific and The technological approach towards technological society based on the knowledge economy and information technology.	.350**	0.000	66%
The technological approach towards a scientific and technological society based on the knowledge economy and information technology.	.442**	0.000	66%
Set up a strategic vision to develop scientific research in higher education institutions in order to improve their competitiveness and the requirements for its implementation.	.562**	0.000	65%
Improving the competitiveness of colleges of physical education is achieved by having a plan for scientific research at the local, regional and global levels.	.689**	0.000	64%
There are stages for developing scientific research in colleges of physical education and mechanisms for implementing them.	.647**	0.000	64%
The necessity of having guiding models to implement the plan for developing scientific research in colleges of physical education	.739**	0.000	62%
Providing the appropriate infrastructure to implement the plan to develop scientific research in colleges of physical education and their activities	.658**	0.000	67%

The research results confirm the hypothesis that there is an impact of technology management strategies on the quality of scientific research. The basis for the validity of this hypothesis is that the technology management strategy was carried out carefully and that the signs of success begin to appear in terms of seriousness in application and attention to overcoming any obstacles related to the development of research in educational institutions. One of the clear advantages of technology is that it saves time. It also exposes graduate students and faculty members to emerging innovations in the field of technology, understands the challenges of bringing new technology to the market, and enables them. In addition, this improves their ability to use critical thinking and problem solving in innovation management and gives them the necessary skills to assume a leadership role in technology development, so that they become skilled in using information and communication technology in scientific research and benefiting from it to raise the level of university research and studies. to analyze new technologies and make effective management decisions to help in the development of technology.

All of this confirms that scientific research is a group of organized efforts carried out by humans using the scientific method and the rules of the scientific method to discover and explain phenomena and determine the relationships between them. Scientific research is a set of

organized and integrated methods and steps used to analyze and examine old information with the aim of arriving at new results, and these methods differ according to the objectives and functions of scientific research [6].

The results of this axis are in accord with the study of Belghith [7], which found that 60% of the sample members use the internet continuously to view new information and keep up with scientific developments in their field of work, as 57.69% of the respondents believe that the internet is a channel research and scientific communication is indispensable for the university professor. The study also concluded that 50% of the participants believe that the culture of rational use of the internet is sufficient to raise the level of the researcher's information and knowledge return. As we note, it is consistent with the study of Hashani [8], which confirmed in its most important results the extent of the impact of the information revolution in serving the objectives of scientific research and the extent of its response to the changes of the digital age and facilitating the roles of the researcher in order to improve, upgrade and ensure the quality and prosperity of research systems and methods.

Finally, these results are consistent with the study of Khalaf and Al-Baqour [9], which concluded that there is a statistically significant correlation between information technology and knowledge sharing. These results also indicate that there is interaction and integration between information technology and knowledge sharing, which has a moral impact on ensuring the quality of scientific research.

CONCLUSIONS

Through the results of this study, which focused on the modern technological management strategy and its impact on the quality of scientific research at the university level, we conclude the following:

1. The strategy of modern technological management has an important role in achieving change in university colleges during their management of various educational programs, especially since it brings about a radical change in administrative work methods through the introduction of modern technology in the management of local administration, which was imposed by the rapid developments in various means of communication and modern technologies.
2. Operational planning has a major role in achieving change in colleges within universities. Therefore, an effective administrative and technological strategy must be engineered to keep pace with the transformation from the traditional style of management to the modern, digitized style, because the digitization of sports administration represents a qualitative leap in the administrative management process as it works to increase the speed and effectiveness of providing services during management. Various academic programs and eliminate aspects of corruption introduced by bureaucratic management
3. Operational electronic applications and programs have a role in achieving change during the management of educational process strategies. The use of operational electronic programs leads to a change in the methods of administrative work. We find its features in the re-dividing of tasks and job roles at the level of the organizational structures of colleges and universities, since technology has become one of the most important features of the modern era. Its impact has extended to all sciences. University

administration must adopt an administrative policy that keeps pace with the rapid technical development in the world.

RECOMMENDATIONS

The conclusions mentioned above lead us to recommendations that we see, from our point of view, as a priority in the process of applying technological management strategies to the quality of scientific research imposed by this modern method of administrative performance in universities.

1. We recommend paying attention to technological development and the use of modern technologies, and trying to integrate them continuously into universities by bringing about the necessary and important changes in all other fields.
2. Spreading the culture of strategic planning for modern technology by experienced and competent people and sensitizing the university family to its importance to improve the quality of the educational process and scientific research, to contribute to development.
3. Organizing training programs for faculty members and developing them professionally with the aim of using technology in the education process, which leads to raising their efficiency in using contemporary technology.

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