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Problems of Scientific Research in the Arab World

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Abstract

The Arab world is enlisted in the end of nations in the field of scientific research. The very low ratio in sharing the world's scientific research accompanied with low quality affected the Arab nation deeply in various aspects of life. Arab countries must start fundamental reform processes in the scientific research field. It is an investment in future. As a cornerstone of development, improving educational standards represent a fundamental step in the reform and change process, and thus must hold a priority position in states' agendas. The Arab universities resemble the place of scientific research. In this study we are looking into the reasons of this shortage after identifying and explaining the current situation of the Arab universities and their outcome of scientific research by exposing to figures. The study is trying to answer some questions. Do the Arab universities have the opportunity to achieve advancement in the future? How can the Arab universities maintain their development? According to the findings the researcher submits some of recommendations and proposals.

Keywords: Problem, Science, Investigations, Arab, Country

Introduction

The scientific development is one of the basic elements of political, economical and social prosperity in any country. It is connected directly to the high education sector which resembles the highest considerable intellectual level in the Arab World which should produce both scientific and social research. University's teachers and scholars in various disciplines of science are too much respected and appreciated in the Arab countries. Most of the universities' rectors assigned directly by presidential decrees (Bamyeh, 2015). The supposed scientific research is highly expected to touch its effects through the universities outcomes in the development process in the Arab societies. But the reality tells the opposite. There is a crisis in the high education institution. It explains the shocking fact that the universities' scientific research has very limited contribution in the wheel of comprehensive development and almost disappearing.

The very low scientific and social research in the Arab world's universities is one of the reasons behind providing the societies with students who are consumers of knowledge instead of its producers. Comparing to the other nations, Arabs are always at the end if the lists of scientific and social research, patents, university ranks and the less contribution in knowledge adding.

No doubt that the scientific and social research take an important role in pushing nations' comprehensive development and quick shifting necessary in facing various challenges such as poverty, unemployment, etc. There is a sever need in the Arab countries to do several essential steps towards reforming the higher education, research policy and planning in order to lead all sectors for success to live as needed as other developed nations.

Efforts have to be concentrated and national resources invested positively and adequately not only to face internal challenged, but also, to face external influences. The whole world now is transparent. Quick influence is one of the characteristics of present. All aspects of life are fields of scientific research. The unavoidable interaction with external events and entities require Arab societies to go along with what is happening in the world and prepare themselves and their institutions properly. It is clear then that the role of high education institutions needs to be reorganized to keep going with the current international developments, with its various political, economic and social dimensions. It should be noted that international organizations consistently issue mostly negative reports about the state of higher education and research in the Arab world. Clearly for the Arab world's high institutions have a long way to go before catching up with much of the rest of the world.

This term paper aims to look in the reality of scientific research outcome and its challenges in the Arab World through published reports released by a number of specialized institutions and organizations such as the UNESCO and the Association of Arab Universities. Then it will move to find out what are the real reasons that cause the low level of scientific research. It will be ended with conclusion and recommendations on improving the quality of higher education in the Arab world.

Research in Higher Education – Present Status in the Arab World

The Situation of Arab Universities:

Most of the Arab students in the three decades ago went to study mainly at little number of Arab universities in the Arab World. Many had gone to universities in Turkey, Pakistan, India, Europe and USA. The reason of this is that the Higher education in Arab countries is recent. That means the scientific and social research is very low at that time (Aladwan, 2013).

The first established universities in the Arab world are governmental or following outside non- profit missionaries in Egypt and Lebanon. During the last twenty five years, private universities increased rapidly in the Arab World and absorbed around 30% of students enrolled in Higher Education (Lamine, 2010). Many countries started to open private universities in the last decade of the last century. Jordan opened its first private for-profit university in 1990, followed by Egypt, Syria, Yemen, Sudan and the Gulf Region (Al-Nuemi, 1997).

At present, there are more than 200 private universities in the Arab World. This represents about 47% of the total number of Arab universities which is 293 till December 2016. In some Arab Countries, Private universities and High Education institutions managed at one time to take over 40% of total enrollment (Awwad, 2015).

Looking at other higher education systems we see that in some Far Eastern countries such as Japan and South Korea, enrollment percentage of Private HE exceeds 50% while in most Western European Countries, Private higher education is still around 30% of the total higher education. While in USA, private higher education is around 20% of total enrollment (Fergany, 2000).

