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Challenges Facing Scientific Research in Jordanian Universities

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Abstract: In this study, we identify the most important challenges facing scientific research in Jordanian universities, an applied study on faculty members in Jordanian universities, where 460 faculty members in public and private universities were selected to represent the study sample, and among the most important findings of the study: weak funding Financial research for scientific research, non-acceptance of the idea of technical education among some faculty members, non-application of the results of scientific research and converting them into applied projects, the majority of scientific research is not conducted according to field studies to address real problems in society, emigration of many scientific competencies abroad, in addition to the weakness of databases Available in Jordanian universities.

Keywords: challenges, scientific research, Jordanian universities.

1. Introduction

In recent years, scientific research has received great attention from the countries of the world, and bodies, ministries, or private institutions have been established for it to develop it and take care of it after it was the monopoly of developed countries. Therefore, these institutions have become required to improve the quality of scientific research and transfer it from the theoretical case that aims to achieve the requirements of promotion and advancement on the career ladder to the case of practical application that aims to serve the community and improve the level of services, especially in the field of education, training and knowledge awareness.

Scientific research and its technological applications play an important role in the development and well-being of society in any country. Conducting scientific research can be considered a measure of the progress of these countries and their social and economic growth. Countries that know how to apply the outputs of scientific research, we find that they always occupy the forefront in many scientific fields. [4]

Scientific research is also considered the main and main engine of the new world order considering several accelerating and successive events, and a main motive for accelerating economic development in its broad sense. It is seen as a successful investment, and scientific research is usually measured by several indicators, including the percentage of spending of the gross domestic product, scientific publishing, the number of published research, patents, and others.

Scientific research currently occupies a prominent place in the advancement of the scientific renaissance of contemporary societies, as educational and academic institutions are the main centres of this vital scientific activity, with their essential function in encouraging and revitalizing scientific research. There is no doubt that the need for studies and research today is greater than ever before, as the world is in a race to reach the largest possible amount of accurate knowledge derived from the sciences that guarantee human well-being and guarantee him superiority over others, and if developed countries pay great attention to scientific research, then that is It is due to her realizing that the greatness of nations lies in the scientific, intellectual and behavioural ability of their children [3] As for the Arab level; The idea of relying on knowledge production in Arab societies is still not clear, and this may be due to the inability of scientific research to solve many of the social problems that these societies suffer from, and on top of them comes the areas of development, reducing poverty and unemployment, and reducing crime rates and fear of them [1].

Therefore, the Arab countries, through the ministries concerned with higher education, have a great burden to reconsider drawing up national policies for scientific research and its development in all fields, and its exit from the academic workspace aimed at academic and administrative promotions into the space of community service and solving

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the problems it suffers from [15].

Moreover; Scientific research is considered one of the most essential factors in the process of education, creative thinking, and scientific communication with others. It is also one of the indicators of the development and advancement of universities and their progress on the scale of international rankings. Therefore, some universities have adopted special strategies to encourage professors and researchers to publish scientific and author, according to the conditions and requirements. International organizations and institutions concerned with the classification of universities and higher education institutions according to the quality of their scientific publications. [5].

In the Hashemite Kingdom of Jordan, higher education institutions still suffer from some challenges that stand in the way of scientific research and its quality, in order for it to gain the confidence of the community and become relied upon to solve the problems of its members, and these challenges have common dimensions between a personality related to the researcher himself, and administrative, economic, and social and others.

The study Problem:

Scientific research is considered one of the most important ways to raise the level of universities, educational institutions and faculty members in them. Scientific research provides the researcher with knowledge, activates his memory and deepens his understanding of the subject of his research. It is also considered the basic criterion when promoting or appointing a university professor. It is also considered one of the most important criteria for global classifications for the classification of institutions. higher education in it. [2]

Arab scientific research in general still faces many challenges that make its progress and development proceed at slow steps, and these challenges and difficulties are shared by all components of the research process, especially at the level of higher education institutions. Universities and other institutions concerned with scientific research and higher education have a great responsibility to lead development and modernization programs in society in the fields of education, training and knowledge awareness, which can only be achieved through advanced systems of the pillars and components of scientific research.

As the results of previous studies that dealt with the subject of scientific research indicate the continuity of some challenges facing scientific research for decades; Such as financial, social, and administrative challenges, in addition to the introduction of technical challenges that some find difficult to use for personal and professional reasons, and the unwillingness of some to develop themselves. (Mishika's study 2019) confirmed that the most important challenges facing scientific research are weak funding and management. , and the lack of sufficient interest from researchers in research activity and publication in peer-reviewed scientific journals, while the study of [8] confirmed that the lack of financial support for scientific research stands as an obstacle to its development; Therefore, it is necessary to develop scientific research among researchers by allocating research awards to motivate researchers to develop their research skills. (Samia Yum's study 2015) indicated that there are no clear plans to overcome the difficulties facing scientific research, the low level of scientific research, and the inapplicability of most of them. Practical work on the ground is one of the most important challenges facing scientific research, in addition to the weakness of financial funding, which has made scientific research lose the confidence of community members in overcoming social problems facing community members.

Although most of the previous studies have come out with several recommendations about overcoming these challenges, the problem still exists and is clearly visible, and the change in the pattern of administrative leaders based on the research process in higher education institutions in Jordan has contributed to some universities obtaining a better classification. However, it is still below the level of ambition that we hope to reach at the level of quality of higher education according to international standards and classifications.

