

**Scientific Research Current Status from Undergraduate Students'  
Perspective in Mu'tah and Irbid Universities in Jordan**

واقع البحث العلمي من وجهة نظر طلبة البكالوريوس في جامعتي مؤتة و إربد في الأردن

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**Abstract**

The study aimed at investigating scientific research current status from undergraduate students' perspective in Mu'tah and Irbid universities in Jordan and its relationship with some variables. The instrument was a questionnaire of (38) items distributed into two dimensions. The first dimension was utilizing scientific research in educational institutions and research centers while the second was students' practice for scientific research. The psychometric features were verified. The sample was (438) male and female students from the Faculty of Educational Sciences and Business Faculty in the aforementioned universities. The results revealed that the two dimensions' means were of medium degrees (2.85) for the first dimension and (3.00) for the second dimension. They also pointed out statistically significant means differences at ( $0.05 \geq \alpha$ ) in the current status of scientific research from undergraduate students' perspective in the two universities attributed to the variables of faculty in favor of Business Faculty, the General Secondary Exam in favor of the scientific stream and the university cumulative grade average in favor of excellent, very good and good. The study recommended utilizing scientific research in university course plans. (179)

**Key words:** scientific research, Mu'tah University, Irbid University, students, undergraduate

### ملخص

هدفت هذه الدراسة إلى التعرف إلى واقع البحث العلمي في جامعتي مؤتة، وإربد في الأردن من وجهة نظر طلبة البكالوريوس فيهما، وعلاقتها ببعض المتغيرات، استخدم في الدراسة استبانة تضمنت (٣٦) فقرة توزعت على مجالين هما: توظيف البحث العلمي في المؤسسات التعليمية والمراكز البحثية، وممارسات الطلبة في البحث العلمي، وقد تم التحقق من خصائصها السيكومترية، ثم تطبيقها على عينة مكونة من (٤٣٨) طالباً وطالبة من كليتي العلوم التربوية، وإدارة الأعمال في الجامعتين المذكورتين، بينت النتائج أن درجة مجالي الدراسة جاءت بدرجة متوسطة، (٢.٨٥) للمجال الأول، و(٣.٠٠) للمجال الثاني، وأظهرت النتائج فروقاً ذات دلالة إحصائية عند  $(0.05 \geq \alpha)$  في واقع البحث العلمي في الجامعتين، من وجهة نظر الطلبة تعزى إلى متغيرات: الكلية، ولصالح كلية إدارة الأعمال، وفرع الشهادة الثانوية ولصالح الفرع العلمي، والمعدل التراكمي: ممتاز، وجيد جداً، وجيد من جهة والمقبول من جهة أخرى ولصالح الممتاز والجيد جداً والجيد. كان من أبرز توصيات الدراسة ضرورة الاهتمام بتوظيف البحث العلمي في خطط المساقات الدراسية (١٥٤).

**الكلمات المفتاحية:** البحث العلمي، جامعة مؤتة، جامعة إربد، الطلبة، البكالوريوس .

### Introduction

Scientific research plays a paramount role in nations' prosperity. Various countries allocate large budgets for research which is supposed to reflect positively on industry, commerce, sciences and all other aspects of life. This generates development and prosperity for the society and its individuals. In other words, scientific research is considered the mobilizing agent for all societal sectors: political, economic, military and others. It is agreed that any country which does not give scientific research the proper status it deserves is considered out of date. Scientific research is also considered a national prerequisite for its importance in transforming and transferring technology process to be locally produced at later stages.

Scientific research in general is an attempt to specify the truth in a methodological way. It is an activity that aims at producing scientific knowledge (Knut, 1996), According to Mak Ashan cited in Ashour and Omari (2003, (عاشور والعمري), it is "a comprehensive, critical and precise

exploration that aims at acquiring new characteristics that help in testing a new proposition or revising results that are taken for granted". Research is also usually divided into two types: knowledge-oriented and product-oriented. While the first aims at deriving basics of knowledge such as theories, principles and so on, the second type aims at applying these theories and principles as well as what is related to them in the various dimensions.

World War I had great effects in pushing scientific research ahead. Lagging needs caused the development and innovation of advanced methods in war and armies. As a result, Scientific Research and Industry League was established in Britain in 1915. The National Council for research was established also in USA in 1916. It was responsible for coordinating scientific research to come up with inventions that help in the war at that time and in the future (السبرغوثي و أبو سمرة، 2007). Interest in scientific research increased after World War II due to several factors such as the wide spread Culture of Research concept, development of university roles, technological advancements and use of scientific methodology in social sciences and their development that the world witnessed after that war (ديراني، 1997).

Advanced developed countries currently compete in allocating large sums of money in their budgets for scientific research purposes as they consider scientific research a high-profit investment. These allocations in the developing countries including the Arab world are little. Statistics reveal that the world spends (746) Billion dollars on scientific research while the Arab World spends only (1,1) Billion dollars annually. In light of literature, the Arab world spends (2%) of world total expenditure on scientific research though the population in the Arab World is (4,5%) of world population who live on (10,2%) of the earth size (بدران، 2003، pp. 27-29.)