The quantitative development of Arab Universities, Students and Faculty Staff shows that the number of Arab universities expanded from 233 Universities in 2003 to 293 universities in 2016, of which are 153 governmental and 147 private. The number of students was about 4,400,000 and the number faculty staff members were 183.000 of whom were 78% Humanities, 22% scientific studies. In 2016 the number rose to more than 500 universities, around 9 million students and 250,000 faculty members. But a number of them are not members of the Association of Arab Universities. While the quantitative development of Arab Universities, Students and Faculty Staff percentage of the student to the faculty member is about 31:1 and in some universities up to 100:1, while in the Gulf States it reaches up to 17:1 to 41:1. However, the global ideal level is 15:1 student to faculty member. The number of undergraduate students is 90% of the total students number, 10% of them are graduate students (Aladwan, 2013).

The cost of a university student in the Arab world is about \$ 2700 per year and it might reach 550 US dollars in some countries. In the Gulf countries, the student's cost is between 15000-50000 US dollars. In the same time statistics show that the proportion of expenditure on university education in the Arab world is about 1.3% of the total national income (Yaqout, 2007).

The Arab world today faces a host of hurdles when it comes to higher education and scientific research including a lack of clear focus in research priorities and strategies, insufficient time and funding to meet research goals, low awareness of the importance and impact of good scientific research, inadequate networking opportunities and databases, limited international collaborative efforts, and of course, the brain-drain (Hassan, 2008). The Arab universities and institutions are gathering in a number of bodies including the Association of Arab Universities (AAU), Arab Organization for Quality Assurance in Education (AOQAE), the Federation of the Universities of the Islamic World (FUIW), the Arab Network for Quality Assurance in Higher Education (ANQAHE), the Association of Arab and European Universities and L'Agence Universitaire de la Francophonie. None of them focus on research in higher education but in declarations only and press releases (www.aaru.edu.jo).

The main roles of these regional bodies are mainly used as efficient vehicles for consultation, exchange of information and cooperation among institutions of higher education as well as representing the voice of higher education community on regional and international bodies.

The Situation of Scientific Research in Arab Universities:

Statistics show the poor production of Arab universities' research. We will go through four indicators are used for assessing our universities:

1. Number of Registered Patents:

The Arabs invented nothing comparing to the rest of the world (Aladwan, 2013). The figures show the low portion of Arabs during 2012 compared by other nations like following: Arab World 1087, USA 2.5 million, Japan 849 467, South Korea 97 956, Finland 17661.

2. University Ranking:

In 2015 one Arab university was among the first 500 universities. It is King Saud University and the rank 383. The Arab world has actually more than 500 universities. Most of them got four digits numbers in annual lists (Awwad, 2015). But, regarding ranking the Arab universities in the Arab region we can see that the universities of Saudi Arabia, Lebanon, Egypt, AUE, Qatar and Jordan are on the top 10 of the list (www.topuniversities.com).

3. Published Scientific Papers:

The number of researchers per million inhabitants is 450 in the Arab Countries, whereas in the developed countries the number is 5000 per million inhabitants. The UNESCO Report 2003 (Awwad, 2015) shows clearly some contribution for some countries in Scientific Articles.

The Scientific publications from Arab world in leading journals of Integrative and Complementary Medicine: a bibliometric analysis results were five hundred and ninety-one documents were retrieved from 19 ICM journals. The h-index of the set of papers under study was 47. The highest h-index was 27 for Morocco, 21 for Jordan, followed by 19 for each Kingdom of Saudi Arabia (KSA), and Egypt, and the lowest h-index was 1 for each of Comoros, Qatar, and Syrian Arab Republic. No data related to ICM were published from Djibouti, and Mauritania. After adjusting for economy and population power, Somalia (89), Morocco (32.5), Egypt (31.1), Yemen (21.4), and Palestine (21.2) had the highest research productivity. The total number of citations was 9,466, with an average citation of 16 per document. The study identified 262 (44.3 %) documents with 39 countries in Arab-foreign country collaborations. Arab authors collaborated most with countries in Europe (24.2 %), followed by countries in the Asia-Pacific region (9.8 %) (Sa'ed, et, 2015).

4. Expenditure on Research & Development

Arab's expenditures on scientific research are about 0.2-0.4% of the national income GDP, while it is around 4-6% in and industrialized developed countries (www.balkinews.com).

Challenges Problems

There are many problems that causing the low level in the research fields of the Arabs.

First problem: Quality Assurance

The quality assurance in the Arab higher education system is in the lowest among the world. It is a very traditional system of teaching. Due to Globalization, competitiveness and accelerating expansion of private Higher Education, it is vital to take several actions such as to establish national quality assurance frameworks and to develop current established ones in order to guarantee the quality of education and control its outcomes (Bureau, 2009). The specific institutions must work hard to develop, enhance and review current internal quality management systems. And to encourage establishing regional quality assurance networks to help promoting QA of higher education in the region and build capacities for education quality assurance systems. Action plans to develop the quality assurance of higher education institutions and to enhance international cooperation in fields of Higher education quality assurance (Masri & Wilkens, 2011).