Therefore, this study starts from identifying its main problem in identifying the challenges facing scientific research in higher education in Jordan, and trying to find solutions and recommendations that help decision-makers to promote scientific research in all higher education institutions to reach high levels in terms of classifying those institutions according to classifications. Therefore, the problem of the study can be identified by answering the following main question: What are the challenges facing scientific research in higher education, and what are the most prominent methods of overcoming these challenges?

2. Study questions:

1- What are the main challenges facing scientific research in higher education from the point of view of faculty members in Jordanian universities?

2- What are the proposed solutions to overcome the challenges of scientific research in higher education from the point of view of faculty members in Jordanian universities?

3- Are there statistically significant differences in the viewpoints of the study sample towards the challenges facing higher education in Jordan due to their personal and job variables?

3. Objectives of the study

The study seeks to achieve the following objectives

1- Understanding and recognizing the challenges facing scientific research (social, economic, administrative, environmental, educational challenges, challenges related to scientific research, challenges specific to the researcher).

2- Conclusion of the most prominent means and methods of overcoming the challenges facing scientific research.

3- Access to the most prominent proposals and solutions that help in overcoming the challenges facing scientific research in higher education.

4. Study hypotheses.

The first hypothesis:

1. There are no statistically significant differences at the significance level ($0.05 \geq \alpha$) towards the challenges facing scientific research in higher education institutions in Jordan due to the study variables (Gender, Academic Rank, Years of Experience In Academic Work, Workplace)
2. The second hypothesis: There are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) towards methods of facing the challenges of scientific research in higher education institutions in Jordan due to the study variables (Gender, Academic Rank, Years of Experience In Academic Work, Workplace)

5. The importance of studying:

The importance of the study lies through the following considerations

1- Helping decision-makers to identify the real challenges facing scientific research in educational institutions and postgraduate studies.

2- Assisting the various departments in developing and amending instructions and regulations for scientific research to overcome the challenges facing researchers in higher education.

3- Helping educational institutions to search for funding sources for scientific research and providing incentives to researchers to conduct scientific research that serves the institution and society and helps overcome the various social problems that societies suffer from.

6. Study concepts:

Challenges: The current study adopts the following definition of challenges: they are the obstacles, problems or developments that hinder and impede the continuation of a certain situation that is intended to be stable and continuity. These challenges may be from the local environment or from the external environment [13].

- Research: It is an answer to a specific question that has not been previously answered, depending on human effort [6].

Independent solutions to a problem through the systematic and planned collection, analysis and interpretation of data. [9]

- Scientific research is: questions looking for an answer in a scientific way, or it is a scientific journey to search for the truth [7]

Seeking and seeking knowledge. Scientific research is also a means by which the researcher tries to study a phenomenon or a problem and to discover the mechanisms that control it, in addition to limiting the factors that are behind its events, directly or indirectly, and this allows interpretation and the ability to predict in the future the dimensions that the phenomenon takes [19]

- **Scientific research is** defined in this study as: the precise, organized scientific effort that aims to discover scientific knowledge, and relies on specific methods, to reach scientific facts or verify their validity, and the possibility of applying them to improve human life and develop societies in all fields.

Jordanian Universities: What is meant by public universities (public and private), which are educational institutions affiliated to the Ministry of Higher Education and Scientific Research, and grant certificates or academic licenses to

their graduates.

