

دراسة مستفيضة حول العوامل المؤثرة في جودة التعليم العالي والبحث العلمي في ليبيا

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المستخلص: تعتبر المعرفة والتعليم العمود الفقري لكل المجتمعات. إنهم أساس القوة والطاقة من أجل تقدم أي بلد. رغم هذه الحقيقة، إلا أن هناك مؤشرات على تدني مستوى التعليم في معظم الدول العربية، خاصة تلك التي تتعرض لمضاعفات سياسية. في الآونة الأخيرة في منطقتنا، لوحظ إجماع أعضاء هيئة التدريس عن العطاء، وتدهورت النتائج التعليمية في السنوات الأخيرة مقارنة بالأجيال السابقة. ويرجع ذلك إلى تجاهل العديد من العوامل الحاسمة التي تؤثر على العملية التعليمية - المحاضر والبيئة المحيطة، والتي تشكل حجر الأساس لزيادة المخرجات التعليمية والبحثية وجودتها. لذلك، تستعرض هذه الورقة الأدبيات المتعلقة بجودة التعليم والبحث العلمي موضحة بتحليلات لمبادرات محددة لدعم الجودة. الهدف النهائي من هذا البحث هو وضع قائمة بالعوامل والمكونات ذات الصلة التي تؤثر على مستوى التعليم العالي والبحث العلمي في المؤسسات والجامعات الليبية، بالإضافة إلى حلول قابلة للتطبيق لهذه المشاكل.

الكلمات المفتاحية: جودة البحث والتعليم، العوامل والعناصر المؤثرة، بيئة التعليم العالي.

An Extensive Study on Factors Affecting the Quality of Higher Education and Research in Libya

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Abstract: Knowledge and education are considered the backbone of every society; they are driving power and energy for any country's progress. Although this is a fact, there are indications of a low level of education in most Arab countries, especially those that exposed to political complications. Recently in our regions, the reluctance of faculty members to give has been observed, and the educational outcomes had deteriorated in recent years as compared to prior generations. This is due to ignoring several crucial factors that affect the educational process- the lecturer and the surrounding environment, which are the cornerstones of increasing educational and research outcomes and quality. Therefore, this paper reviews

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literature relating to education and scientific research quality demonstrated with analyses of specific initiatives to support quality. The ultimate goal of this research is to develop a list of the pertinent factors and components that affect the standard of higher education and scholarly inquiry in Libyan institutions and universities, as well as viable solutions to these problems.

Keywords: Quality of research and education, Effective factors and elements, Higher education environment.

1. Introduction

Academic research is the spine of human activity since it enhances our life quality through expanding the frontiers of academic knowledge and making further research possible throughout the world (Alzahrani, 2011). Today's rapid speed of technological advancement and changing environment have sparked concerns that emerging countries would need to become more adaptable to changing trends in order to meet the demands of a globalized world. A country's progress and prosperity now inextricably linked to the quality of its higher education. Countries that pay more attention to their higher education, implement structural technological reforms, and efficiently apply their intellectual resources to the needs of higher education are currently the world's leading giants. A country with well-equipped, well-facilitated institutions, a creative, skilled pool of academic staff as well, will certainly be the market leader in terms of innovation, and knowledge (Mehboob et. Al., 2012). As a result, research and teaching are significant aspects of what occurs in global development and scientific institutions (Barrett et al., 2007; Mugimu et. al., 2013).

In most Arab universities, several of challenges are stumbling barriers to the growth of education and scientific research, and Libyan institutions are no exception. Suwaed stated that (2017) Libyan universities are clearly undergoing rapid change in response to economic, political, technological, and social changes and influenced by the country's fragile political environment as well as a lack of clear higher education policies and objectives. This causes the brain drain issue, which exacerbated by political instability and a low range of annual income. Furthermore, because of the current economic crisis, scientific research spending has decreased. Consequently, programs that promote scientific research are scarce. Institutions are expected to take part in research initiatives that address the problems, and challenges that Libya faces. In order to have that particular feature of quality education and innovative faculty members, job delight among teaching staff is critical. Therefore, many aspects should be considered since the surrounding environment and satisfaction play a significant role in individual productivity and performance in the organization (Mehboob et. al., 2012). Despite their relevance, they are unaware of the potential contribution that can be made when these components are given extra attention and support.

Despite the fact that many Libyan students have graduated from postgraduate programs at global universities, academic staff members at Libyan universities, on the other hand, continue to produce limited research. Per a review of published medical literature, Tripoli Medical University produces an average of 1.4 articles per 100 academic personnel annually.