Kanou, Ibraheem and Al Oss (2005، العيص، و إبراهيم، و قنوع) indicate that interest in scientific research and knowing the degree of its progression or encroachment is measured by a number of criteria including number of researchers who work in research and development field in comparison to population number, number of research studies,

productivity of researchers in comparison with their percentage, quality of conducted research, motivation behind carrying out research, their real purposes, allocated amounts of money for scientific research, percentage of public sector contribution in supporting scientific research in addition to the status of the researchers' scientific, physical and psychological conditions.

Scientific research is related to universities since their beginnings. The three major roles of universities are education, adding new knowledge through scientific research and serving society as well as humanity. The aim of the first and second roles is graduating qualified trained human resources to meet the needs of job market, development and growth through enriching knowledge, applying its results and providing the best options to solve societal problems. The third role aims at providing various academic, educational and cultural services for the local community in specific and humanity in general (Haddadin, 2003).

Benefits of scientific research at universities might be summed up in achieving excellence in education, promoting competitiveness and enriching the basic need for more knowledge. Universities also play a major role in internal development since they train post graduate students and prepare new generations of teaching staff members (Herbst, 2004). However, these roles and benefits for scientific research might not be fruitful in light of many problems that researchers at universities suffer from including lack of financial and psychological support for research projects, inadequacy of qualified research assistants' numbers, involvement of teaching staff members in administrative duties as well as indulgence in teaching and its worries (Al-Furaih & Al-Shayji, 2005).

Due to the importance of scientific research studies in changing the realities of many sectors and societies in general, it is hoped that stakeholders, universities and research centers promote it through striving to put policies or strategies to support and develop scientific research. Predominant researchers should be involved in formulating these while taking into consideration independence factor which is considered a prerequisite condition for any distinguished research institution. In addition, providing the suitable environment for prestigious scientific

research and putting forward intelligent laws that contribute in encouraging the private sector to participate and sponsor scientific research and expansion in finding qualified and experienced human resources in scientific research in cooperation with local, Arab and international research centers as well as benefiting from experienced people by hosting them in universities and schools to talk about their experiences (2009، غصيب). Haddad (١٩٩٨، حداد) adds that some of the ways that might maximize and enrich scientific research are setting research priorities, encouraging team research, promoting researchers' skills, making available an adequate budget for scientific research and establishing information networks.

Interest in scientific research in Jordan is not related to the present only. It is also related to the His Majestic royal will in 1962 which clarified that the most important aim for establishing University of Jordan, first established university in the country, was fulfilling the demands of service and development fields whether specialists in arts and sciences to contribute in the social, economic and cultural aspects of life or keep in line with humanity in the dimensions of thinking, culture, creativity and production , practice the basics of scientific research and methodology and utilize the gist of their knowledge, research results and innovations in building their country, serving their Arab nation as well as humanity (البخيت، وآخرون، ١٩٩٧، ص١).

Since undergraduate study is the first stage in Higher education, some researchers highlight the necessity of taking care of scientific research during this stage. Work report of scientific research society Sigma Xi (2000) concerning the status of scientific research at Texas A&M in TAMU College regarding the specific objectives of improving undergraduate students' participation in scientific research reported that research is an integral part of any flagship university especially those that want to be in the top ten excellent ones. They also report that undergraduate students' research must receive significant interest and care by the faculty and its administration besides being a basic part of the 2020 university vision. Elsen, et al. (2009) from Laden University in Lahay- Holland point out that consolidating the relationship between

research and instruction at university stage especially among scientific research policies and their degree of practice can be formed into two dimensions where the first is concerned with focus on research content and results or its processes and problems while the other dimension emphasizes students' roles as participants in research or as practitioners themselves. They also confirm that if a university wants to reinforce the relationship between research and instruction in undergraduate curriculum, then it has to pay more attention to students' roles at this stage as participants in research.

### **Study problem and questions**

Scientific research is the source of advanced countries strength and the deriving force for all aspects in society (economic, military, political, educational, social and cultural). It is also difficult or even impossible for any country to ignore scientific research in the twenty first century. In addition, countries means in this regard is universities which play a dual role represented in forming the elite for all aspects of life while the other role is forming researchers who are interested in scientific research issues. Based on these, the present study problem is to investigate the current status of scientific research in Mu'tah and Irbid universities from students' perspectives. In specific, the study attempts to answer the following questions:

**First:** What is the status of scientific research among undergraduate students in Mu'tah and Irbid universities from their perspectives?

**Second:** Are there statistically significant differences at ( $\alpha \geq 0.05$ ) in scientific research status in Mu'tah and Irbid universities attributed to the variables of sex, faculty, cumulative university grade average and the General Second Secondary Exam (Tawjihi).

### **Study aims and importance**

The study aims at specifying the status of scientific research from undergraduate students' perspectives in Mu'tah and Irbid universities and the degree of difference in this status according to certain variables. The study importance emanates from its contribution in uncovering the status

of scientific research in Jordanian universities. Up to researchers' knowledge, this study is one of the few studies that explore the status of scientific research in universities from their undergraduate students' perspectives. These students represent the first level of higher education. Moreover, the results of this study can be beneficial for educational planners, policy makers and takers in the Ministry of Higher Education, university presidents as well as Deans and Department Heads at faculties. It is hoped that this study might insinuate and urge some researchers to pay more attention to study educational research among undergraduate and postgraduate students as they are the future researchers.