7. literature review

- A study by Karadsheh, Al-Maalouli, and Al-Hashimi (2019) entitled “Economic and Societal Obstacles Facing Scientific Research in Higher Education Institutions in the Sultanate of Oman, A Quantitative Analytical Study.” The study aimed to identify the obstacles facing researchers from the economic and societal aspects, and to examine the impact of variables The demographic and academic attitudes of the study sample towards these obstacles after determining their impact. The study concluded a set of results, including: The lack of research budgets, and the lack and weakness of incentives for scientific research are the first economic obstacles facing scientific research in the Sultanate of Oman. The community's lack of awareness of the importance of scientific research is the first social obstacle.
- Bilah Ahmed Bilal (2019) Study: Obstacles to open university education in the Nile River educational region from the point of view of students. The study relied on the descriptive approach, and the researcher used several tools in collecting data, including questionnaire, observation, and experience. Among the most important results, the students of the Open University of Sudan face a number of obstacles, including: deficiencies in defining programs, lack of interest in responding to students' inquiries, difficulty of requirements and intensity of homework, weakness in terms of Buildings, service and health facilities, and infrastructure.
- Al-Nimri, Hanan Sarhan and Bagaber, Fatima Salem (2019) study of the problems facing postgraduate students in preparing educational scientific research (analytical study and developmental vision). The study aimed to identify the problems facing postgraduate students in preparing scientific research in the field of education. The study reached a set of results, including:
- Identifying a number of problems facing researchers and limiting them to the problem of the technical and formal output of the research, as well as a problem in formulating the idea and content of the research, it is imperative to develop scientific research among researchers through allocating research awards to motivate researchers to develop their research skills.
- Meshika, Hassan Hamid (2019) Challenges of scientific research in academic development in Sudanese universities, an analytical study of the case of the University of Khartoum. The study aimed to know the importance of scientific research in academic development. Researchers with research activity and publication in peer-reviewed scientific journals, and the continuous emigration of university professors to work in universities in the Gulf states as a result of economic conditions.
- Al-Khatib’s study (2019), which aimed to know the reality of scientific research in the Arab world for the period (2008-2018), and the study reached the following results: 401,549 research and scientific papers, and Saudi Arabia ranked first with 25% of these researches, followed by Egypt with 24%, then Tunisia with 11%, then Algeria with 8%, and Morocco with 6%. The study showed that the field of electrical and electronic engineering is the most popular and outperforms the rest of the fields in about 16% of Arab countries.
- Conducted by Khalfan bin Zahran and Abdullah bin Hamoud Al Sarmi (2016). A study entitled "Challenges Facing Scientific Research in the Faculties of Human Sciences at Sultan Qaboos University". The most prominent findings of the study were as follows: weak financial and material capabilities allocated for scientific research, lack of scientific journals and irregular issuance, weak societal appreciation for research in the field of humanities.
- (Arias, 2015) conducted a study on measuring the expectations and perceptions of the academic community at the Turkish Corporation University by supporting student research operations and their application. Among the results of the study: the separation of scientific research from the applied field in the Arab world, and the low percentage of spending on scientific research in the world Arab, and the lack of strategic plans to develop scientific research and develop the skills of researchers and enhance their production.
- A study (Rimando et al, 2015) entitled "Challenges of data collection and recommendations for new researchers", where this study aimed to identify the challenges facing new researchers during the research process, especially among PhD students at urban universities in the eastern United States of America. The study led to a set of results, including: the researchers' lack of sufficient experience to conduct research, the respondents' lack of seriousness in answering the researcher's questions, and the researchers' exposure to harassment during the research process.
- The study of Thaksin et al. (Taskeen et al, 2014), which was conducted on workers at the University of Lahore in Pakistan, was titled “Difficulties Facing Novice Researchers, A Study of Universities in Pakistan. The study reached several results, the most important of which were: the high financial cost of scientific research, in addition to the insufficient supervision provided to them, the lack of sufficient time to write scientific research and the need

for the researcher to make an effort to do so.

- As for the study of Farzaneh et al, (2014) entitled "Research Obstacles from the Point of View of Faculty Members and Students at Ardabil University of Medical Sciences, it revealed the existence of complex administrative systems through which the process of conducting scientific research goes through, as well as the lack of sufficient time for members of the faculty Teaching to carry out scientific research due to the teaching burdens of faculty members, in addition to the lack of financial funding to carry out research.
- Ibriem Samia's study (2015) entitled "Obstacles to Scientific Research in the Arab World and Proposed Strategies for its Development". To overcome the difficulties facing scientific research, the low level of scientific research and the inability of most of it to be applied in practice on the ground.
- A study by Al-Sharaa and Al-Zoubi (2011) about investigating the problems experienced by faculty members in the faculties of educational sciences in Jordanian universities. The study showed that the problems differ according to experience, academic rank, and the number of published research.
- Al-Harasheh (2011) conducted a study entitled "Obstacles to Scientific Research Among Faculty Members at Al al-Bayt University" and concluded that the lack of financial support provided for scientific research comes at the forefront of the obstacles facing scientific research.
- Ghannam and others (Ghanam, et.al, 2011) conducted a study on identifying the reality of scientific research in the universities of Mu'tah and Irbid and concluded that the difference in the reality of scientific research between colleges was in favor of business administration, and the need to pay attention to employing scientific research in academic courses.

What distinguishes the current study from previous studies?

Previous studies dealt with topics related to the challenges facing scientific research or education in postgraduate studies and identifying those challenges, and the lack of incentives for the development of scientific research and researchers. Previous studies focused on the current state of the educational process.

The current study agreed with many of these studies in identifying some common challenges, as it agreed with most studies that financial challenges stand as an obstacle to the development of scientific research, as well as the existence of some administrative challenges represented in the routine followed in delaying the process of scientific research and the lack of community benefit from the results of those Research, and I agreed with her that most of the challenges are old and new that universities have not been able to overcome despite the succession of different generations of university administrations.

As for the current study, it identified the challenges from the point of view of the university workers from the teaching staff and determined the best ways to overcome these challenges with some suggestions that might help in overcoming these challenges from their point of view, in addition to that the current study came at a time when universities and institutions began Education worldwide faces new challenges represented in the transformation of distance education in light of the repercussions of the Corona pandemic that swept the whole world and affected the educational process, and this represents a new challenge in terms of providing the infrastructure for distance education and equipping the equipment and modern technical means appropriate for that, and therefore you need to Developing the performance of faculty members through the use of these technologies, which may be the only means for the continuity of education during the period following the Corona pandemic until the end of this epidemic. In order to properly plan the continuity of providing society with qualified human resources in line with the future vision of the state and the needs of the labour market.

8. Methodology

The current study is one of the surveys that seeks to investigate all that has been researched in this field and to identify the challenges that faced scientific research over the past decades, and to try to find solutions to them by describing and analysing those challenges and providing appropriate solutions to them.