This could be due to the several factors, as outlined by Tashani (2008), which highlight the difficulties that scientific research faces in Arab countries in general and Libya in particular: a) Exodus of brains b) A scarcity of funds c) A lack of scientific infrastructure and inept support staff, as well as d) an overabundance of teaching. To suit the current scenario in Libya, it is apparent that the role of education and scientific research must be strengthened. Where higher education institutions hold responsibility for the availability of real solutions to address and enhance performance, with a focus on educational quality and scientific research in this situation. However, there are few studies and research on the variables that impede the quality of Libyan institutions' education and scientific research. Importantly, there is a scarcity of information regarding how to increase research quality at the university level (Suwaed, 2017). This research is an attempt to respond to a request for more articles on factors affecting educational and research quality. Therefore, the objective of this research is to uncover the factors that have an effect and to propose solutions as well as recommendations that will help to improve and raise the quality of higher education and scientific research.

2. Literature Review

In both developed and developing countries, education and scientific research are key instruments for intellectual and economic progress. Where together are integrated in all institutions with the goal of improving and tackling the difficulties that these institutions, whether service or industrial face. Arab universities, in contrast, confront significant challenges in reaching this goal, in terms of development indices such as spending on scientific research and the number of patents issued, Arab countries rank lowest. As per the sum of publications, registered patents, and trademarks, Arab academic research is one of the world's lowest (Tashani, 2008; Amara and Suwaed, 2018).

However, the significance that employee satisfaction seriously influences the total operation of an organization. The cause for this concern is that work possesses such a big portion of a human's life. This extending an individual's satisfaction level with his or her work life enhances the individual's overall well-being, along with the organization overall prosperity (Wong and Heng, 2009). In this context, many studies used Frederick Herzberg's factors regarding "the motivation to work" based on two hundred engineers' feedback regarding their personal feeling towards their working environments. Two sets of factors have defined, named motivation and hygiene factors. Motivation factors are Intrinsic factors that improve employee job happiness, whereas Hygiene factors are Extrinsic factors that keep employees from being dissatisfied (Yusoff et al., 2013). Accordingly, this study selected a part of the factors using Herzberg's workers' theory that may influence the quality of teaching and research in relation

to faculty members and the functional learning environment. In addition to other factors applied by other studies in the same context to determine how these factors are related to the quality of educational and research outcomes.

2.1 Scientific Research

As mentioned early education and scientific research are considered a turning point for progress and prosperity in most countries such as, but not limited to Southeast Asian countries “South Korea, Singapore, Malaysia and Taiwan”; in addition to golf countries are starting doing so in this context. Nevertheless, the Arab countries, including Libya, face many obstacles that the administration of institutions and the government didn’t give much attention. After receiving their degrees from other countries and gaining experience in the experimental research environment, new academic staff members are eager to use their skills in local institutions when they return to their university (Tashani, 2008). However, they will collide with the level of research and scientific thought in these institutions, which may cause them frustration and drift towards this level. According to Suwaed (2017), hefty faculty teaching loads, low wages, and insufficient resources are among the leading causes of academic research failure. In addition, consistent with Naifah (2008), other features influence the output quality of university staff members who lack professional growth, incentives, research funding, and security because of a lack of both strategic goals and innovation. There is also a gap between university research and the country's social development. Others have stated that activating the link between scientific research and socio-economic growth is one of the most challenging tasks facing education and research. Furthermore, various problems confront research operations at Arab universities, such as the low rate of scientific research investment and the absence of a clear research strategic plan (see Suwaed, 2017).

Thus, the obstacles might be physical, moral, or administrative. As a result, expenditure is a critical component that influences scientific research, with industrialized developed countries spending nearly 4-6 percent of GDP, while Arab countries spend between 0.2-0.4 percent of GDP. This effecting the number of researches, in Arab countries, there are 450 researchers per million people, whereas in industrialized countries, there are 5000 researchers per million people. As a result, the number of publications and patents produced by scientific research is low (Mohammed, 2021; Tashani, 2008). This has supported by Abdullah (2020), poor research productivity and research finance are limiting factors in the Arab world's educational progress. According to a study conducted at Sebha University in Libya, one of the most significant impediments to scientific research is a lack of funding from the government.

Along with a lack of modern instructional tools and resources in labs, there is also a communication gap between the institution and the groups that gain from scientific research findings.

