

Research Article

Postcorona Pandemic Educational Science Research in Saudi Universities

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The present study attempted to determine the actuality of scientific research in educational sciences from the perspective of Saudi faculty after the coronavirus disease 2019 pandemic (COVID-19). The study also revealed the obstacles facing academic science research postpandemic. The study predicted the future of educational science research in Saudi universities postpandemic. The study employed a descriptive survey method on 255 educational science faculty members. The study's most important outcome is that scientific research is a precondition for professor promotions. Universities (the focus of the study) have a scientific research system and faculty with research skills. The biggest problem for scientific research in educational sciences in Saudi universities during the pandemic was that faculty members were too busy with teaching and administrative tasks to focus on research. Both experts predicted the future of educational sciences research at Saudi universities postpandemic. The researchers recommend that universities offer the infrastructure to facilitate scientific research, minimize teaching loads and administrative work, and increase the relationship between "Research Centers" and "Deanships of Scientific Research."

1. Introduction

The new coronavirus, known as SARS-CoV-2 and causing COVID-19, has become a global pandemic requiring increased healthcare attention. The pandemic has killed many people and infected millions since its outbreak in China at the end of 2019 until April 5, 2020. It is believed that scientific research was one of the sectors influenced by the pandemic. It is important to note that scientific research plays a pivotal role in handling crises by investigating a multitude of global topics related to the consequences of problems on various aspects of life, including the medical, political, social, educational, economic, and intellectual [1]. The impact of the pandemic's long-term effects on scientific research was swift and significant. The result of the pandemic varies by sector of research since it has reduced academic, industrial, government, and clinical research and led to a large-scale diversion of efforts toward COVID-19 [2]. As far as researchers are concerned, we observe that with the continual growth of COVID-19, they are confronted with

unique difficulties. Research sites across the United States must continue testing while procuring supplies and contingency plans for total closure [3].

Concerning the impact of the coronavirus on community-related research, some academics felt unable to undertake tests at the onset of the crisis. It is because COVID-19-caused constraints on their work. In addition, parents felt compelled to care for children who were forced to remain at home owing to the shutdown of their schools and kindergartens. This sentiment was accompanied by fear regarding their future careers, which was directly tied to the research they were performing [4].

Center for Infectious Diseases Research and Policy (CIDRP) lauded the efforts of expert groups that had produced detailed plans to reduce the transmission of SARS-COV-2. It was to reopen the countries after the people were ordered to remain in their homes. The center warned that the crisis would significantly impact scientific research. The center indicated that in the future, its research will not be confined to adding fundamental and general knowledge but

will instead focus on addressing topics that had not received the attention they deserved. The future crisis (pandemic) scenarios will generate communications, monitoring, supply chains, and epidemiology-related challenges, among other topics [5].

Based on the assertions mentioned above, it is evident that the effect of COVID-19 on scientific research in the educational sciences is no more a local or national issue but a global issue deserving of research and investigation. This raises the question, "How will the pandemic impact scientific research in the educational sciences?" From the above, it is evident that scholars' attention is turning to crisis-related concerns. Consequently, would the type of issues raised in the future be impacted? How will this matter be addressed? This effect will extend to qualitative, quantitative, applied, and theoretical research and other scientific research-related topics. In anticipation of the future of scientific study in the field of educational sciences in the postcorona pandemic age, this is the topic that the two researchers will seek to debate. Research in the sciences is regarded as one of the most significant contributors to addressing pandemics and crises in general [6]. It enhances the flexibility of production and service sectors, sustains the economy's competitiveness, and bolsters social and economic systems, making it a crucial aspect in achieving a sustainable and inclusive recovery. Research and innovation are crucial components of the international response to the COVID-19 threat to public health. Public and private investments have been channeled to promote recovery, and funding and investment flows have been arranged [7]. In light of the current global crisis, it is undeniable that the world requires practical scientific solutions in all areas. It has become imperative to eliminate all obstacles that impede the free flow of data and impose restrictions on the future of scientific research, its trends, and its future areas. The application of existing scientific solutions must extend beyond the medical field.

During the outbreak of COVID-19, various sorts of collaboration were witnessed in scientific research. Although 49% of scholars and researchers reported a reduction in their research hours during the pandemic, 43% indicated that they had devoted more time to data analysis and writing papers or theses (45%) or grant applications (11 percent). There are early signs that the procedure of submitting publications to scientific journals has grown since COVID-19-related constraints began to surface. It is quite impressive that more than 100 individuals, or 102 (18 percent of the total), indicated that they altered their regular scientific activity to contribute directly to research on how to prevent COVID-19 or overcome its impacts in various scientific fields [4]. Regarding the role of countries and their policies in managing scientific research during the COVID-19 crisis, they differ from one another due to their varying financial capacities and regulations imposed on scientific research. These rules either hinder or assist scientific research [8]. The European Union has asked that the organizations responsible for scientific research programs establish the research objectives in the environment, climate, and health to specify COVID-19 requirements [9]. Between 2008 and 2018, around 410,558 scientific publications were published in