9. Population and sample

The study population consisted of faculty members in higher education in Jordan. The study tool was sent to them in the form of an electronic questionnaire, and the answers of 460 faculty members were obtained. The study sample was distributed according to the personal and occupational variables as follows:

Table 1: Distribution of the study sample according to variables (Gender, Academic rank, Years of Experience in Academic Work, Workplace)

Valid	variable classes	Frequency	Percent
GENDER	Male	**373**	**%81**
	Female	**87**	**%19**
Academic Rank	lecturer	**78**	**%17**
	Assistant Professor	**189**	**%41**
	Associate Professor	**129**	**%28**
	Professor	**64**	**%14**
Workplace	governmental university	**230**	**%50**
	private university	**152**	**%33**
Years of academic work experience	Less 10 years	**78**	**%17**
	10 - Less 20 years	**262**	**%57**
	More than 20 years	**198**	**%43**

10. Study tool

To collect field study data, a questionnaire was designed for the study, after conducting a desk survey and examining the theoretical side, and previous studies related to its subject and through the researcher's experience. After the study tool was prepared in its initial form, it was subjected to the arbitration process, and some modifications were made and approved in its final form.

11. Validity of the tool:

The validity of the tool was tested by conducting a virtual validity test, where the questionnaire was presented to a group of arbitrators with specialization in social sciences and statistics, and after the arbitrators expressed their opinions about the paragraphs and axes of the questionnaire, those opinions were taken and modified before distributing them to the study sample.

The constructive validity test was carried out to find out the correlation between the axes of the study and the overall construction of the tool, as it is clear from the results of Table (2) that the correlation coefficients between each of the axes of the study with the total score of the tool ranged between (.300** and .948**), which is Statistically significant correlation coefficients at the level of significance (0.01), and thus the internal consistency is evident, which confirms the structural validity of the study tool.

Table 2: Correlation coefficients between the Axes of the study and the total score of the tool

The Questionnaire Axes	number of paragraphs	Correlations	Sig
social challenges	**4**	**.903****	**.000**
Economic challenges	**4**	**.865****	**.000**
Academic challenges	**7**	**.948****	**.000**
Administrative challenges	**7**	**.934****	**.000**
Technical challenges	**6**	**.670****	**.000**
Challenges related to the nature of scientific research.	**6**	**.300****	**.000**
Researcher challenges	**7**	**.308****	**.000**
Methods of overcoming the challenges facing scientific research.	**13**	**.883****	**.000**

12. Tool stability:

The stability of the study tool was verified using the method of internal consistency between the paragraphs of the tool, as this method depends on calculating the stability using the appropriate statistical equations, using the Cronbach Alpha equation for each field separately and for the tool as a whole, and after applying this test to the study sample, the value of Reliability coefficients for the axes of the study and for the tool as a whole as shown in Table (3)

Table 3: (Cronbach alpha) for the axes of the study tool and for the tool as a whole

The Questionnaire Axes	The number of paragraphs	(Cronbach Alpha)
social challenges	**4**	**.834**
Economic challenges	**4**	**.878**

Academic challenges	**7**	**.849**
Administrative challenges	**7**	**.855**
Technical challenges	**6**	**.855**
Challenges related to the nature of scientific research.	**6**	**.908**
Researcher challenges	**7**	**.835**
Methods of overcoming the challenges facing scientific research.	**13**	**.858**
Total	**54**	**.970**

It is clear from calculating the stability of the study tool using the Cronbach alpha method in Table (3) that the scale in all its axes has a good degree of stability and a very close degree, as the stability coefficients were confined between (.942 and .834). And the total stability of the tool amounted to (.970), and based on the results of the above results of validity, reliability, and the validity of the arbitrators, we conclude that the study tool (questionnaire) has the possibility of application, reliability, and reliability of the results that will result from it.

13. Analysis and discussion of results:

First: the results related to the study questions

Results related to the first question: What are the main challenges facing scientific research in higher education? From the point of view of faculty members in Jordanian universities?

Table 4: Mean& St. deviation to the main challenges facing scientific research in higher education

Axes	St. deviation	Mean
social challenges	**2.46**	**.776**
Economic challenges	**2.62**	**.697**
Academic challenges	**2.40**	**.733**
Administrative challenges	**2.50**	**.743**
Technical challenges	**2.54**	**.653**
Challenges related to the nature of scientific research.	**2.46**	**.650**
Researcher challenges	**2.48**	**.737**

1- Conclusions related to social challenges

The most prominent social challenges were represented in the failure to link scientific research to the needs and basic issues of society, and then the lack of confidence of society members in scientific research in solving their social problems. This means that scientific research has not been invested in studying these problems and finding solutions to them and following them up, especially since some studies on Poverty and unemployment rates were funded by international organizations interested in this matter, and provided financial assistance to overcome these problems, and this may be due to the lack of seriousness of scientific research in studying the real factors leading to these problems, or due to the lack of seriousness of officials and decision-makers in taking the recommendations of those Research to overcome and solve these problems.

