Measuring the Relationship between Core Competencies of Faculty Members and the Quality of Scientific Research of Graduate Students at Jordan's Private Universities

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Abstract
Private universities in Jordan are considered an important sector in the Jordanian economy and they serve a large number of students. Private universities face many challenges some of which include accreditation standards, incompatibility of their academic programs with market demands, faculty competencies, management and social implications and the quality of their scientific research. The main purpose of this research is to focus on testing the theme that includes the measurement of the relationship between the core competencies of faculty members and the quality of scientific research of graduate students at Jordan's private universities.
Keywords: Core Competencies, Quality, Scientific Research, Standards

Introduction
Research is a vital issue in higher education. New ideas and meta investigation formulate a hidden power to a university. Research quality relies on critical success factors that enhances the scientific movement. Quality literature produces multi – perspective to internal and external stakeholder. Researchers believe that the research value derived from quality awareness construct and dimensions. Graduate students at Jordan's private universities relies on their supervisors (faculty members) to accomplish their research papers .Unless and until those faculty members have procured core competencies graduate students' research will be weak and reach the stage of chewing gum.

Objectives
1- Discover the real contribution of core competencies in achieving quality of scientific research.
2- Determining the attention level in dimensions of core competencies of quality scientific research.
3- Analyzing the dialectic relationships of the impact of core competencies on scientific research.
4- Logical orientation to deal with the study functions to formalize a comprehensive vision about quality of thesis that have been achieved under supervision and judgment of the faculties.

Importance of the Study
The importance of the study stems from trying to achieve the following factors:
*To improve the level of graduate students' scientific research in Jordan' private universities.
*To select the right faculty members who have core competencies in scientific research
*To improve the quality of scientific research
*To focus on the importance of scientific research for graduate students

Research problem
Based on our accumulative knowledge and experience in research on teaching experience for graduates (masters as well as PhD students) , and on supervising and participating in scientific committee discussions we tried to answer the following question :
Is the quality of scientific research a function of core competencies of faculty members?

Research Hypothesis
Ho1 The quality of scientific research is not a function of faculty core competencies at $(\infty = 0.05)$
Ho2 Budget available is not a function of faculty core competencies (experience, abilities, knowledge, entrepreneurship and technical skills) at $(\infty = 0.05)$
Ho3 Sticking to standards is not a function of faculty core competencies' of (experience, abilities, knowledge, entrepreneurship and technical skills) at $(\infty = 0.05)$

Research Model:

| **Independent Variables**	**Dependent Variables**
Faculty Core Competencies X	Quality of Scientific Research Y
- Experience EX1-6 - Abilities Abi-5 - Knowledge Knl-4 - Entrepreneurship Entl-4 - Technical skills Tech-5	- Budget Available Bui-5 - Sticking to Standards SSi-5

Study Limits

Place Limits: The study focus is on Jordan's private universities located in different cities in Jordan.

Time Limits: The study will cover the last two years 2013/2014.

Unit Analysis Limits: The unit analysis of the study will focus on (63) faculty members in the rank of associate and full professor in (8) Jordanian private universities. These Universities include: Amman Arab University, Jerash Local University, Al Isra University, Philadelphia University, Al Zaytona University, Applied Science University, Islamic Science University, and Amman Ahleya University.

Literature Review

The kind and quality of education in any university depends mostly on the quality of its faculty members. This conclusion goes back to the role played by the faculty member. Obviously he/she puts curriculums, teach values and spread knowledge, change behaviors, guide students, and supervise master thesis and/or doctoral dissertations. The main elements that represent the structure of higher education and the ones that are responsible for quality in education are represented in this shape:
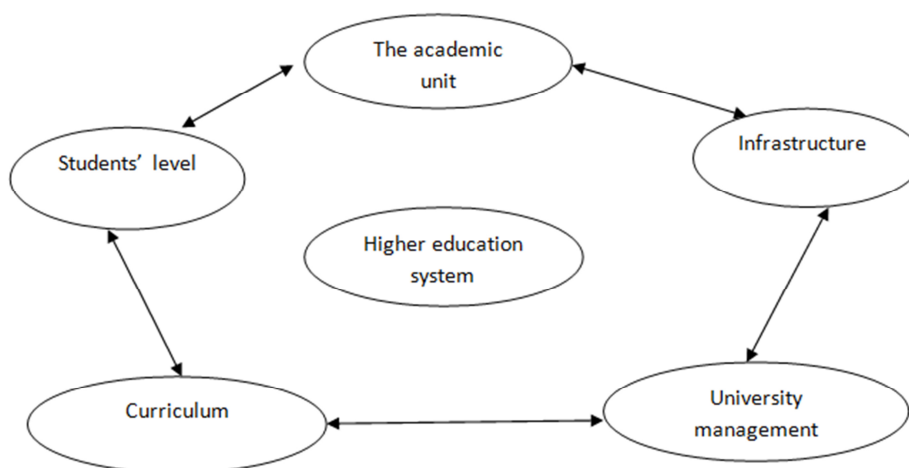
Core Competencies of a Faculty Member