Arabic in ISI journals. With 25% or 1,12565 research papers, the Kingdom of Saudi Arabia held the top position among Arab nations. Most research publications concerned electrical and electronic engineering, followed by material science, theoretical computer science, communication, energy, and fuel [10]. The "Web of Science" database revealed that the Kingdom of Saudi Arabia made substantial efforts to publish corona-related research and was ranked first among Arab countries and fourteenth internationally [11]. Since we did not find any statistics or clear impact of educational and social research in shedding light on societal problems, the majority of studies explored the effects of the virus on education in general and on specific specializations in particular, such as [12] and Palvia et al. [13]. The data mentioned above make it abundantly evident that the COVID-19 pandemic has had a significant impact on the patterns of scientific study, necessitating that scientists focus their research efforts on the topics touched by the pandemic at all levels. In addition, the situation necessitates government support and the backing of officials from all scientific, educational, health, and political institutions to make decisions that attract attention to crisis management research.

The current study is primarily concerned with recognizing the reality of scientific research in educational sciences during the corona pandemic and understanding the issues facing scientific research in educational sciences in the postpandemic period. Taking the preceding into consideration, a proposed educational formula for the future of scientific research in the field of educational sciences postpandemic has been offered. This study aims to answer the following questions:

RQ1. What is the reality of scientific research in the educational sciences during COVID-19 from faculty members' point of view working in Saudi Universities?

RQ2. What challenges is scientific research facing in the area of educational sciences during COVID-19 from faculty members' point of view working in Saudi Universities?

RQ3. What is the proposed vision to anticipate the future of scientific research in the area of educational sciences during the postpandemic period from faculty members' point of view working in Saudi Universities?

The current has three objectives. Firstly, it is aimed to know the reality of scientific research in the educational sciences during COVID-19 from faculty members' point of view working in Saudi Universities. Secondly, it tried explore the challenges facing scientific research in the educational sciences during COVID-19 from faculty members' point of view working in Saudi Universities. Thirdly, it aimed to present a proposed vision to anticipate the future of scientific research in the area of educational sciences during the postpandemic in Saudi Universities. The theoretical significance of the present study derives from the fact that, to the knowledge of the two researchers, it is the first study at the level of the Kingdom of Saudi Arabia to address the topic of predicting the future of scientific research in the field of educational sciences during the postpandemic period. From

a practical standpoint, the study's findings can contribute to the following: firstly, it assists the research centers and organizations involved in scientific research in compiling a list of subjects of significant importance for future research. Second, it assists the efforts undertaken by the Kingdom of Saudi Arabia to strengthen coordination between researchers and research centers to enhance the quality of future studies. Third, it helped call the attention of policy-makers to the importance of funding future research projects that will benefit the community.

There are some important terminologies in this study, which need to be illustrated. The first one is anticipation. Anticipation is the process of forecasting what will occur in the future based on knowledge and intellect [14]. It is the process of developing information about the future of a particular event by research, analysis, and anticipating its occurrence [15]. Anticipation is "all procedures that try to collect, study, and evaluate fresh information to create possible future work action courses and foresee their implications" [16]. The researchers of the present study define anticipation as an organized process that raises awareness of the future challenges and opportunities that scientific research in the field of educational sciences may face during the postpandemic period. It necessitates making immediate decisions regarding the type of research and methods and processes of its application. The second prominent terminology is "The future of scientific research." It is a form or shape that future scientific studies will take regarding the topics that can be discussed or the methods used to collect and analyze data [17]. The present study defines it as a prediction of what scientific research might look like during the postpandemic period regarding the methods used to conduct the investigation. It is given that researchers working in scientific research institutions are no longer required to conduct their research under controlled or censored conditions. Instead, they are free to adopt new strategies based on those published in the past. The third one is "Scientific Research." Scientific research is "research that contributes to the development of knowledge by methodical data gathering, analysis, and evaluation." The individual who does this work is referred to as a "researcher," and scientific research produces new and credible knowledge [18]. In this study, scientific research is described procedurally as adhering to a particular, systematic, and in-depth process to discover new postpandemic facts (COVID-19). The fourth terminology is "Corona Pandemic". According to the Oxford Dictionary, "pandemic" is a disease that spreads over a whole country or world. Coronavirus is responsible for transmitting this disease from person to person through the respiratory system. This virus was initially identified in December 2019 in Wuhan, China. The World Health Organization designated it as a pandemic when spreading to every country [19]. Procedures characterize the corona pandemic as a protracted global epidemic caused by the coronavirus.

2. Theoretical Framework and Previous Studies

2.1. The Corona Pandemic and Educational Science Research. The disruption and instability created by the lockdown and quarantine due to the corona pandemic negatively impacted

the daily scientific efforts. In addition, the impact of COVID-19 on all sectors of society opened the door to modifications in the study to meet the societal concerns that require a long-term view and multidisciplinary approach. The following examples show these effects [20]:

- (i) The corona pandemic drew the attention of researchers to the fact that their efforts should not be limited to combating this pandemic in particular, but that there are many significant challenges facing humanity that must be considered. The corona pandemic drew the attention of researchers to the need to make their research purposeful and qualitative and that they should concentrate on future issues.
- (ii) It is necessary to train scientists to use the "method of anticipation" in their scientific investigation, as their concentration should not be limited to studying reality alone.
- (iii) Focus on interdisciplinary studies, as there has been a trend toward a short-term approach to research in recent years. However, due to COVID-19, it has become necessary to determine the extent to which various issues are interrelated, including science and technology, psychology, education, economics, and culture.
- (iv) Comprehend the obstacles faced by the community while selecting research topics, especially for fundamental studies.
- (v) Encourage the consideration of new research missions in light of the changes imposed or brought to light by the pandemic. This unquestionably necessitates shifting the research's emphasis to the most critical difficulties in the wake of the COVID-19 pandemic and some of the pandemic's challenges.
- (vi) There is a need to support the budget of scientific research in different countries so that they can meet any new challenges, secure money for the research through research projects, focus on collective research efforts, and reevaluate university cooperation in the field of research.