2- Conclusions related to economic challenges

Regarding to economic challenges, the results indicated that weak funding for scientific research is the first challenge for the development of scientific research, and this challenge is old and has been going on for several previous decades as reviewed in this study. Scientific is the dominant feature of all educational and research institutions in different Arab countries, including the study of Hanan Sarhan Al-Nimri, Fatima Salem Bajaber (2019), the study of Ibriam Samia (2015) and the study of Hassan Mashaika (2019), and the study of Khalfan bin Zahran and Abdullah bin Hamoud Al-Sarmi (2016). The weakness of financial funding is one of the factors that limit the ability of researchers to conduct field research because most researchers are unable to finance such research. Therefore, the researcher tends to conduct theoretical research that serves his educational career in terms of academic and administrative promotions, in addition to that weak financial funding will lead to weak scientific research. Institutional that serves the work of educational institutions and benefits them and participates in solving social problems facing members of society. This result indicates that the lack of spending and financial support is considered the most important challenge facing scientific research. Alzeer (2010) indicated that the researcher in the Arab world faces some challenges, including; Lack of motivation for the researcher to conduct research.

3- Conclusions related to academic challenges

As for the academic and educational challenges, it was represented in the lack of incentive for researchers to develop themselves in scientific research, and this confirms that the lack of sufficient financial support for practical research is

one of the most important challenges facing scientific research, as was explained in the economic challenges axis, and the migration of scientific competencies is often What is towards the universities that grant them financial privileges greater than those they get in their home universities, as well as the weak demand for modern teaching methods and methods, and the weakness of scientific research programs and methods in postgraduate programs, and the existence of these challenges may be due to the unwillingness to use teaching methods Modern, whether from a faculty member who does not want to develop himself and prefers to keep the situation as it is; Especially if this is not related to the evaluation of the faculty member or writing it in his annual report, and this challenge may be present in public universities more than private ones, given that the faculty member in private universities is obligated to develop himself because his presence in the university is under an annual contract that can be extended or terminated. The contract is in the event that the faculty member does not develop himself and use modern teaching methods and methods, while in public universities you find that some faculty members stand as an obstacle to the application of modern teaching methods and methods because they do not have the desire to develop themselves and because they are convinced that traditional methods are the best ways, and the reason may be The other is the lack of proficiency of some of them in the use of modern technology in the educational process. As for the most important challenge, it is the emigration of scientific competencies from specialized professors. It is a reality in our Jordanian universities due to the need of the vast majority of them for appreciation, whether on the financial level or on the administrative level. When the university professor feels that the return The financial resources are less than the effort expended, so he resorts to looking for a job opportunity outside the country to improve his financial situation, so we find that many scientific competencies migrated many years ago and some of them settled in those countries due to the need for universities in those countries for their services, as well as the feeling of the university professor that his effort is appreciated by The university or the institution in which he works, so our universities must not neglect these competencies, and provide them with rewarding incentives to encourage them in scientific research, as well as universities should exploit these to train and prepare new researchers and develop their research capabilities, and this result is consistent with the study of Hassan Msheika (2019) that confirmed However, the emigration of scientific competencies to work abroad, especially in the Gulf countries, due to the unsatisfactory economic conditions for them in their home universities.

4- Conclusions related to management challenges

As for the administrative challenges that stand in front of scientific research, it was represented in the lack of a data bank in educational institutions, as well as the lack of seriousness of academic departments in applying the results of scientific research on the ground, and this result is consistent with the findings of Bilal's study (2019), where the study showed that there is Insufficiency in defining the programs and the lack of seriousness of the various departments in applying the results of research on the ground to develop societies, and therefore the society's appreciation for research in the field of various sciences, as well as the study of Ibriam Samia (2015), where the study showed that there are no clear administrative plans to overcome the difficulties facing research Scientific research, and Lodhi (2012) emphasized that developing countries have solid traditions in education, but they do not have a strong research capacity, and that the weak research capacity of academics and the weakness of administrations in overcoming the challenges facing scientific research are the most important reasons for the weakness of scientific research, and therefore we can Saying that administrative challenges stand as an obstacle to the development of scientific research in educational institutions, so there must be a good selection of those in charge of managing educational institutions and that distinguished research activity be one of the most important choices of different departments.

5- Conclusions related to technical challenges

With regard to technical challenges, these challenges may constitute a major obstacle for some for several factors, including the fear of some of the technical transformation in education and the insistence on adhering to traditional methods, and the failure to update the electronic programs of universities and educational institutions, and the lack or weakness of the material capabilities represented by the necessary devices and equipment, and from Here we note the continuity of weak financial funding for scientific research in order to update electronic programs and develop the necessary devices and equipment, in addition to the fear of some departments from spending on scientific research because there are no clear plans for scientific research and spending on it, which may contribute to wasting public money and not benefiting from that research. And the goal of it has shifted to achieve the personal interests of the researcher, such as focusing on academic promotion more than solving social or professional problems and overcoming them. Therefore, educational institutions must set clear policies to train and develop the level of their administrative and educational cadres in the use of modern technology in scientific research. Especially since the current global conditions have forced most countries of the world to switch to e-learning in light of the outbreak and spread of the Covid 19 virus, which affected all aspects of life worldwide, including education, and it has become imperative for the whole world to switch to using modern technologies in all aspects of life.