Each faculty member is expected to possess knowledge, skills, abilities, behaviors and attributes that contribute to a successful university. Competencies are used to ensure effective performance, and they are guidelines for individuals to increase their capabilities.

Detailed core competencies specific for faculty are listed below. It is recommended that faculty possess these attributes at the time of employment. If the employee does not display an attribute at that time, the employee should work with the supervisor on a plan for professional development experiences to develop the attribute during the first year of employment.

These detailed core competencies can be used in the faculty member's annual performance evaluation to determine the individual's professional development needs. The faculty member is encouraged to get help from the supervisor to find appropriate training opportunities. In addition, the faculty member is encouraged to explore internal and external learning experiences that address specific competencies.

Core attributes of a faculty member

1. Exhibits a high personal standard of excellence when it comes to research
2. A good written and oral communicator
3. Builds and sustains strong interpersonal relationships
4. An effective team player
5. Demonstrates inclusivity, civility and respect for all

6. Can engage stakeholders, learners and decision-makers
7. Demonstrates competence in area(s) of research
8. Ability to engage in transferred or applied knowledge and applied research — such as guide sheets, curricula or journal articles — in-service education instruction, articles in professional and popular press, presentations at professional meetings, and funded grant proposals
9. Ability to understand and evaluate research being conducted by master and/ or doctoral students and others in the program area

Methodology:

Method: a survey study targeting professor and associate professors in Jordan private universities at winter 2013. the survey contains a description of sample opinion on core competencies and quality of scientific research. Also it includes analytical results that can be used to test the null-hypothesis

Sample: the study results depends on data collected from (63) faculty members as a random simple sample. The focus is on two academic random professors and associate professors in (8) Jordanian private universities.

Measures: measures are designed through dialogue and representative ideas that belong to core competencies and quality scientific research.

Measures are classified into five dimensions of core competencies (i.e. experience, abilities, knowledge, entrepreneurship and technical skills) and two dimensions to quality of scientific research (i.e., budget and sticking to standards.

Table (1)
Cranach alpha values

Alpha	Variables
0.63	Experience
0.81	Abilities
0.75	Knowledge
0.77	Entrepreneurship
0.90	Technology
0.92	Core competencies
0.83	Budget
0.85	Sticking to standards
0.06	Quality of scientific research
0.90	Total

Reliability

"The reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and help assess the "goodness" of a measure". (Sekaran & Bougie, 2010 : 161-3).

The integrin consistency reliability is a test of consistency of respondents' answers to all items in a measure. The most popular test of integrin consistency reliability is cronbach's Alpha. (Ibid:162). Cronbach Alpha values are shown in table (1). The range of these values is (0-63--0-92)which indicate the higher the coefficients, the better the measuring instrument.

Results

Descriptive Results

Table (2): shows that the mean and standard deviation values of core competencies and quality of scientific research. These values indicate the following indications:

1- Faculty members perceived the core as a medium .

2- Knowledge and abilities have given high attention while entrepreneurship and experience have given a medium attention.

3- Faculty members have perceived the quality of scientific research as medium.

4- sticking to standards has given medium attention while budget has given low attention

The mean and standard deviation values to core competencies and quality of scientific research is (n=63).

Analytical Results

For the purpose of testing the null hypothesis a multi regression is used to shoe the following models:

Model (1):

Model (1) is built on the null hypothesis "quality of scientific research is a function of core competencies."

Table (3): shows the significance (f) value that means the multi regression model is good enough to test the function idea. While table (4) shows the results of analyzing that model. Depending on the (t) values and the significance of that we can classify the functions into two categories:

    a- Technology has a significant impact on the quality of scientific research at (∞ = 0.05).

    b- Other core competencies have no significant impact on the quality of scientific research at (∞ = 0.05).

c- A value of (R2 = 0.29) which means technology can explain (0.29) change in the quality of scientific research.