2.2. Trends of Scientific Research in the Future. The corona epidemic drew experts' attention to numerous topics that should be focused on in the future, including the following [9]:

- (i) The researchers are concerned with tackling climate change and limiting its consequences as it constitutes a future challenge that must be addressed.
- (ii) The research on artificial intelligence (AI), automation, and industry.
- (iii) The research connected information and cyber security owing to many risks and the necessity to invest in IT systems.
- (iv) Clinical research, therapies, antibodies, drugs, and giving enough funds for that aim.

- (v) Economic research to solve the difficulties of crises facing national and international economies.
- (vi) Environmental health research should be taken into mind.
- (vii) Integrated assessment of societal implications of the disease, worldwide responses to the illness, and recovery plans.

Reference [7] pointed out that when technology constantly evolves, some breakthroughs are unexpectedly happening. Many of these discoveries are driven by research priorities. So, we note that at the level of the United States of America, five priorities notably arose at the current moment: artificial intelligence, advanced manufacturing, quantum information sciences, advanced biology (wireless), and synthetic biology. This year, the “White House Office of Science and Technology Policy” said that there is a national focus on creating discoveries in these areas and categorizing them as “future industries.”

From the assertions mentioned above, we notice a definite lack of interest in educational research concerned with the concerns associated with community and society. The future tendencies of scientific research overlooked these concerns even though there is a solid relationship between them and the impacts of the pandemic on humans.

2.3. Challenges of Scientific Research during Pandemic. Due to COVID-19, scientific research faces several obstacles in all of its fields, including the following [21]:

- (i) Conducting research during COVID-19 may exacerbate existing inequities and further marginalize marginalized people, as COVID-19 will identify groups more likely to be excluded from conducting field research. These excluded groups include those with problems gaining access to digital technologies and those from lower economic or social levels.
- (ii) As a result of COVID-19 quarantines and lockdowns, various ethical issues have arisen, such as “written research sample” as it is difficult to collect a valid signature and “face-to-face dialogue” utilizing remote technology. Privacy issues are associated with individuals who conduct research from their homes or potential public locations.
- (iii) A robust approach to “participatory risk management” that includes the perspectives of all affected stakeholders, not just those researchers residing in the country where research is done, is needed. Therefore, it is of the utmost importance to establish open communication channels about risk management between the local researchers and the rest of the team.

2.4. Previous Studies. The study of Reference [22] sought to give thorough information and conduct a bibliometric analysis of the study undertaken on COVID-19 through a survey of scientific and social research literature. To meet the study’s aims, bibliometric methods such as the Venn

diagram, Biblioshiny descriptive statistics, VOSviewer, Jaccard distance measure, and text mining based on binary logical regression were employed. The bibliometric study considers the Scopus database, which contains all pertinent information regarding COVID-19-related articles. The study sample comprises 10,334 publications and studies published in the first half of 2020. Physical, social, and human sciences lagged far behind health sciences regarding helpful information, magazines, and total citations, as shown by the pilot study’s findings. However, there is evidence of research cooperation on COVID-19-related themes, as well as a discernible increase in the concentration of scientific research on disciplines unrelated to the medical. The results emphasize the urgent need for a comprehensive and in-depth program that considers the different scientific disciplines in COVID-19 research, so that policy and decision makers in various areas of life can also benefit from research, as its benefits are not limited to researchers and specialists alone. Indeed, this is the objective of scientific study [7], which studied how the 2008–2010 global financial crisis impacted research, development, and innovation in the United Kingdom and internationally. To achieve the study’s objectives, a descriptive approach and a reevaluation of studies relating to the effects of financial crises on scientific research trends and the impact of research output on the capacity of financial firms and institutions to recover and prosper were adopted. According to the study’s findings, international surveys suggested the support of big corporations for investments in research, development, and innovation during and after the financial crisis. Scientific research focused primarily on addressing the crisis, mitigating losses, and investing in recovery during the crisis. After the crisis, some companies reduced their research effort, while significant corporations benefited from the same difficulties and created new scientific study areas to meet future challenges. In addition, the study revealed that the level of scientific research investment varies according to a company’s financial strength and support. The study also advocated bolstering investment in scientific research and focusing future research on subjects contributing to innovation and progress.