### **Procedural definitions**

The study includes a number of basic terms that are defined as follows:

- **Scientific research status:** degree of utilizing scientific research and practices in Mu'tah and Irbid National universities from the perspective of its undergraduate students. It is measured by the score that the student attains in every dimension of the questionnaire.
- **Mu'tah and Irbid Universities:** These are two universities in the Hashemite Kingdom of Jordan. Mu'tah University is a public university located in South of Jordan while Irbid University which is located in north of Jordan is a private one. The sample was chosen from the Faculty of Educational Sciences and Business Faculty in these universities.
- **Undergraduate students:** Students of the last year at university who are about to graduate from Educational Sciences faculty or Business Administration faculty in Mu'tah and Irbid National universities.
- **Utilizing scientific research in educational institutions and research centers:** Having the knowledge and awareness of scientific research importance, dimensions and applications.

- **Students' practices in scientific research:** tasks and duties that the student at universities carry out and that are related to scientific research skills

### **Study limitations**

The study is limited to the following:

1. **Study sample:** the study was confined to last year students in undergraduate stage during the academic year 2009-2010 at Educational Sciences faculties and Business Administration faculties in Mu'tah University and Irbid University who studied "Research Methodology" course.
2. **Study instrument:** a questionnaire that was prepared by the researchers was used to assess the current status of scientific research in Mu'tah and Irbid universities from the perspective of its undergraduate students. Validity and reliability tests were conducted. The instrument was confined to two dimensions that are: utilizing scientific research in educational institutions and research centers while the second was students' practices in scientific research.

### **Previous studies**

Countries are concerned in scientific research issue. Researchers have been active in studying the various aspects of this issue. Following is a display of the most prominent studies that the researchers could obtain which are close in some of their aspects to the current study as the researchers could not find any similar study to the present one:

In a study carried out by Bin Tareef (2009، بن طريف) titled "Scientific Research in Jordanian Higher Education Institutions: An Evaluation of the Status and Obstacles" that aimed at defining the current status and obstacles of scientific research in these institutions from Scientific Research Deans' and their Deputies perspectives. He attempted to draw the attention of teaching staff members, researchers and educational leaders to the necessity of improving scientific research plans and strategies. Results indicated a low percent of scientific research in these institutions due to low financial support and misuse of the available



financial resources in addition to low motivation of researchers towards scientific research, weakness of research strategic plans, decreasing economic status of university staff as well as the low support percentage for scientific research. Results showed a crucial core issue that affects research productivity due to ignoring scientific research ethics due to weakness of in monitoring the procedures of scientific research which encourages some to commit plagiarism.

Zubova, Andreeva and Antropova (2009) conducted a study titled "Graduating College Students' Orientations toward Scientific Research Activity " to explore the opinions of Russian students about their desire in conducting and practicing scientific research activities after finishing their university study. More than half of the sample which was surveyed who would like to continue their study or plan to combine between continuing study and work, reported that they like to work in scientific research activities in comparison with those who wanted to be involved in other work activities.

Pečiuliauskienė (2009) studied " Teachers' Competence in Research and Conducting Research Activity: The Comparative Aspect" to specify the attitudes of Vilnius university in Lithuania towards research activity within teaching practice in comprehensive schools. Two directions in research activities were distinguished. One is directly related to scientific research while the other is related to effects of educational practice. Teachers were allowed to conduct scientific research through their participation in investigating and supporting inquiry-based projects at the national level as well as carrying out specialized career studies to get a scientific degree. Teachers' research activities are revealed in the practices that reflect teaching experience and expanding them by making use of innovative teaching techniques. Data revealed that teachers' pre-service research activities show a reflective character. However, within their teaching practices, these teachers participate in several scientific research activities; supervise research projects that students in the comprehensive school carry out. The percentage of these teachers is four fifths of the respondents who participate in educational research. Students' good skills in research elaborated their ability to plan

implement and write research reports. However, one third of them indicated that they have never published the results of their research studies. Comparing the attitudes of the respondents toward research competencies and implementing its methodology showed statistically significant differences in all the cases. This difference is attributed to the fact that students in all cases of comparison assessed their abilities in practicing research more positively than just doing an educational research activity.

Musleh and Nada (2007) *مصلح و ندى* studied the status of scientific research in Al Quds Open University in North Palestine through investigating the extent of Al Quds Open University contribution in scientific research among academic supervisors, specifying availability level of resources and references, defining research productivity level of academic supervisors and concluding the motives that support the orientations of academic supervisor in Al Quds Open University towards scientific research as well as the obstacles that hinder them. The sample of the study was 57 male and female supervisors. A questionnaire of (66) items was used to answer the study questions. Data was collected and statistically analyzed to obtain the extent of Al Quds Open University contribution in scientific research among academic supervisors which was high. Availability level of resources and references was medium, research productivity level of academic supervisors was low and discussed the motives that support the attitudes of academic supervisor in Al Quds Open University towards scientific research as well as the obstacles that hinder them.