Other researchers believe that the weak research skills of faculty members and the lack of serious research desire they have, make them inclined to conduct research that may be for the purpose of promotion and not to treat or study some cases that exist in society. This may be caused by the environment surrounding the faculty member, which requires dealing with some financial problems. This necessitates the provision of additional revenue, which creates mental distractions and a lack of time for research. Therefore, one of the barriers to scientific research is the lack of financial incentives. In addition to the low income, multiple life responsibilities, and his concentration with other things other than the obligation of teaching and administrative activities (Al-Hwaiti and Awwad, 2017; Mustafa 2019).

Therefore, the lack of a scientific climate for the researcher is a major barrier to scientific productivity, which is known as the amount of scientific work done by faculty members. On the other hand, as the researcher points out, there is a weakness in the research skills among faculty members, as some of them do not understand research methods or organize research content according to publication specifications, and others almost entirely rely on books and websites in writing papers and ignore research papers, particularly those who did not study abroad. According to Tashani (2008), most postgraduate programs in Libya follow the traditional teacher-centered way of teaching and disregard the practical part of putting research skills into practice. This lack of research skills is seen to be a major contributor to the poor quality of academic research.

Most of the above-mentioned factors, as stated by (Tashani, 2008; Suwaed, 2017) are due to two main reasons: a- Lack of momentum at the higher management level of universities to prioritize scientific research. b- Lack of reasonable professional development strategies for academic staff. Naifah (2008) declared that, faculty members are frustrated due to a lack of incentives and possibilities for professional development. This is in line with other results obtained looking into the reasons for the flaws in scientific study application. For example, a lack of motivation for conducting research, insufficient funding, faculty members' concerns about work overload, a lack of time for research, and a scarcity of faculty members who are well-trained in scientific research methods. Among the main factor, according to others, are the researchers' burdens and insufficient knowledge about researching and publishing (Suwaed, 2017) as well as the absence of a conducive research environment.

2.2 Education and Teaching

However, as scientific research depends on successful educational outcomes, the calibre of education is just as vital as scientific research. Therefore, it is essential and should receive considerably more attention than is typically the case in higher education institutions. This needs the integration of research and teaching during curriculum design and implementation. Where, if research joined teaching in the curriculum to enhance students' involvement with the research events of their faculty members, this should contribute significantly to their learning (Barrett et Al., 2007; Mugimu et al., 2013). The surrounding environment has a big influence on context. Furthermore, a university's supportive atmosphere for research and teaching is critical, since it can powerfully incentivize faculty to engage in viable academic endeavors in a variety of ways. A supportive environment, according to Mugimu et al., (2013) must: a) be consistent with a person's personal agenda/goals, b) be consistent with a person's biological, transactional, and cognitive capabilities, c) have the components and informational resources required to facilitate goal achievement, and d) offer an emotional environment that enables and enhances effective functioning.

However, in terms of advancement in the idea of education and its link to reality, Libyan education appears to be lagging behind surrounding countries. The successive events in the last age in terms of political stability in the state and the Ministry of Education can be used to accomplish this. Some researchers have looked at the situation with these barriers and shown how to overcome them. The majority of these barriers that have a detrimental impact on higher education are listed in the study by Igrirah, and Abdulrhman (2020) and summarized in numerous points. The most important of which are: a) Absence of a specific future strategy for the higher education sector, b) Poor performance of pre-university education institutions, c) Structural imbalance in higher education institutions, d) Poor infrastructure for higher education institutions, e) Poor performance of faculty members, f) Weak funding and resources, g) Weakness of graduate studies and research programs in universities and the absence of the role of education in development and investment of resources, h) Legislative and administrative imbalance (loss of independence of higher education institutions), i) Low level of educational curricula and teaching methods, and j) The massive influx of students into higher education institutions and neglect of technical education and training.

This may coincide with a previous study conducted by El-Fakhri and Bukhatwa (2016) to find out the reasons for the unsustainability of development in higher education, and sometimes it led to the failure of the development strategy. They highlighted barriers, including

the fact that it is challenging to maintain such educational programs and services because the bulk of programs developed by higher education institutions lacks the essential material resources to be successful. Institutions have also been threatened by a lack of strategic planning and inadequate short-term planning. Additionally, most organizations lack a method for choosing individuals who can direct and mold the future of the educational system. As a result, there is a serious lack of training and development opportunities for faculty, which leads to poor participation in these programs and further reduces the system's quality. Because of this, the system has been mismanaged and important aspects of the educational system have been disregarded. The data analysis, findings, and important issues relating to the participants' knowledge, the current political situation in Libya from 2011 to 2016, and the difficulties they face were highlighted in another study used in this context by Tamtam et al. (2011). These difficulties included the development of university knowledge and skills, a lack of facilities and resources (such as the internet, books, and journals), the large number of students in the department, and the ongoing civil war in Libya, which has destroyed Libya's universities and affected the academic climate, professors' motivation, and their ability to work together.