The study of [23] was to determine the consequences of the coronavirus on the patterns of international cooperation in scientific research, particularly between China and the United States. A descriptive-analytical approach and a review of several works on the same topic were employed to fulfill the study’s objectives. The assessment of research articles published in the early months of the pandemic revealed that the research activities on COVID-19 involved smaller teams and fewer nations than those on coronal virus undertaken before COVID-19. The United States and China were, and continue to be, at the center of the worldwide network for coronal virus research. At the same time, developing nations were mostly absent from early COVID-19 research operations. China and the United States are not only at the center of the global network of corona-related research but have also strengthened their bilateral research collaboration during COVID-19 and produced more than 4.9% of all articles produced by international countries

compared with 3.6% before the pandemic. The United Kingdom, China, and the United States continued their positions as significant providers and funders for corona virus-related research. These data indicate that the COVID-19 has altered the geographical location of corona-related research and the structure of scientific teams, resulting in a reduction in team size and the formation of elite structures. The study emphasized the importance of supporting international collaboration during and after the pandemic to create research that can satisfy the needs of the present and future phases [16] and investigate the influence of future process information assessment research on markets, customers, and technology. In addition, the study sought to identify obstacles to the execution of futuristic research. To meet the research objectives, the relevant studies were evaluated. The results demonstrated that forward-looking research methods occur in creative initiatives and significantly contribute to the creation of projects. Nonetheless, decision makers lack the comprehensive information necessary to predict the outcomes of their decisions. Therefore, they must do future research and studies to assist them with their tasks. The study also found that the project team should do forward-looking research during the project's design and development to ensure its innovativeness. One of the challenges facing forward-looking research is the lack of time to conduct such research during project planning and insufficient resources to carry it out. The external environment is dynamic, leading to the emergence of several variables that influence the research outcomes. The study advocated funding "futuristic research projects" across all disciplines and establishing a unique budget to assist the future of scientific research.

The research of Reference [24] questions the methodology, ethics, and justice of Otto and Haase. In a significant contribution, Otto and Haase addressed the difficulties associated with qualitative research during the pandemic. We concur that overcoming these obstacles is crucial, as qualitative research is essential for comprehending the global effects of COVID-19 and its significance for sustainable futures. However, we believe that a more fundamental strategy is required to address issues inside scientific institutions, thought processes, and practices that directly impact the qualitative research capacities. This commentary focuses on fairness, research organization, social scientists' position, and altered conceptions of social worlds.

The research of Reference [25] studied unprecedented in recent history. The massive shock of the COVID-19 epidemic has already had devastating repercussions on economies worldwide. Infections with COVID-19 and containment procedures slowed the development of new information generally. Due to the correlation between R&D output and economic growth, it is reasonable to assume that a decrease in research activity will harm the worldwide recovery from the epidemic. In addition, several recent research types assert that the impact of gender on scientific production varies. This study analyzes preprint deposits in major repositories to examine the occurrence across countries. In contrast to earlier research examining the number of preprint depositions before and after the

pandemic outbreak, we assess the depositions patterns across geographical regions and compare the depositions after the pandemic outbreak with those anticipated. Contrary to popular opinion and initial data, women do not experience a more significant decline in research production than males [26] detailed that academics and researchers are working in International Development are anticipated to confront various changes to the research environment and terrain in the wake of the COVID-19 outbreak, particularly in fieldwork undertaken in the middle- and low-income countries. This paper aims to give researchers and research teams awareness of handling these changes at all phases of the research process, with a particular emphasis on research protection and collaboration concerns. The English-only publications, blogs, and webinars were reviewed to determine how and why research and research techniques will need to be modified in the context of the pandemic. The report concludes that the research environment and landscape are likely to shift in various ways and highlights the emphasis placed on decolonizing research postpandemic in the information analyzed. Although decolonizing research is not new, the importance placed on safeguarding, ethics, and collaborative research within this discourse makes it a worthwhile topic for researchers to examine now. In light of the aforementioned changes brought about by the pandemic, the report finishes with a summary of advice and resources for modifying the research design. Shortly and beyond, the research community has the chance to reimagine internationalization, improve current research partnerships, and make equity a central tenet of new partnerships [27], which claim that the COVID-19 epidemic has presented society and science with an unprecedented challenge. On the one hand, public and corporate incentives have been implemented to expeditiously allocate resources to research fields that are exclusively connected to the COVID-19 emergency. On the other hand, research in other domains unrelated to the pandemic has fallen behind. In this work, we evaluate the effect of COVID-19 on the global research output in the biological sciences. Following the outbreak, we study how the use of medical subject headings (MeSH) has altered. Using a difference-in-differences method, we evaluate the impact of COVID-19 on scientific output as measured by PubMed. We found that COVID-related research topics have gained importance, displaced clinical publications, siphoned funds away from research areas unrelated to COVID-19, and decreased the frequency of publications on clinical trials in unrelated domains. Due to the COVID-19 emergency, our findings argue for immediate targeted policy actions to revitalize biomedical research in neglected areas.

2.5. Summary of Previous Studies and Comments. After reviewing the outcomes of past research and studies completed throughout the COVID-19 period, we conclude the following:

- (1) Most scientific studies addressed the corona problem and its diverse complications and effects.

- (2) There is a straight forward research collaboration between many disciplines to minimize losses and recovery costs.
- (3) Extension of the research's influence to multiple fields (health, social, social, psychological, economic, etc.).
- (4) A new and expansive horizon opens up for future scientific research in response to global issues.
- (5) There is a disparity between developing and developed countries in scientific research-related research activity.
- (6) The future scientific study requires additional material and moral backing.