Al Qahtani (2002) *القطاني* explored the status of sponsoring scientific research at universities and methods of developing governmental and non governmental financial resources for scientific research there and their relationships to some variables. A questionnaire was designed and distributed among (133) Saudi working male teaching staff members who are responsible for scientific research in Saudi universities during the academic year 1421-1422. Results of the study revealed the weakness of private sector contribution in financing scientific research, weakness of financial allocations for scientific research, weakness in the beliefs of

society sectors in scientific research, weakness of the available resources for scientific research and lack of exchanged information between research centers and society centers.

Jaradat (2002) جرادات، examined the current status of scientific research in public Jordanian universities and its future expectations during the first quarter of the twenty first century. The sample was (438) teaching staff members from Jordan University, Yarmouk University and Mu'tah University. Results showed that the degree of implementing the duties of scientific research task was acceptable in most duties above the supposed means (3) and percentage weight (60).

Lal (2000) لال conducted a study titled "Role of Scientific Research in Higher Education Institutions from Teaching Staff Perspectives in Saudi Universities" to scrutinize this role and its relationship to some variables. The researcher used a questionnaire that was applied on (160) teaching staff members who were chosen from some Saudi Universities through the Stratified Random Sample. Results revealed statistically significant differences for the effect of sex, academic rank, academic specialization variables. Results also revealed the effect of interaction between sex and academic rank while no statistically significant differences for the effect of interaction among academic rank and academic specialization.

One notices from previous studies that they were interested in a number of scientific research aspects where some studied university role and contribution in scientific research such as Musleh and Nada (2007) ، مصلىح و ندى، some studied obstacles and problems of scientific research such as Bin Tareef (2009), some focused on sponsoring and financing scientific research such as Al Qahtani (2002) القحطاني. As for the target groups, some studied Deans and Heads of Scientific Research departments such as Bin Tareef (2009), some studied the academic supervisors at universities such as Musleh and Nada (2007) ، مصلىح و ندى، while others scrutinized teaching staff members such as Al Qahtani 2002 القحطاني ; Jaradat, 2002 جرادات and Lal, 2000 لال ). Other studies explored university students such as (Zubova et al., 2009 and Pečiuliauskienė, 2009).

The present study is distinguished by handling the current status of scientific research status in Mu'tah and Irbid universities from undergraduate students who did not finish their university study yet from their perspective through focusing on two dimensions; utilizing scientific research in educational institutions and research centers while the second was students' practices in scientific research. Up to researchers' knowledge, no study dealt with this issue.

### **Study population**

Population of the study consisted all last year of undergraduate B.A. degree in Educational Sciences and Business Administration faculties in both Mu'tah University and Irbid University. Their number according to university registration departments in 2009-2010 was (174) male and female students at Irbid University and (550) male and female students at Mu'tah University

### **Study sample**

Due to the small number of students in the population of Irbid University, the questionnaire was distributed among all the study population which was (174) male and female students at educational Sciences and Business Administration faculties there. The filled questionnaires were (138) ones which constitutes (79.3%). The study sample at Mu'tah University was a randomly stratified one consisting (300) male and female students from Educational Sciences and Business Administration faculties. They constitute (55%) of the study population. The distribution of the sample took into consideration the sex (male and female), General Secondary stream (Scientific, Literary and Information Technology) the faculty (Educational Sciences and Business Administration) the cumulative average at university.

**Table (1):** Distribution of study sample according to its variables.

Variable	Variable level	Number	Percentage	Total
Sex	Male	147	33.6	438
	Female	291	66.4	
General Secondary Stream	Scientific	120	27.4	438
	Literary	216	49.3	
	Information Technology	102	23.3	
Faculty	Educational Sciences	226	51.6	438
	Business Administration	212	48.4	
Cumulative Average at University	Excellent	36	8.2	438
	Very good	166	37.9	
	Good	187	42.7	
	Weak	49	11.2	

### Study instrument

To answer the questions of the study, the researchers designed a questionnaire based on their previous experiences as well as literature in this regard. The questionnaire included (36) items that were distributed into two dimensions: utilizing scientific research in educational institutions and research centers while the second dimension was students' practice for scientific research. Designing the questionnaire and verifying its validity and reliability passed through several steps as follows:

In addition to researchers' previous experiences, they resorted to previous literature concerning the studied topic such as (Musleh and Nada, 2007 عبيدات و مصلىح و ندى and Ubeidat, Adas and Abd Al Haq, 1996 عبيدات و اداس و عبد الحق). The questionnaire was then revised by a jury of Judges comprising 8 university staff members at Mu'tah University and the Faculty of Educational Sciences and Arts -UNRWA to verify the accuracy of form, clarity of items and suitability for the study purposes.