6- Conclusions related to the challenges of scientific research

As for the challenges related to scientific research, the results showed that there is a separation of scientific research from the real problems of society from the point of view of the study sample, and some scientific research is characterized by superficiality and repetition and takes the character of individualism in performance, and its aim may be publishing for the purposes of the required academic or administrative promotions. We also find that not directing scientific research to the desired and necessary fields is one of the challenges facing scientific research, especially since scientific, industrial, military, and medical progress in various sciences depends on scientific research. Therefore, we find in some institutions that the fields of research are still limited to theoretical research that does not serve society. Neither does the educational institution, and this result is consistent with the study of Hassan Hamid Meshika (2019) and the study of Khalfan bin Zahran and Abdullah bin Hammoud Al Sarmi (2016), and the study of Ibriam Samia (2015). These studies emphasize the importance of the role of scientific research in academic development and scientific research in its various disciplines. And its fields, in addition to the lack of scientific journals and the irregularity of their issuance, as well as the weak societal appreciation for research in the field of humanities, the low level of scientific research and the inability of most of it to be applied practically on the ground.

7- Conclusions related to the researcher's challenges

With regard to the challenges related to researchers, the study concluded that the researcher's difficulty in obtaining the necessary data, especially statistics, limits his motivation towards scientific research, in addition to the lack of encouraging incentives for the researcher to carry out scientific research, as well as the lack of research experience among some researchers, especially postgraduate students. Alzeer (2010) indicated that postgraduate researchers in universities find themselves obligated to obey the wishes and ideas of their professors who supervise their thesis, which makes the personality of the researcher marginalized and he only has to implement the wishes of the supervisor of his thesis, and thus the student becomes an interface to the supervisor’s ideas and is absent. This can be explained by the fact that the main goal of some researchers is to obtain academic promotions to carry out scientific research, in addition to the researcher's fear of conducting field research that deals with social problems due to not obtaining sufficient information and correct statistics from its official sources due to administrative routine and fear of The consequences of providing these statistics, especially in the social and security field, related to crimes for security reasons,

- This result is consistent with the study of Khalfan bin Zahran and Abdullah bin Hamoud Al Sarmi (2016) about the poor societal appreciation of research in the field of humanities, and the study of Ibriam Samia (2015) about the low level of scientific research and the inability of most of it to be applied in practice on the ground, in addition to Insufficient attention of researchers to research activity and publication in peer-reviewed scientific journals.

Second: Discussing the results related to the Second question: What are the proposed solutions to overcome the challenges of scientific research in higher education from the point of view of faculty members in Jordanian universities?

Based on the proposals made by the faculty members for the development of scientific research in Jordan, these proposals coincide with many studies that recommended this. challenges and the development of scientific research, but the reality indicates that there are no clear strategies to overcome the challenges, despite the endeavour of some universities to develop the research capabilities of their employees, by applying the international conditions for the promotion of faculty members, in addition to the development of scientific journals in All disciplines, and their entry into international rankings, and some universities have sought to provide the necessary financial funding for scientific research, but the level of ambition has not reached the level of high international rankings, and in Jordan public universities in particular still suffer from the inability to provide the necessary and sufficient financial funding for research Scientific, which limits the ability of these universities to progress and develop and overcome the challenges facing scientific research in all fields.

As for the proposals made by faculty members to develop scientific research in Jordan

1. Consider introducing qualitative changes in the scientific and educational systems and focusing on scientific research, which is an essential feature of the present era in its true sense.
2. Linking scientific research programs and plans for universities and research centers (professors' research, doctoral dissertations, university master's theses for students, and other university and academic research) with the national development plans of the Arab countries and securing the required incentives for their success.
3. Academic freedom and support. It is necessary to secure a kind of academic freedom for researchers in Arab universities, as well as material and moral support and incentives for them, and to allow them to meet and interact with fellow researchers at the global level, through conferences and other scientific activities.
4. Providing material and moral support and harnessing all capabilities for scientific research, especially in academic

institutions, and overcoming the obstacles facing researchers from the availability and obtaining of data when conducting studies and scientific research.

5. Encouraging and supporting the private sector to contribute to supporting scientific research, by honouring the contributing, participating and active sectors, or even imposing fees on private institutions and companies that go to research and studies centres in academic institutions.

Fourth: the conclusions of the hypotheses of the study

The first hypothesis: There are no statistically significant differences at the significance level (α≤0.05) towards the challenges facing scientific research in higher education institutions in Jordan due to the study variables (gender, academic rank, years of experience in academic work, workplace).

Table 5: Independent Samples Test To find differences in the answers of the respondents Towards the challenges of scientific research according to the Gender variable

AXES	GENDER	MEAN	T	Sig
social challenges	**Male**	2.88	.752	.701
	Female	2.84		
Economic challenges	**Male**	2.51	.612	.472
	Female	2.43		
Academic challenges	**Male**	2.91	.293	**.002**
	Female	2.89		
Administrative challenges	**Male**	2.46	.807	**.001**
	Female	2.43		
Technical challenges	**Male**	2.45	.616	.213
	Female	2.42		
Challenges related to the nature of scientific research.	**Male**	2.66	.823	.422
	Female	2.64		
Researcher challenges	**Male**	2.74	.763	.156
	Female	2.72		

***** ≤0.05)α(Significant at level

1- With regard to testing the hypothesis according to the gender variable, the results indicated that there were no statistically significant differences at the level of significance (α≤0.05) towards the axes of the study (social challenges, economic challenges, technical challenges, challenges related to scientific research, challenges related to the researcher) according to for the sex variable.