To the best of our knowledge, however, none of these studies dealt with the foresight of educational or scientific research in the face of future world catastrophes, such as the corona pandemic, which serves as the primary impetus for the current study.

3. Methodology

3.1. Participants and Sampling. To achieve the study's objectives and answer its questions, the researchers used a descriptive survey method to describe the "studied phenomenon" in terms of its nature and prevalence and to analyze its reasons. This method is considered the most appropriate for the current study as it relies on a description of the phenomenon's reality, analysis of the results, and extraction of conclusions in light of the current reality. The population of the current study consists of all faculty members of educational sciences working in government universities in the Kingdom of Saudi Arabia, amounting to 860 faculty members during the research's conduction. These universities are King Saud University, King Abdulaziz University, King Faisal University, and King Khalid University. A simple random sample was conducted following the random number tables of Morgan and Krejcie for small populations, with 266 questionnaires sent to the study population and 255 questionnaires returned to the researchers, representing approximately 30 percent of the community's size.

3.2. Instruments. The researchers used the questionnaire to collect the data because it was appropriate for the objectives, methodology, and population of the study and to answer the survey questions.

3.2.1. Creating "Study Tool". The study instrument (questionnaire) was developed after reviewing the relevant literature and prior research on the current study topic in light of the research's data, questions, and aims. The final version of the questionnaire (study instrument) consists of the following three sections:

Part one: this section provides an introduction to the study's objectives.

Part two: this section contains the primary data of the study sample.

Part three: it is comprised of 38 elements split across two major subjects.

Table 1 demonstrates the number of questionnaire items and their distribution among themes.

The long-term approach (Table 2) was used to obtain an objective conclusion about the average responses of the study populating after they were statistically processed.

3.2.2. Validity of the Study Tool. The validity of the study tool was confirmed through the following:

(1) Face Validity of the Study Tool (Reliability of Arbitrators). To determine the validity of the questionnaire and guarantee that it assessed what was intended, it was submitted in its first version to five experts on the study's topic. The arbitrators were tasked with evaluating the questionnaire's quality and recommending any changes, deletions, or additions to the items. After reviewing the arbitrators' comments, the questionnaire was modified following the majority's preferences and given the finishing touches.

(2) Validity of Internal Consistency of the Tool. To validate the questionnaire's internal consistency, the Pearson correlation coefficient was calculated to determine the degree of correlation between each item and the total degree of the theme.

Table 3 shows that the values of the correlation coefficient of each item with its theme are positive and statistically significant at 0.01 and less. This indicates the validity of the internal consistency between the items of the first theme and their suitability to measure, except for item number 14. Still, it was not deleted, considering its importance and validity.

Table 4 reveals that the values of the correlation coefficient of each item with its theme are positive and statistically significant at 0.01 and less. This indicates the internal consistency between the items of the second theme and their suitability to measure.

3.2.3. Stability of the Study Tool. The stability of the study tool was confirmed by using stability coefficients of Cronbach's alpha. Tables 3–5 shows the values of stability coefficients of Cronbach's alpha for each of the questionnaire's themes.

It is clear from Table 5 that the general stability coefficients are high as they reach 0.944, indicating that the questionnaire is highly stable and reliable and can be relied on in the study (field application).

3.2.4. Procedures to Apply the Study Tool. After confirming the questionnaire's validity, stability, and suitability for the application, both the researchers applied it practically as they distributed it electronically in January 2022. Then, they received back (255) questionnaires in the mid of March 2022.

TABLE 1: Themes and items of the questionnaire.

Number of items	Theme
23	The reality of the scientific research in the area of educational sciences during the period of the corona pandemic
15	Challenges facing the scientific research in the area of educational sciences during the period of the corona pandemic
38	Total items of questionnaire

The Likert scale was used to obtain the responses from the study population. 38 is the total number of items of questionnaire (23+15=38).

TABLE 2: Division of the five-point Likert scale categories (limits of average responses).

No.	Category	Category limits	
		From	To
1	Strongly agree	4.21	5.00
2	Agree	3.41	4.20
3	Neutral	2.61	3.40
4	Disagree	1.81	2.60
5	Strongly disagree	1.00	1.80

1 to 5 are the number of options.

TABLE 3: Pearson correlation coefficients for the items of first theme with total degree of the theme.

First theme (the reality of scientific research in the area of educational sciences during corona pandemic period)			
Item number	Theme correlation coefficient	Item number	Theme correlation coefficient
1	0.90	13	0.87
2	0.90	14	0.06
3	0.77	15	0.89
4	0.26	16	0.93
5	0.28	17	0.94
6	0.64	18	0.91
7	0.90	19	0.84
8	0.89	20	0.44
9	0.18	21	0.81
10	0.88	22	0.88
11	0.28	23	0.64
12	0.86	—	—

1-12 are the items number.

TABLE 4: Pearson correlation coefficients for the items of second theme with total degree of the theme.