The questionnaire in its draft form included (81) items that were modified in terms of form, language and content based on the recommendations and suggestions of the referees. Details of the final version of the questionnaire is illustrated in Table (2) below

**Table (2):** Questionnaire dimensions of scientific research status and no. of items that represent each

No.	Dimension	No. of items	Serial no. of item
1	utilizing scientific research in educational institutions and research centers	21	1- 21
2	students' practice for scientific research scientific research	15	22-36
	<i>Total</i>	<i>36</i>	<i>1-36</i>

Responses on questionnaire items were according to Likert Scale of 5 steps as follows: Very high (5), High (4), Medium (3), low (2) and very low (1). The cut score was calculated in a judgmental way based on the judges' suggestions who confirmed the possibility of considering the degree of having the research skill fall into three categories according to the mean of each domain. Based on this, the values of means that the study came up with, were handled based on the following criterion accredited by the judges:

$\frac{\text{Maximum limit} - \text{minimum limit}}{3} = \frac{5 - 1}{3} = 1.33$		
High	Medium	Low
More than 3.66	More or equals 2.33 and less or equals 3.66	Less than 2.33

### **Instrument reliability**

After finishing building the questionnaire and validating it, it was administered on a sample of (30) male and female students at Mu'tah

University from outside the study sample. Instrument reliability was confirmed using Alpha Cronbach Test for Internal Consistency for the instrument as a whole and for its two dimensions. Table (3) reveals the results:

**Table (3):** Reliability test results.

<b>Dimension</b>	<b>Alpha <math>\alpha</math></b>
utilizing scientific research in educational institutions and research centers	0.86
students' practice for scientific research	0.84
<b>Total</b>	<b>0.89</b>

Table (3) reveals that reliability coefficient for the questionnaire as a whole is (0.89). Alpha Cronbach on the two dimensions was (0.86) and (0.84) successively which are considered acceptable for the purposes of the present study.

### **Study variables**

The study includes a main variable which is scientific research current status from undergraduate students' perspective in Mu'tah and Irbid universities. The Secondary variables are the following:

- Sex: has two levels; male and female
- General Secondary stream: has three levels: Scientific, Literary and Information Technology streams
- The Faculty: has two levels; Educational Sciences faculty and Business Administration faculty
- Cumulative average at university: has four levels; Excellent, Very good, Good and Acceptable.

### **Statistical analysis**

To answer the first question concerning the degree of students' approval on the status of scientific research, means and standard deviations for their marks on each item of the questionnaire and on every

dimension were calculated and compared with the predefined criteria (cut of score).

To answer the second question MANOVA test to compare students' responses according to study variables was used.

### Study results and discussion

**First research question:** What is the status of scientific research among undergraduate students in Mu'tah and Irbid universities from their perspectives?

To answer the first question concerning the degree of students' approval on the status of scientific research, means and standard deviations for their marks on each item of the questionnaire and on every dimension were calculated and compared with the predefined criteria (cut of score). Table (4) and (5) show the results:

#### A: Utilizing scientific research in educational institutions and research centers

Table (4) reveals the results in this dimension

**Table (4):** Means and standard deviations for the items of utilizing scientific research in educational institutions and research centers dimension.

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
20	Scientific research at institutions and research centers contributes in solving many realistic problems that face our society	3.12	1.11	Medium	1
8	Referring back to studies and research is a requirement of study courses	3.11	2.19	Medium	2
12	My instructors support their views during lectures with research and study results	3.02	1.10	Medium	3



*... continue table (4)*

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
21	Scientific research status suits the available human and physical resources	2.99	1.05	Medium	4
1	Teaching methods that we encounter during various educational stages contribute to developing scientific research within us	2.97	.98	Medium	5
19	The country values distinguished researchers and supports them	2.95	1.22	Medium	6
18	The status of scientific research meets the needs of modernization and development	2.94	1.10	Medium	7
7	Curricula work towards encouraging us to practice scientific research	2.93	1.06	Medium	7
6	Our educational system concentrates on providing and promoting students' research skills	2.89	1.01	Medium	9
11	Our university holds training workshops concerning scientific research that help in facilitating conducting research in post graduate studies	2.88	1.20	Medium	10
2	Teaching staff at university consider training us on research as one of their priorities	2.85	1.00	Medium	10

... continue table (4)

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
16	The university is interested in implanting scientific research traditions to prepare distinguished researchers in the future	2.85	1.10	Medium	12
4	My faculty adopts transfer of knowledge through research as a method instead of producing it through teaching	2.83	1.03	Medium	12
5	Research Methodology course that we take at university contributes in qualifying us as scientific researchers	2.80	1.02	Medium	14
9	Specific marks are allocated for scientific research in course study plans in my faculty	2.80	1.21	Medium	15
3	Activities of scientific research are activated within university courses in a good way	2.77	.97	Medium	16
15	Scientific Research unit in the faculty contributes in encouraging holding scientific research	2.69	1.13	Medium	17
10	Instructors follow up and evaluate the research studies that we write	2.67	1.23	Medium	18
14	We participate with our instructors in scientific research procedures	2.64	1.25	Medium	19

*... continue table (4)*

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
17	Our university instructors train us on conducting group scientific research	2.61	1.16	Medium	20
13	Teaching staff encourage us to write and conduct scientific research	2.61	1.08	Medium	20
		2.85	0.60	Medium	