2- While the results showed that there were statistically significant differences, the level of significance (α≤0.05) towards the axis (academic challenges, administrative challenges,) according to the gender variable, as the T value was (.293) and the significance level was 0.02 for the academic challenges variable, which is a statistically significant value when Significance level (α≤0.05) and the differences were in favour of the male category, with an arithmetic mean of 2.91, compared to a mean of 2.89 for the female category.

- The T value was (.807) and the level of significance was 0.01 for the administrative challenges variable, which is a statistically significant value at the level of significance (α≤0.05). The differences were in favor of the male category with an arithmetic mean of 2.46 compared to an arithmetic mean of 2.43 for the female category.

Based on the results shown in the previous table, it can be said that we accept the null hypothesis with regard to the axes (academic challenges, administrative challenges, methods of overcoming scientific research challenges) according to the gender variable depending on the level of significance that came in all axes less than the level of significance (α≤0.05)

We reject the null hypothesis with regard to the axes (social challenges, economic challenges, technical challenges, challenges related to scientific research, challenges related to the researcher) according to the gender variable depending on the level of significance that came in all axes higher than the level of significance (α≤0.05).

Table 6: Independent Samples Test To find differences in the answers of the respondents Towards the challenges of scientific research according to the Work place variable

AXES	Work place	MEAN	T	Sig
social challenges	governmental university	2.42	.451	.957
	private university	2.22		

Economic challenges	governmental university	2.33	.574	.761
	private university	2.27		
Academic challenges	governmental university	2.35	.653	.777
	private university	2.25		
Administrative challenges	governmental university	2.55	.563	315
	private university	2.78		
Technical challenges	governmental university	2.35	.632	.609
	private university	2.31		
Challenges related to the nature of scientific research.	governmental university	2.42	.542	.498
	private university	2.22		
Researcher challenges	governmental university	2.33	.723	**.002**
	private university	2.27		

≤0.05)α(Significant at level

In view of the results presented in the previous table, it is clear that there are no statistically significant differences at the level of significance (α≤0.05)towards the axes of the study (social challenges, economic challenges, academic challenges, administrative challenges, technical challenges, challenges related to scientific research,) where The T values for all axes were above the significance level (α≤0.05).This means that the views of the study sample towards these axes are equal according to the variable of the employer.

-There are statistically significant differences at the level of significance (α≤0.05)towards the axis of challenges related to the researcher, depending on the employer, and the differences were in favor of the category of workers in private universities, with an arithmetic mean of 2.44, compared to the average of workers in public universities, which amounted to 2.39. Accordingly, we can accept the hypothesis with regard to the axes (social challenges, economic challenges, academic challenges, administrative challenges, technical challenges, challenges related to scientific research, methods of overcoming the challenges of scientific research), and not to accept the hypothesis related to the axis of challenges related to the researcher**.**

Table 7: (ONE WAY ANOVA) The differences in the answers of the study sample towards the challenges of scientific research, which are attributed to the academic rank variable

ANOVA TEST						
AXES		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
social challenges	Between Groups	3،256	3	1،085	2،048	.111
	Within Groups	60،410	457	،530		
	Total	63،666	460			
Economic challenges	Between Groups	2،740	3	،913	1،866	.139
	Within Groups	55،788	457	،489		
	Total	58،528	460			
Academic challenges	Between Groups	2،046	3	،682	1،413	.243
	Within Groups	55،016	457	،483		
	Total	57،062	460			
Administrative challenges	Between Groups	1،348	3	،449	،261	**.001**
	Within Groups	55،240	457	،485		
	Total	56،588	460			
Technical challenges	Between Groups	1،245	3	6،786	،904	.442
	Within Groups	52،339	457	،436		
	Total	53،583	460			
Challenges related to the nature of scientific research.	Between Groups	،991	3	7،431	،662	.577
	Within Groups	56،872	457	،380		
	Total	57،863	460			
Researcher challenges	Between Groups	2،787	3	2،748	1،842	.144
	Within Groups	57،498	457	،448		
	Total	60،285	460			

***** ≤0.05)α(Significant at level

With regard to testing the hypothesis according to the academic rank variable, the data of Table (7) show that there are statistically significant differences between the average answers of the study sample towards the focus of the study (administrative challenges), which is attributed to the difference in academic rank, depending on the value of (

Calculated F.261 and the level of significance (0.01), and thus it is a statistically significant value at the level of significance (α≤0.05). This means that there are differences in the answers of the study sample towards this axis.

In order to find out the source of the differences, a Scheffe test was conducted for the post comparisons.

The average for the professor category was (2.81), while the average for the first category was (2.64), the average for the second category was (2.70), and the average for the third category was (2.71). (Associate Professor) and then the rank of (Assistant Professor). This can be explained by the higher the experience and academic rank, the better and more accurate the faculty member's view of assessing challenges.