Second theme (challenges facing scientific research in the area of educational sciences during corona pandemic period)			
Item number	Theme correlation coefficient	Item number	Theme correlation coefficient
1	0.62	9	0.82
2	0.72	10	0.80
3	0.81	11	0.83
4	0.78	12	0.77
5	0.71	13	0.84
6	0.84	14	0.78
7	0.83	15	0.76
8	0.87	—	—

1-8 are the items number.

3.3. Analysis and Interpretation of Study Results

3.3.1. Answer to Question 1. What is the reality of the scientific research in educational sciences during the corona pandemic in Saudi universities? The arithmetic averages, standard deviations, and degrees of the responses of the study community to the items of the reality of the scientific research were calculated to explore the reality of scientific

research in the educational sciences during the corona period. The results were as follows:

Table 6 shows that the study participants are neutral in their stand on the reality of scientific research during the corona pandemic, with an average arithmetic rate of 2.81 out of 5. It is also clear from the results presented in Table 6 that the study participants strongly agree on one aspect of the reality of scientific research in educational sciences during

TABLE 5: Cronbach's alpha coefficient to measure the stability of the study tool.

The questionnaire	Number of items	Stability of the questionnaire
The reality of the scientific research in the area of educational sciences during the period of the corona pandemic	23	0.957
Challenges facing the scientific research in the area of educational sciences during the period of the corona pandemic	15	0.956
General stability	38	0.944

38 is the total number of items of questionnaire (23+15=38).
0.944 is the General stability of the questionnaire.

TABLE 6: Study participants' responses to the theme "reality of the scientific research in the area of educational sciences during corona pandemic in Saudi universities in descending order as per the approval averages."

No.	Item	Arithmetic mean	Standards deviation	Category	Rank
4	Conditions for promotion include special attention to scientific research	4.24	0.698	Strongly agree	1
14	The university has a system for scientific research	4.14	0.962	Agree	2
9	I have scientific research skills	3.92	0.899	Agree	3
5	The job performance evaluation of faculty members includes items for scientific research	3.72	0.930	Agree	4
11	The faculty members observe academic integrity in preparing and improving their research	3.68	0.938	Agree	5
20	The university contributes to facilitating the researcher's mission if their research requires field visits to institutions related to the research	3.51	0.955	Agree	6
6	The Center for Research and Studies contributes to supporting scientific research at the university	3.19	1.135	Neutral	7
3	The Vice Dean for Graduate Studies and Research Affairs promotes initiatives to encourage scientific research	3.07	1.338	Neutral	8
23	The flexibility of the procedures for researchers to obtain a full-time scientific leave when conditions are met	2.80	1.208	Neutral	9
1	The university has a stated policy and strategy for sponsoring scientific research	2.54	1.549	Disagree	10
21	Scientific research focuses on societal priorities and problems	2.51	1.371	Disagree	11
7	The university has a specific and stated policy for publishing the results of scientific research	2.51	1.534	Disagree	12
2	The faculty members are familiar with the scientific research strategy and its priorities in the Kingdom	2.46	1.471	Disagree	13
8	The university provides sufficient technical support to carry out scientific research	2.40	1.523	Disagree	14
17	The university provides a database that facilitates scientific research	2.34	1.541	Disagree	15
10	The university supports faculty members in finding peer-reviewed scientific journals to publish their research	2.29	1.399	Disagree	16
13	The university adopts research initiatives and projects that have a financial or investment return	2.25	1.312	Disagree	17
15	There is a system and mechanism followed by the different colleges and departments that prioritizes conducting scientific research	2.25	1.416	Disagree	18
22	The university provides faculty members with appropriate financial support for scientific research	2.24	1.337	Disagree	19
18	The university provides subscriptions to scientific journal databases that the researcher needs to conduct scientific research	2.22	1.49	Disagree	20
16	The university provides the infrastructure that helps in conducting scientific research	2.18	1.368	Disagree	21
12	The budget allocated by the university for scientific research is adequate	2.06	1.289	Disagree	22
19	The college has adequate infrastructure for conducting scientific research	2.04	1.421	Disagree	23
	General average	2.81	0.924	Neutral	

the corona pandemic. This aspect is item no. 4, which states "conditions for promotion include special attention to scientific research." It was ranked first, with an arithmetic mean of 4.24 out of 5. Both the researchers attribute this result to

the fact that scientific research is one of the three essential functions of universities and faculty members, as well as a critical requirement for faculty members to get the promotion.

Item number 14, which says “the University has a system for scientific research,” occupied second place in terms of getting approval from study participants with arithmetic means that reached 4.14 out of 5. Both the researchers attribute this result to the fact that scientific research is one of the tasks assigned to universities. Therefore, generally, there is a system for scientific research in Saudi universities. Item number 9, “I have scientific research skills,” was ranked third in getting approval from study participants with arithmetic means that reached 3.92 out of 5. This result interprets that scientific research is one of the skills required from faculty members to acquire it so that the universities can achieve scientific distinction. This result is consistent with the study of [22], which revealed the dominance of health sciences regarding the number of relevant information, publications, and total citations. By contrast, physical and social sciences and the humanities lagged significantly. Nevertheless, the results emphasize the urgent need for a comprehensive and in-depth program that considers the various disciplines so that the research benefits cannot be limited to researchers and specialists alone. Still, the decisions made also can benefit from them in multiple fields. This is the goal of scientific research.