Second Problem: The poor Scientific research Expenditure

Arab's expenditures on scientific research are about 0.2-0.4% of the national income GDP, while it is around 4-6% in and industrialized developed countries. The number of researchers per million inhabitants is 450 in the Arab Countries, whereas in the developed countries the number is 5000 per million inhabitants. So that the outputs of Scientific research of publications and patents are low. There should be a move towards adopting the method of transferring and memorizing knowledge rather than getting it through research. In the same time the scientific research of graduate students is rather traditional and does not tackle socio-economic development (Coffman, 1996).

There is non-compliance with the implementation of a national policy or a clear strategic plan for scientific research and lack of cooperation and coordination among universities as well as lack of exchange of information, experiences, publications and co-research. This explains the disconnection between scientific research and national sustainable development plans and ignoring quality and innovation in promotion requirements at some universities. However the requirements are based rather on spending a specific period of time and submitting specific number of scientific research (Yaqout, 2007).

If to say that the fragility of university education systems in general due to its novelty where most universities have been established in the last quarter of the 20th century and at the beginning of the 21st century, this excuse is not acceptable because the education system has no connection to the date of establishment of any university, but to the policy of education. The unemployment of research results in economic projects due to weak links between research institutes and production sectors (Lamine, 2010).

Even to say that the low quality of education is due to the inflation of student number and limited number of available staff members and lack of specialized centers for scientific research or lack of interaction with team work also is not accepted (Bamyeh, 2015).

Third Problem: Brain Drain from the Arab Universities

The brain drain from developing countries from the Arab countries reaches 31% of the total, 50% of them are doctors and 32% are engineers where 15% of Arab talents went to Europe, America and Canada. Physicians who are working in the UK are Arabs and Muslims take 34% of total. In the same time 75% of the total scientific talent migration in Canada, USA and Britain are Arabs and Muslims (Albargouty and Abosamrah, 2007.) So, how to convince 54% of Arab students who study abroad to return to their home countries?

Through looking at various reasons of brain immigration in Arab countries we find (Hassan, 2008):

1. Political instability even before the Arab Spring revolutions.
2. Social Injustice in all sectors including low salaries.

3. Absence of appropriate environment to conduct research in universities and special institutions due to the lack of expenditure and mal education system.
4. Lack of research facilities and low quality research standards.
5. Lack of freedoms, work motivations and incentives (Al-Rashdan, 2009).

Fourth: Other Problems Facing Arab Higher Education

Indeed, the Arab world suffers from a set of problems that comprise a full-blown crisis in higher education:

1. The lack of a clear strategy for higher education Arab universities due to the lack of social philosophy on which to build a realistic and coherent educational philosophy (Lamine, 2010).
2. The negative impacted on the Arab university because of people whom are appointed by governments' officials who generally seek to serve those officials rather than to go as scientific and educational staffs.
3. The weak relations between different universities within the same country and lack of cooperation between universities in different Arab despite the big number of agreements and MOUs are made between Arab universities with no use on ground. Instead, most Arab universities prefer collaboration with foreign universities over other Arab schools.
4. The lake in creativity in the higher education system in the Arab universities which adopt traditional education based on rote memorization of material without enabling students to be innovative and mix scientific knowledge with practical application. Students are not encouraged to take a critical, analytical approach towards numerous problems in society, creating a spirit of student submissiveness and fear to voice their opinion (Bamyeh, 2015).
5. Most of the Arab universities face the poor integration across the university programs, since the university curricula do not comprise any sort of homogeneous unit.
6. The Arab universities regularly face shortcomings in the general technical, legal and institutional framework, and resort to using "Band-Aid" solutions instead of pursuing comprehensive reform.
7. The absence of a link and preparation between pre-university and university education creates a variety of issues for both universities and students. Since the university curriculum does not take into consideration what the students have already learned over the years, most of the scientific and epistemological components are new to students and are difficult to connect to what they have already learned (Idris, et, 2010).
8. Most of researchers conducted are not for the science reason but for promotion of teachers and universities rank or compulsory work must be done with any means

Conclusions

We conclude that there are main problems which affect directly the field of scientific research in the Arab world. There is a great dilemma on the real reason of the low level of scientific research in the Arab Universities. All obstacles are related to each other. They go in a continuous chain; political factors affect economy, economy factor affects society, societal factors affect psychological factors and so on. No cause can be blamed alone, neither no sector whether if it is the public or private that runs the higher education institutions.

The topic of higher education in the Arab world has become a vital issue and reform is an urgent need and cannot be delayed. Since higher education faces numerous challenges, its current, predominant situation is not promising. The Arab world holds vast capabilities and material and human wealth that present it incredible opportunity. The native humanitarian and cultural values of the Arab world must start this reform and respond to what globalization has imposed upon it.