Table 8: Scheff's test for the post comparisons between the arithmetic means of the differences in the answers of the study sample on the methods of overcoming the challenges of scientific research according to the academic rank variable

Academic qualification categories	Mean	lecturer	Assistant Professor	Associate Professor	Professor
lecturer	2.64	-	.064	.067	.085
Assistant Professor	2.70	.064	-	.121	.082
Associate Professor	2.71	.067	.121	-	.077
Professor	**2.81**	.085	.082	.077	-

Table 9: ONE WAY ANOVA The differences in the answers of the study sample towards the challenges of scientific research, which are attributed to the Years of academic work experience variable

ANOVA TEST						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
social challenges	Between Groups	5.913	3	1.971	1.543	.203
	Within Groups	531.540	457	1.278		
	Total	537.452	460			
Economic challenges	Between Groups	2.221	3	.740	.616	.605
	Within Groups	499.550	457	1.201		
	Total	501.771	460			
Academic challenges	Between Groups	1.211	3	.404	.395	.757
	Within Groups	425.478	457	1.023		
	Total	426.689	460			
Administrative challenges	Between Groups	2.681	3	.894	.733	.533
	Within Groups	507.117	457	1.219		
	Total	509.798	460			
Technical challenges	Between Groups	1.703	3	.568	.687	.560
	Within Groups	343.627	457	.826		
	Total	345.329	460			
Challenges related to the nature of scientific research.	Between Groups	1.519	3	.506	.559	.642
	Within Groups	376.746	457	.906		
	Total	378.265	460			
Researcher challenges	Between Groups	2.176	3	.725	.728	.536
	Within Groups	414.489	457	.996		
	Total	416.665	460			

* ≤0.05)α(Significant at level

In view of the results presented in the previous table, it is clear that there are no statistically significant differences at the level of significance (α≤0.05) towards the study axes (social challenges, economic challenges, technical challenges, challenges related to scientific research, challenges related to the researcher) according to the variable years of experience in Academic work, and thus the averages of the answers of the study sample towards these axes are equal.

- Based on these results, it can be said that we accept the null hypothesis with regard to all dimensions and axes of the study, depending on the level of significance that came in all axes higher than the level of significance (α≤0.05).

14. Discussion:

Practical research in higher education in Jordan faces a number of challenges that stand in the way of the progress and development of scientific research. These challenges include:

The most prominent social challenges were represented in the failure to link scientific research to the needs and basic issues of society, and then the lack of confidence of society members in scientific research in solving their social problems.

Regarding economic challenges, the results indicated that poor funding for scientific research is the first challenge to developing scientific research.

As for the academic and educational challenges, it was represented in the lack of motivation for researchers and students to develop themselves in scientific research.

In addition to the emigration of scientific competencies from specialized professors, as well as the weak demand for modern teaching methods and methods, and the weakness of scientific research programs and methods in postgraduate programs.

As for the administrative challenges that stand in front of scientific research, it was represented in the lack of a bank of information in educational institutions, as well as the lack of seriousness of academic departments in applying the results of scientific research on the ground.

Regarding technical challenges, these challenges may constitute a major obstacle for some for several factors, including the fear of some of the technical transformation in education and the insistence on adhering to traditional methods, and the failure to update the electronic programs of universities and educational institutions, and the lack or weakness of the material capabilities represented in the necessary devices and equipment,

As for the challenges related to scientific research, the results showed that there is a separation of scientific research from the real problems of society from the point of view of the study sample, and some scientific research is characterized by superficiality and repetition and takes the character of individualism in performance, and its aim may be publishing for the purposes of the required academic or administrative promotions.

With regard to the challenges related to researchers, the study concluded that the researcher's difficulty in obtaining the necessary data, especially statistics, which limits his motivation towards scientific research, in addition to the lack of incentives for the researcher to carry out scientific research.

The results showed that the most prominent ways to confront the challenges facing scientific research are represented in providing rewarding material and moral incentives to distinguished researchers when conducting distinguished research, which serves the educational process and contributes to the development of scientific research. Scientific research must also be linked to the needs of society, in addition to providing financial support. For scientific research in educational institutions, the answers also focused on the need to provide technical support and electronic linkage with the databases of high-ranking educational institutions.

The members of the study sample, who are members of the teaching staff in Jordanian universities, presented a set of solutions and proposals for the development of scientific research in educational institutions. For researchers in Jordanian universities, and to encourage and support the private sector to contribute to supporting scientific research, by honoring the contributing, participating and active sectors, or even imposing fees on private institutions and companies that go to research and studies centers in academic institutions.

15. Recommendations

Based on the findings of the study, a number of recommendations can be formulated, including:

Providing the necessary financial support for universities and relying on self-reliance in providing this through carrying out productive projects that serve the university and the local community and have a financial return on the university and not rely on government funding and support for it, especially since universities have the ingredients for that through the availability of scientific expertise and infrastructure to carry out These projects include the faculties of agriculture, medicine, engineering, pharmacy and others.

Reconsidering the evaluation of faculty members and administrative cadres and adopting the highest international standards for academic promotion to ensure the production of high-quality research, and with regard to administrative promotions and access to advanced positions such as (faculties deans, vice presidents, directors of different departments and units), those promotions and access must be linked to these The positions are based on the service that the person provides for scientific research and the endeavour to develop it, in a way that facilitates overcoming the challenges of scientific research in all fields.

Directing scientific research to serve the local community in the field of all academic specializations and striving to solve the social problems that the community suffers from, to create a state of trust between the local community and

educational institutions.

Providing financial incentives and rewards for the owners of distinguished research and creating a state of research competition to serve the educational institution and the local community.

Raising promotion standards for faculty members and linking that to research productivity through publishing in databases with a high global ranking and facilitating the task of all researchers who provide scientific research that contributes to improving the university's ranking at the global level.

Conflicts of Interest Statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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