The study of Reference [7] confirms that many international studies have highlighted the support of major companies for investment in research, development, and innovation during the financial crisis and its aftermath. The volume of investment in scientific research varies from one company to another according to its financial strength.

Item 12, “The budget allocated by the university for scientific research is adequate,” was the minor agreed-upon aspect of the reality of scientific research in educational sciences during the corona pandemic. This item was ranked 22 in terms of lack of approval of the study participants, with an average arithmetic rate of 2.06 of 5. This result shows that sufficient funding sources are needed to conduct research due to increased related costs, which has reduced the adequacy of the budget set by universities for scientific research. Item 19, which says, “The university provides adequate infrastructure for conducting scientific research,” was ranked twenty-third in terms of the lack of approval of the study participants, with an arithmetic mean that reached 2.04 of 5. This result shows a shortage in the various means necessary for conducting research. This reduced the approval of faculty members regarding the adequacy of the infrastructure to conduct scientific research. This result differs from the study by Reference [28] on the effects of COVID-19 on direct social communication. Still, obtaining and disseminating knowledge have remained available and accessible to all researchers. However, the present result is consistent with [7], which highlighted the necessity to support investment in scientific research and direct future research toward issues that contribute to development and innovation.

3.3.2. Answer to Question 2. What are the challenges facing scientific research in the area of educational sciences during the period of the corona pandemic in Saudi universities?

To identify the challenges facing the scientific research in the area of educational sciences during the corona, the arithmetic averages, standard deviations, and degrees of the responses of study participants to the items related to the challenges facing the scientific research were calculated. The results were as follows.

The arithmetic mean of the participant’s responses to the obstacles facing scientific research in the educational sciences during the corona pandemic is shown in Table 7 (4.17 out of 5.00).

The conclusion suggests that the most significant problems facing scientific research in educational sciences during the corona pandemic are addressed in item 10, which states that “faculty members are busy with teaching loads throughout the year.” This item scored first based on participants’ agreement with arithmetic means of 4.40 out of 5. This outcome indicates that scientific research demands commitment and diligence. The faculty member’s preoccupation throughout the year with teaching loads and administrative burdens is the most significant challenge they face. Item number 12 (the large amount of administrative work implied in academic work distracts the faculty member from scientific research) was ranked second by study participants, with a mean score of 4.33 out of 5. This result leads both researchers to conclude that giving administrative duties to faculty members increases their concentration on basic chores and hinders their ability to conduct scientific research [29–31]. This result is consistent with the findings of Reference [16], which confirms that one of the challenges facing forward-looking research is the lack of time to conduct research during project planning, the lack of adequate resources to carry out such research, and the dynamic nature of the external environment, which continuously creates new variables that influence research results.

Item 8 reflects the minor agreed-upon difficulty facing scientific research in the field of educational sciences during the corona pandemic (poor community support and encouragement). It was ranked fifteenth in terms of study participants’ approval, with arithmetic averages of 4.04 out of 5, indicating difficulty. Both researchers attribute this outcome to the fact that scientific research depends on the collaboration and support of society. Therefore, inadequate support and encouragement hamper the scientific research conducted by university faculty members. This result differs from that of Reference [7]. They reported that international studies revealed the support of major corporations for investments in research, development, and innovation during the financial crisis and its aftermath and that the focus of scientific research during the crisis was primarily on confronting the problem and reducing losses as a collaborative investment. However, as the crisis ended, several businesses cut their research efforts. As for item number 5 (many faculty members are unwilling to perform research due to the challenging circumstances for promotion), it was ranked fifteenth in terms of the study participants’ approval, with arithmetic means of 3.80 out of 5, indicating a difficulty. It demonstrates that promotion motivates faculty members to present their scientific research. The problem of promotion requirements diminishes faculty members’ desire to be promoted. Therefore, they are hesitant to perform the

TABLE 7: Study participants’ responses about the challenges facing the scientific research in the area of educational sciences during corona pandemic in Saudi universities in descending order as per the approval averages.

No.	Item	Arithmetic mean	Standards deviation	Category	Rank
10	Throughout the year, faculty members are busy with teaching loads	4.40	0.950	Strongly agree	1
12	The large amount of administrative work implied in academic work distracts the faculty member from scientific research	4.33	0.914	Strongly agree	2
3	Lack of financial allocations to support scientific research	4.27	1.001	Strongly agree	3
15	The weak partnership between research centers and scientific research authorities in universities	4.27	1.012	Strongly agree	4
11	Lack of cooperation between the universities and various development sectors in the field of scientific research	4.24	0.943	Strongly agree	5
1	The difficulty of reaching the study sample due to repercussions of the corona pandemic	4.21	0.936	Strongly agree	6
9	The long time it takes to arbitrate and publish research	4.18	0.962	Agree	7
7	Weak cultural and intellectual exchange with other cultures and languages	4.18	1.044	Agree	8
2	The separation of scientific research from the applied field and the problems of society	4.15	0.903	Agree	9
14	Lack of incentives to engage in research groups	4.15	1.025	Agree	10
13	Lack of channels for advertising scientific conferences to the faculty	4.11	0.984	Agree	11
4	Lack of databases and information on up-to-date references	4.08	1.111	Agree	12
6	Promotion requires publication in ISI or Scopes, which leads the faculty to be a reluctance to conduct research and publish it	4.08	1.089	Agree	13
8	Poor community support and encouragement	4.04	1.081	Agree	14
5	Many faculty members are reluctant to conduct research due to difficult conditions for the promotion	3.80	1.228	Agree	15
	General average	4.17	0.801	Agree	

4.17 is the General average and 0.801 is the General Standards deviation.