The solution is not a magical one for a particular problem. The situation is highly sophisticated. It is no doubt that the development of the Arab educational system as a whole starting from the pr-university period and the university period will affect positively the scientific research outcomes. Investment in scientific research and developing it is an important key solution to achieve a real shift from negativity to positivity.

Recommendations

Although the scientific and social research is very week in the Arab World, it can be strengthening, developed and encouraged. This thing depends on the cooperation between the Arabs themselves especially in universities through serious well planned and controlled programs for scientific research reform to solve the research problems. The recommendation root solutions and make changes in depth and core of the issue.

1. Democratizing Education

This means subjecting the educational process across its different levels and institutions to democratic standards. New values and principles must be found such as freedom, equal rights, accountability, transparency, freedom of expression, self-criticism, competence for public offices, etc. Application of such values and principles in the field of higher education requires that the universities must be free of the governments' hegemonic grip over higher education in order to ensure the spread of academic freedoms and the values of scholarly innovation. Placing education as a whole into the hands of the people, institutions would be guaranteed balanced, mass participation to put their policies and decision-making processes into place.

The interests of professors and students must be represented through electoral mechanisms and the founding of unions and associations. Create a framework of balanced, democratic oversight in which diverse groups, including the state, the private sector, civil society institutions and academic organizations and personnel, takes part. Such participation in managing and supervising university affairs paves the way for close cooperation between all of these groups. This is also related to the necessity of forming boards of managers to run the universities, made up of independent figures not loyal to certain forces in society.

Building up teachers' abilities and confidence, to ensure they hold the necessary knowledge to impart onto students. Their research should be encouraged and they should not be forced to adhere to strict, predetermined curricula that limit their flexibility.

2. Greater University Autonomy

Let the universities be free by self ruling. The big problem of government universities is that they leave their responsibility to government. The state should encourage this through specific incentives and exemptions, or impose fees on private corporations to support education and research in its foundations, corporations and business enterprises. The involvement of private sector's interest to have skilled graduates in various specializations take part in developing their industries, businesses and all other activities. Also, the establishment of private universities, not aiming for profit alone, should be encouraged, as well as expanding open universities and distance learning.

3. Linking Higher Education with Sustainable Development

The main goal of universities is to serve societies through the outcomes of graduates and the scientific research. When the development of societies is connected comprehensively to universities, the benefits will be seen. The ability to find solutions for scientific and social problem through specialists in higher education institutions helps to achieve the sustainable development far away from personal opinions and floundering in decision making. Development is related not only to economic resources, but also to human development, for which the foundation is education and gaining knowledge. Linking higher education to development requires brave steps to providing the flexibility and capability to confront new needs; fulfill society's demands and the constantly changing needs of labor. Also, it is a need to open up the universities to society and to the regional and international environment to develop dialogue skills, collective work, and understanding society's problems in order to solve them.

4. Regional and Global Cooperation

Although the Arabs are divided into 22 states, they are considered one nation. So, working on establishing various kinds of links and cooperation in the fields of scientific field is very essential regionally and globally. The higher education institutions in the Arab world can participate in guiding each other with their experiences. If they stand together, their cooperation could create positive results for higher education.

As a result of globalization the world has now become a global village. Interdependence influence in the political, cultural, economic and intellectual spheres imposes a type of exchange that enables higher education institutions to benefit positively from extraordinary progress in science and technology.

The Arab World has the means to do so through special organizations established for that purpose and other purposes such as the Association of Arab Universities (AAU).

5. More Expenditure on Universities and Scientific Research

Governments must put plans to increase the expenditure on universities and scientific research in order to create a very suitable educational environment. This will lead to provide infrastructure and increase the attitudes toward conducting researches. Also, this step will decrease the brain drainage towards the Western countries.

6. Applying Comprehensive Quality Standards in Higher Education

As a final step toward developing the Arab scientific research, applying comprehensive quality standards must be followed. In education, comprehensive quality is used to mean adherence to a set of special characteristics that precisely express the essence of the educational process in all of its dimensions. This is especially successful with regards to inputs, processes, outputs and feedback, and includes all of the interactions that lead to realizing the necessary objectives for society.

Achieving this goal can be done by programs that develop academic, technical and administrative employees quantitatively and qualitatively to modernize their skills during on-the-job training sessions or by sending them abroad on training and educational fellowships. Provide academic and technical resources and prepare means of observing the institution's needs for all types of resources, so that it can continue in a regular and effective way. Provide the infrastructure and equipment that can allow the educational institutions to meet academic needs, including buildings, classrooms, labs, libraries, public services and other necessities.

Also, the Arab world has a special establishment for this purpose which is the Arab Organization for Quality Assurance in Education (AROQA). It is an international non-profit independent association established in July 2007 with the fundamental objective of raising the quality of education in the Arab world.

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