Universities around the world have significant problems in keeping up with the rapid pace of technological and scientific advancement, and they must provide and maintain a high-quality learning environment based on Higher Education Quality Standards. To acquire a competitive advantage over other universities, most institutions compete to improve the professional experience and abilities of their personnel in order to efficiently integrate new technology in their instructional operations (Elabbar, 2016). As a result, most institutions try to assess their strategic positions by assessing existing quality services and responding to students' impressions. To strengthen their standing as a leader. Access to a sufficient degree of high-quality services should be the primary focus of any university system of higher education, particularly in Libya, in order to guide the country toward long-term growth.

3. Effective Factors and Elements

The previous sections discussed the results of the prior literature review, as well as the authors' experience as postgraduate students and lecturer in Libyan higher education institutions. The need for a number of appropriate proposals to strengthen the education system, as well as the overall development and improvement of institutions, were identified. Where detailed some essential elements to help figure out the best intervention strategies and solutions for the educational system's issues:

- Some factors affecting scientific research and education combined, such as the *skills of the teaching member* and the *available capabilities* that have an impact on the productive quality of education, and have a direct effectiveness in communicating or giving the idea in a clear way to the student. Where skills need to be strengthened and developed to keep pace with the current developments such as analytical thinking, problem solving, creativity, and research skills to keep up with technological improvements and developments in industrial research. In addition to the skill of communication and research with other universities in terms of research and study of some problems and the existence of solutions to them. This needs to provide continuous training courses for the faculty members and strengthen the language communication like English or French, which are the language used in most research in the world. Sabbatical leave is regarded as one of the instruments for developing scientific research skills and understanding of the development occurring in universities throughout the world, therefore, it is unnecessary to consider it just as a financial gain, instead, this opportunity can be an appropriate period for developing personal abilities in research and education.

On the other hand, available capabilities are a concomitant thing or twin of skills for the purpose of improving or raising the level of education and research. Providing facilities for faculty members and students is the key factor to encourage and support both parties in research and study, where equipping laboratories, classrooms, research materials, communication network, and libraries have a positive impact on scientific giving and improvement.

- *Administrative and motivation services* are other factors supporting both education and research. Where the administrative system and the transparency of work are among the factors affecting the psychology of members and performance, as it has a direct impact on work behavior when good administrative services and incentives are available. Motivation determines how, where, and to what ends people will spend their methods and efforts in study or instruction, laying the groundwork for learning, skill development, and behavior modification. As is the case in Libya's administrative system now, faculty members will be promoted based on the number of published research papers.

It is critical to promote scientific research and associated studies. Varied studies that contribute to scientific research and technology will aid in the acceleration of scientific and technological advancement aimed at addressing the state's various concerns. A motivating factor in this infamous is promotion, which has a stimulating effect on productivity, as the reward structure of promotion can be manipulated to influence faculty research behavior. On the other hand, the lecturers' psychology is affected by the delay in these promotions for long

periods, as some faculty members go to other sectors or activities such as industry or agriculture in order to achieve more income. Because when they apply for promotions and fail to do so, they may be frustrated, which could have a negative impact on their performance later on. This can be seen recently in low morale, negative attitudes towards supervising students' assignments, and lack of dedication in performing their duties (Mugimu et. al., 2013). Whereas, a great leadership in the administration of university is critical to ensuring that the university's strategic goals are implemented and met. On the other hand, irregular administration and continual change in the rules and systems of academic programs make it hard to formulate strategic plans for the same, further reducing system capacity and quality (El-Fakhri and Bukhatwa, 2016).