It is obvious from table (4) that dimension items of utilizing scientific research in educational institutions and research centers were all of a medium degree as well as the total of the whole dimension. This result indicates that scientific research status in Jordanian university is not clearly strong and it is not weak as well which means that a little planned and followed up effort from decision makers and those who are concerned with the issue in the presence of incentives might promote this status and push it further in the right direction. Analyzing the results in table (4) shows that item (20) in the questionnaire "Scientific research at institutions and research centers contributes in solving many realistic problems that face our society" was the highest item. Its means was (3.12) and its standard deviation was (1.11). This might be attributed to the high estimates of students for the importance of scientific research in solving societal problems. Item (8) "Referring back to studies and research is a requirement of study courses" came in the second rank. Its means was (3.11) and its standard deviation was (2.19). This might be attributed to students' awareness that utilizing scientific research is one of the requirements in distributing course marks at universities. Items (13) and (17) " Teaching staff encourage us to write and conduct scientific research" then " Our university instructors train us on conducting (participatory) group scientific research" were the lowest from students' perspectives with a similar means (2.16) and a standard deviation of (1.16) then (1.08) successively. This might be attributed to the reason of disinterest of teaching staff in utilizing scientific research which is a

course requirement in course plans. This means that teaching staff members plan for scientific research in the courses but do not care for the real application as planned whether in individual research or participatory group one. They are not interested in involving students in teaching staff research studies as a type of training or even in following them up in the research they write -if available- as the questionnaire last five items in the first dimension indicated which their means came last. This indicates the weakness of scientific research strategic plans especially in practical implementation and follow up. This might be due to the large load of duties that the teaching staff has to do including teaching, preparing and correcting exams, administrative work as well as lack of university budgets allocated for supporting teaching staff scientific research. If this is the conditions of the teaching staff then what about the case of students?! Results of this dimension might contradict in certain aspects regarding encouraging carrying out scientific research with Musleh and Nada (2007) study which stated the degree of Al Quds Open University contribution in academic supervisors' scientific research which was high. However, results of the present study are in line with Bin Tareef (2009) who reported the weakness of scientific research strategic plans.

### **B: Students' practice for scientific research**

Table (5) reveals the results in this dimension

**Table (5):** Means and standard deviations for the items students' scientific research practices dimension.

<b>Item no.</b>	<b>Item</b>	<b>Means</b>	<b>St. Dev.</b>	<b>Approval Degree</b>	<b>Rank</b>
27	When responding to questionnaires, I answer objectively and precisely	3.35	1.46	Medium	1
23	I like to respond to various research questionnaires and tools	3.17	1.30	Medium	2
26	I am able to distinguish between reports and scientific research papers	3.17	1.17	Medium	2

*... continue table (5)*

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
25	I prefer practical scientific research rather than theoretical ones	3.16	1.28	Medium	4
22	I prefer writing scientific research on periodic tests as an evaluation method	3.10	1.26	Medium	5
30	I can judge the quality of any research through studied criteria	3.03	.93	Medium	6
35	I carried out some simple researches during my study before university	3.01	1.22	Medium	7
36	I am aware of scientific research status in my country in comparison with advanced countries in this dimension	3.00	1.15	Medium	8
29	I expect to finish my higher education having quality skills in writing scientific research papers	2.98	1.08	Medium	9
28	I know the principles and ethics of successful scientific research	2.93	1.08	Medium	10
24	I follow up results of scientific research and studies concerning my study courses	2.92	1.16	Medium	11
31	I follow up scientific research results through various resources	2.88	1.07	Medium	12

... continue table (5)

Item no.	Item	Means	St. Dev.	Approval Degree	Rank
32	I can analyze the results of quantitative research	2.79	1.04	Medium	13
34	I follow up what research institutions publish in Jordan	2.62	1.12	Medium	14
33	I am asked to write a research in every study course	2.45	1.20	Medium	15
		<b>3.00</b>	<b>0.62</b>	<b>Medium</b>	

Table (5) shows that dimension items of students' scientific research practices were all medium as well as the total mark of the whole dimension. This means that students' scientific research practices were not clearly strong or clearly weak. This result contradicts with Pečiuliauskienė (2008) who indicated that pre-service teachers i.e. undergraduate students who did not graduate yet practice and participate in scientific research and that they have adequate competencies in planning carrying out and reporting on research. They also assess their abilities to practice research more positively. Item (27) in the questionnaire "When responding to questionnaires, I answer objectively and precisely" was the highest among the medium approval. Its means was (3.35) and its standard deviation was (1.46). This might be the result of motivation and real desire of the students to participate in scientific research through responding objectively and precisely on questionnaires' items that they are asked to fill. This result is reinforced by students' responses on item (23) "I like to respond to various research questionnaires and tools" where their preference for participation was clear and obvious. This might be due to their awareness of scientific research importance and effectiveness in reality. This result is in line with Zubova, Andreeva and Antropova (2009) where more than half their sample reported that they like to work in scientific research activity. The current study contradicts with Bin Tareef (2009) that indicated a low motivation of researchers towards scientific research. The lowest item from students' perspective was item (33) "I am asked to write a research

in every study course" Its means was (2.45) and its standard deviation was (1.20). This corresponds with the result of table (4) where students viewed their instructors as non encouraging them to write research and do not train them too though many universities state in their aims" developing students' scientific research skills and preparing them for post graduate studies". This might be attributed to the large gap between theory and practice in scientific research where students are instructed on how to carry out scientific research theoretically in Scientific Research course without having the opportunity to try it out in reality. This also might be the result, as mentioned in discussion of the first dimension, to the various responsibilities and duties that the teaching staff has to carry out which hinder their follow up of students' scientific research

**Second research question:** Are there statistically significant differences at ( $\alpha \geq 0.05$ ) in scientific research status in Mu'tah and Irbid universities attributed to the variables of sex, faculty, cumulative university grade average and the General Secondary Exam (Tawjihi)?