TABLE 8: The proposed vision to anticipate the future of scientific research in the area of educational sciences during the postpandemic period in Saudi universities.

Starting points: the concept is derived from the vision of the Kingdom of Saudi Arabia (2030), which relies on many starting points, which can be described as follows:

- (1) To increase the competitiveness and rankings of its universities, which emphasize the importance of supporting the research and development sector in scientific research.
- (2) To improve the ranking from 25th in 2015 to be among the top 10 countries in the global competitiveness ranking by 2030.
- (3) To make at least five Saudi universities be included among the best 200 international universities in the global ranking.

	Objectives	Procedures/activities	The executing party
Administrative objectives	1—developing scientific research systems, policies, and plans.	(1) updating manuals related to scientific research. (2) forming “action teams” for research in universities. (3) forming “research planning committees” in universities. (4) setting strategic and research plans for universities.	Ministry of Education -universities. -Vice Rectorate for Graduate Studies and Scientific Research
	2—developing the organizational structure to administer the “Scientific Research” through developing organizational structures and establishing research universities.	(1) specifying the authorities of departments concerned with scientific research in universities. (2) determining the training needs of administrative officials.	-Ministry of Education -Universities -Vice Rectorate for Graduate Studies and Scientific Research -Vice Deanship for Development and Quality

TABLE 8: Continued.

Objectives	Procedures/activities	The executing party
3—developing the infrastructure and information sources.	(1) assessing and developing the university libraries. (2) preparing professional development programs for specialists and workers in libraries. (3) providing libraries with the necessary technological requirements. (4) concluding agreements and partnerships with scientific periodicals locally, in the Arab world, and internationally.	-Universities and research centers -Vice Rectorate for Development and Quality -Deanship of Library Affairs -Deanship of Information Technology
4—developing mechanisms for marketing scientific research and directing its development service.	(1) establishing mechanisms for disseminating scientific research. (2) allocating a budget to organize “annual research conferences” and their related activities	-Universities -Vice Rectorate for Graduate Studies and Scientific Research. -Vice Deanship for Development and Quality. -public Relations.
Financial objectives	1—diversification and development of resources to finance the scientific research in universities	-Ministry of Education -Universities -Vice Rectorate for Graduate Studies and Research in cooperation with the “Institutions of Service and Production”
Academic objectives	1—orienting and training of university research cadres 2—establish a specific mechanism for attracting distinguished scholars 3—developing partnerships among universities in the area of educational and scientific research	(1) formation of specialized research teams (2) raising the level of orienting and training of research cadres (3) encouraging research teams and providing competitive awards (1) determining the specializations most needed by a university (2) establish a precise mechanism for attracting distinguished scholars 1—forming specialized committees to activate and develop partnerships in the area of scientific research
Social objectives	(1) promoting the culture of educational and scientific research in society. (2) activating the partnership among universities and institutions concerned with the development of the local community. (3) directing the scientific research to serve the community and activating its contribution to solving many societal problems such as unemployment, spinsterhood, and divorce (4) maximizing the benefit from educational and scientific research results.	Rectorates of the universities and supporting deanships, the institutions concerned with the development of the local community and relevant bodies

scientific study, primarily if the paper must be published in a foreign publication.

3.3.3. *Answer to Question 3.* What is the proposed vision to anticipate the future of scientific research in educational sciences during the postpandemic period in Saudi Universities?

To answer this question and anticipate the future of scientific research in the educational sciences so it can play its expected role, it is suggested that academic research should be managed under many specific objectives. These researches will expectedly try to achieve those objectives through several activities, which will be carried out through coordination and cooperation between the university and many relevant bodies.

The objectives mentioned above can be formulated as follows (Table 8):

- (1) Administrative objectives
- (2) Academic objectives
- (3) Financial objectives
- (4) Social objectives

4. Recommendations and Suggestions

In light of the initial findings, the study proposes the following recommendations: managing scientific research in the field of education following a research priorities plan. It is recommended to connect educational and scientific research with pressing community challenges. Moreover, activating the role of scientific research in addressing the essential community challenges is another recommendation. The third recommendation is strengthening the relationship between Saudi universities and many areas of educational and scientific research development. The fourth one is increasing funding for the infrastructure that supports scientific education research. Lessening faculty members' teaching and administrative responsibilities in Saudi universities is the fifth recommendation. The last recommendation is introducing more research programs supported by Deanships of the Scientific Research and aimed at educational, scientific research, which will strengthen the research's role and activate its role in addressing community-related concerns.

The present study recommends undertaking additional scientific research on the topic of the present study in the future, taking into account the difficulties of these researchers face during global crises when such research is unavailable.

Data Availability

The data support this study are available in the manuscript.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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