- *Funding and research*: Scientific research is among the most fundamental foundations of development, as well as a distinctive aspect of the modern world. Some people believe that scientific study is limited to laboratory field, or field experiences, however it also involves everyday human happenings. Where the report illustrated by Noaman, et al. (2017) whereas countries of the world have spent 1.2 % of the total global income in the fields of scientific research. Switzerland stated at the end of February 2020 that it will be allocating more than 28.6 billion dollars over the course of the following four years for scientific research and technical education. The spending rate of the Arab countries' gross local product on research and development, which amounts to approximately 1% of all local spending, is, however, still low. This demonstrates the persistent fragility of academic institutions and independent research in Arab nations. In addition to a number of actual issues that impede their growth, cognitive output, and contributing to the required development and creativity. That is why universities should focus on funding sources to support researchers in making realistic studies that contribute to the development and solutions to some problems and contribute to inventions and creativity. As a result, the dearth of research funding has had a major impact on the number and quality of research.
- *Strategic Planning*: The higher education sector needs a clear strategy and features, as well as a priority, that can be implemented and measured in a framework that ensures consistency and quality of performance. Programs to inspire and reward faculties of excellence in research and quality can be implemented through strategic plans to guarantee that they remain motivated and objective in their achievement of the duty. Because solid infrastructure improves the quality of education and services supplied, university strategic planning must incorporate good infrastructure components. The focus should not be solely on student assistance; technology,

maintenance, and technical assistance for the entire university should be involved and consider properly well-designed plans. Classrooms could be equipped with projectors, internet connectivity, and a conducive learning atmosphere to facilitate communication between lecturers and students. Furthermore, applied science students and faculty must use modern labs and language labs for field experiments and projects, which are critical to project success and research completion (Elabbar, 2016). As a result, top management should plan to organize and direct a wide range of services that will allow the organization to function effectively in the long run. The integration of these aspects is critical to its success, where elements contribute to the answers to the issues stated below which could be summarized in three basic elements: moral and financial support, facilities, and structural and scientific improvement (Table 1).

Table 1: Factors influencing the education and scientific research quality

Factor	Effective Elements	Solutions
Member Skills	Enhance skills of technical, analytical, research and writing, communication, and language	Training courses & study abroad; Collaboration with global universities; participate in scientific meetings
Available Capabilities	Laboratories, instruments and materials availability; E-services and technology use; quality classrooms; library	Offer latest instrument; network connection; Link with industry and institutions; Providing textbooks and journals; Fitted rooms
Administrative and Motivation Services	Good services availability, leadership; Rewards	Financial services; annual promotions; Financial reward for research and inventions; Publication and research expenses; Collaboration
Funding and Research	Facilities and grants	Laboratories, instruments and materials availability; Provide financial support, Participation of notable students, Cooperation with external organizations
Strategic Planning	The educational plan, infrastructure, rewards	A clear study plan; Long -term infrastructure plan; Providing financial support for research and rewards; twins with other institutions for development and research

Ultimately, the institution should prioritize developing a research environment that relies on long-term financial resources and a research system that motivates researchers. In addition, improving the research and project management skills of faculty members can help solve a variety of issues facing Libyan society through the core functions of the university. However, the limitation of this study is exploratory and its purpose is to clarify these main factors, which need an applied study in Libyan universities in order to touch the real reality in these institutions. The new study requires a questionnaire distributed to the faculty members and the administrative staff to approach the truth to the most important problems facing higher education in terms of quality of education and scientific research.

4. Conclusion

Libyan higher education besets by a series of crises that have hampered its efficiency and effectiveness. This necessitates rethinking higher education's components and strategies in order to close the gap between its outcomes and labour market demands. Whilst, as countries progress toward knowledge-based economies, it is becoming clear that graduate competencies are becoming increasingly vital. Technology and society are changing at such a rapid speed that graduates must be ready for change and predictability. As a result, universities must be capable of providing students with the skills they might need to deal with the future of change and unpredictability. If institutions are aware of the mechanisms through which these qualities can be cultivated, they seem to be more probably to develop to their full potential. The recent policy of the Libyan Ministry of Education regarding the quality of publication in refereed scientific journals or published in the global publishing site Scopus is an ideal step in improving the level of scientific research in Libyan universities and institutions. Where there will be a significant difference between the quality of previous research and the research that will be published in the future. Studies and research will be more credible and realistic, at least for the academic members who are interested in obtaining scientific and professional promotions.

This continuous modernization is required, especially in the education sector, to keep pace with modern changes and catch up with advanced countries in research and education. The change should not be limited to methodology and study but should include future plans for development and training. As well, as rewards and promotions, approving financial values for research, and upgrading laboratories and workshops for education and scientific research. Libyan universities face great difficulty in continuing their studies, as was noted during the previous world crisis caused by the Corona virus, due to the weak capabilities available within the institutions regarding technology and communications, as well as the ability of members to

communicate through these means. Therefore, an analysis of the reality is required, with all its negatives and positives, and the extraction of goals represented by the strategy.

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