To answer this question MANOVA test was used to study the effect of every variable separately. Following are the results:

### 1. Sex variable

Table (6) shows the means and standard deviations regarding sex variable.

**Table (6):** Means and standard deviations regarding the effect of sex variable on scientific research status.

Dimension	Sex	Means	Standard Deviation
utilizing scientific research in educational institutions and research centers	Male	2.77	0.64
	Female	2.89	0.57
	Total	2.85	0.60
students' practice for scientific research	Male	2.92	0.68
	Female	3.04	0.58
	Total	3.00	0.62

Table (6) indicates superficial differences in the means of sex variable. To check if these differences are statistically significant, MANOVA test was conducted and table (7) shows the results

**Table (7):** MANOVA test for the effect of sex variable on scientific research status.

Variation source	Subordinate Variable	Sq. Total	F. Deg.	Square means	F. value	Alpha $\alpha$
Sex	utilizing scientific research in educational institutions and research centers	1.60	1	1.60	4.42	0.03
	students' practice for scientific research	1.31	1	1.31	3.41	0.06
Error	utilizing scientific research in educational institutions and research centers	157.32	433	0.36		
	students' practice for scientific research	167.13	433	0.38		
Total	utilizing scientific research in educational institutions and research centers	3707.23	435			
	students' practice for scientific research	4093.33	435			

Table (7) reveals statistically significant differences at ( $\alpha \geq 0.05$ ) in the status of scientific research among undergraduate students attributed



to sex variable on utilizing scientific research in favor of females. This might be because females might have more time to read in comparison with males. They might also be more patient, serious and perseverant than males especially in Arab communities that tend to be traditional where females are more attached to their homes than males who are usually involved in work even during their study period. This might hinder males' serious follow up for research. This result is in line with Lal (2000) who indicated that there were statistically significant differences for sex effect in favor of females concerning role in scientific research in higher education institutions from teaching perspectives in Saudi Arabia universities.

## 2. General Secondary Stream variable

Table (8) shows the means and standard deviations regarding General Secondary Stream variable.

**Table (8):** Means and standard deviations regarding General Secondary Stream variable.

Dimension	Stream	Means	St. Dev.
utilizing scientific research in educational institutions and research centers	Scientific	2.77	0.56
	Literary	2.91	0.62
	Information Technology	2.82	0.60
	Total	2.85	0.60
students' practice for scientific research	Scientific	3.10	0.65
	Literary	2.92	0.61
	Information Technology	3.03	0.57
	Total	3.00	0.62

Looking at the means in table (8) reveals superficial differences in the means for General Secondary Stream variable to assure whether these differences are statistically significant, MANOVA test was conducted and table (9) reveals the results.

**Table (9):** MANOVA test for the effect of General Secondary Stream variable on scientific research status.

Variation source	Subordinate Variable	Sq. Total	F. Deg.	Square means	F-value	Alpha $\alpha$
Sex	utilizing scientific research in educational institutions and research centers	1.45	2	0.72	1.99	0.13
	students' practice for scientific research	2.72	2	1.36	3.54	0.03
Error	utilizing scientific research in educational institutions and research centers	157.47	432	0.36		
	students' practice for scientific research	165.72	432	0.38		
Total	utilizing scientific research in educational institutions and research centers	3707.23	435			
	students' practice for scientific research	4093.33	435			

Table (9) reveals statistically significant differences at ( $\alpha \geq 0.05$ ) in the status of scientific research among undergraduate students attributed to General Secondary Stream variable on students' practice for scientific research dimension. To specify the significance of these differences, Scheffe test for post hoc comparisons was used. Table (10) reveals the results.

**Table (10):** Results of Scheffe test for post hoc comparisons on students' practice for scientific research dimension.

Subordinate Variable	1 <sup>st</sup> Mean	2 <sup>nd</sup> Mean	Difference between the means	$\alpha$
students' practices in scientific research	Scientific	Literary	0.18*	0.03
		Information Technology	6.95	0.70
	Literary	Information Technology	-0.11	0.32

Table (10) illustrates that difference in the General Secondary stream was between scientific stream and literary stream are in favor of the scientific one as indicated also by the means in table (9). This might be due to the interest of scientific stream students in scientific research as a result of the nature of this stream which requires in many of the use of scientific research methodology its subjects to get the results such as Physics, Chemistry and Biology subjects.

### 3. Faculty variable

Table (11) shows the means and standard deviations of faculty variable.

**Table (11):** Means and standard deviations of faculty variable.

<b>Dimension</b>	<b>faculty</b>	<b>Means</b>	<b>St. Dev.</b>
utilizing scientific research in educational institutions and research centers	Educational Sciences	2.81	0.59
	Business Administration	2.90	0.61
	Total	2.85	0.60
students' practice for scientific research	Educational Sciences	2.86	0.57
	Business Administration	3.15	0.63
	Total	3.00	0.62

Looking at the means in table (11) reveals superficial differences in the means of faculty variable. To confirm whether these differences were statistically significant or not, table (12) lists the results.

**Table (12):** MANOVA test for the effect of Faculty variable on scientific research status.

<b>Variation source</b>	<b>Subordinate Variable</b>	<b>Sq. Total</b>	<b>F. Deg.</b>	<b>Square means</b>	<b>F. value</b>	<b>Alpha <math>\alpha</math></b>
Faculty	utilizing scientific research in educational institutions and research centers	.83	1	0.83	2.28	0.13
	students' practice for scientific research	9.03	1	9.03	24.54	0.00

... continue table (12)

Variation source	Subordinate Variable	Sq. Total	F. Deg.	Square means	F. value	Alpha $\alpha$
Error	utilizing scientific research in educational institutions and research centers	158.10	433	0.36		
	students' practice for scientific research	159.41	433	0.36		
Total	utilizing scientific research in educational institutions and research centers	3707.23	435			
	students' practice for scientific research	4093.33	435			

Table (12) reveals statistically significant differences at ( $\alpha \geq 0.05$ ) in the status of scientific research among undergraduate students attributed to Faculty variable on students' practice for scientific research dimension in favor of Business Administration Faculty as shown in the means of table (11). This might be the result of study courses' nature in this faculty and its departments. Resorting to courses' study plans of Mu'tah and Irbid National universities by the researchers indicated that courses' study plans of Business Administration Faculty and its departments include beside "Scientific Research Methodology" course (theoretical) another course called "Graduation Project" (practical) which is an obligatory course. This allows the students in these faculties to apply what they have

learnt in the theoretical course. This opportunity is not provided in Educational Sciences faculties which almost focus on the theoretical aspect only in "Scientific Research Methodology" course.

#### 4. Cumulative Average at University variable

Table (13) shows the means and standard deviations of faculty variable.

**Table (13):** Means and standard deviations of Cumulative Average at University variable.

Dimension	faculty	Means	St. Dev.
utilizing scientific research in educational institutions and research centers	Excellent	2.77	0.59
	Very good	2.86	0.59
	Good	2.88	0.58
	Weak	2.76	0.73
	Total	2.85	0.60
students' practice for scientific research	Excellent	3.09	0.73
	Very good	3.01	0.57
	Good	3.05	0.59
	Weak	2.70	0.71
	Total	3.00	0.62

Looking at the means in table (13) reveals superficial differences in the means of Cumulative Average at University variable. To confirm whether these differences were statistically significant or not, MANOVA test was conducted and table (14) lists the results.

**Table (14):** MANOVA test for the effect of Cumulative Average at University variable on scientific research status.

Variation source	Subordinate Variable	Sq. Total	F. Deg.	Square means	F. value	Alpha $\alpha$
Cumulative Average at University	utilizing scientific research in educational institutions and research centers	0.84	3	0.28	0.76	0.51
	students' practice for scientific research	4.99	3	1.66	4.38	0.00
Error	utilizing scientific research in educational institutions and research centers	158.09	431	0.36		
	students' practice for scientific research	163.46	431	0.37		
Total	utilizing scientific research in educational institutions and research centers	3707.23	435			
	students' practice for scientific research	4093.33	435			

Table (14) reveals statistically significant differences at ( $\alpha \geq 0.05$ ) in the status of scientific research among undergraduate students attributed to Cumulative Average at University variable on students' practice for scientific research dimension To specify the significance of these differences, Scheffe test for post comparisons was used. Table (15) reveals the results.

**Table (15):** Results of Scheffe test for post comparisons on students' practice for scientific research dimension.

Subordinate Variable	1 <sup>st</sup> Mean	2 <sup>nd</sup> Mean	Difference between the two means	$\alpha$
students' practices in scientific research	Excellent	Very good	7.75	0.92
		Good	4.61	0.98
		Weak	0.38*	0.04
	Very good	Good	3.13	0.97
		Weak	0.30*	0.02
	Good	Weak	0.34*	0.00

Table (10) portrays that the differences were between the General Secondary stream were Cumulative Average (Excellent), (Very good) and (good) on the one hand and the Cumulative Average (Weak) on the other hand and in favor of the Excellent), (Very good) and (good) Cumulative Average at university as reported in table (13) too. This might be explained as students who obtain a (weak) cumulative average at university are low achievers and they usually tend not to do homework which includes scientific research that needs a great deal of effort. In addition, students with high cumulative average at university tend to get high marks in the courses they study to raise or keep the level of their cumulative averages. This makes them more interested in practicing scientific research skills.

### Recommendations

In light of previous results, the study recommends the following:



- Paying attention to utilizing scientific research in university course plans and focusing on teaching staff follow up for its practical applications among students.
- Minimizing the loads of the teaching staff to enable them to train their students on scientific research in practical ways and following them up together with increasing the financial and psychological support for both the teaching staff and students' scientific research projects.
- Encouraging low achievement students to participate in scientific research in line with their abilities.
- Holding further studies about scientific research on other samples and communities.

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