All these results indicate the acceptance of the null hypothesis

Model 2:

Building on the null hypothesis the budget is not a function of experience, abilities, knowledge, entrepreneurship, and technical skills at ($\infty = 0.05$)

Table (5): shows the value (f) significant that gives approval of multi regression model that can be used to improve the function idea. Table (6) describes the output of analyzing this model.

According to (t) values and its significant the results indicate that budget is not a function of core competencies there for accepting the null hypothesis.

Model 3:

Building on the null hypothesis sticking to standards is not a function of experience, abilities, knowledge, entrepreneurship, and technical skills at ($\infty = 0.05$).

Table (7) shows a significant value of (f) which indicates approval of multi regression model that can be used to improve function idea logic. While table (8) shows out puts of analyzing model building logic. The results of (t) values and their significant take two orientations:

a- sticking to standards is a function of experience, abilities, and technology at ($\infty = 0.05$)

b- sticking to standards is not a function of knowledge, entrepreneurship at($\infty = 0.05$)

c- a value of (R2 = 0.32) gives opportunity to explain (0.32) change in sticking to standards through three dimensions of quality of scientific research .

These results indicate a full acceptance of **the null hypothesis.**

DESCRIPTIVES VARIABLES = ex1 ex2 ex3 ex4 ex5 ex6 ab1 ab2 ab3 ab4 ab5 kn1 kn2 kn3 kn4 ent1 ent2 ent3 ent4 tech1 tech2 tech3 tech4 tech5

Bug1 bug2 bug3 bug4 bug5 sts1 sts2 sts3 sts4 sts5 experience abilities knowledge entrepreneurship technology budget stick to standards

Descriptive Statistics

	N	MEAN	Std. Deviation
Ex1	63	4.03	1.41
Ex2	63	3.13	1.54
Ex3	63	3.24	1.60
Ex4	63	4.24	1.06
Ex5	63	3.80	1.30
Ex6	63	2.64	1.30
Ab1	63	4.33	0.86
Ab2	63	4.33	0.90
Ab3	63	4.29	0.91
Ab4	63	3.64	1.25
Ab5	63	4.08	1.02
Kn1	63	4.29	0.81
Kn2	63	4.35	1.01
Kn3	63	4.19	1.01
Kn4	63	3.89	0.97
Ent1	63	3.83	1.16
Ent2	63	4.4	0.96
Ent3	63	3.56	1.25
Ent4	63	4.03	1.06
Tech1	63	3.64	1.20
Tech2	63	3.87	1.21
Tech3	63	3.68	1.20
Tech4	63	3.79	1.11
Tech5	63	3.57	1.29
Bug1	63	2.51	1.55
Bug2	63	2.67	1.54
Bug3	63	2.71	1.49
Bug4	63	3.84.	1.44
Bug5	63	3.06	1.52
Sts1	63	4.11	1.06
Sts2	63	4.08	1.05

Descriptive Statistics

	N	Mean	Std. Deviation
Sts3	63	1.6032	.88972
Sts4	63	4.1746	1.07072
Experience	63	4.3492	.84546
Abilities	63	3.5106	.81533
Knowledge	63	4.1333	.75605
Entrepreneurship	63	4.1786	.72182
Technology	63	3.7016	.85767
Budget	63	2.9587	1.01719
Stick to standards	63	3.6635	1.16904
Quality	63	3.3111	.55860
Valid N (list wise)	63		.59218

Correlations

	experience	abilities	knowledge	entrepreneurship	technology
Experience Pearson Correlation Sig.(2-tailed) N	1 63	.580** .000 63	.536** .000 63	.485** .000 63	.358** .004 63
Abilities Pearson Correlation sig.(2-tailed) N	.580** .000 63	1 63	.783 63	.698**	.541**
Knowledge Pearson Correlation sig.(2-tailed) N	.536** .000 63	1 63	1 .000 63	.730** .000 63	616** .000 63
Entrepreneurship Pearson Correlation sig. (2-tailed) N	.458 .000 63	.698** .000 63	.730** .000 63	1 63	.564** .000 63
Technology Pearson Correlation sig.(2-tailed) N	.358** .004 63	.541** .000 63	.616** .000 63	.564** .000 63	1 63

**Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R square	Std. Error of the estimate
1	.569a	.324	.265	.47903

a. Predictors: (constant), technology, experience, entrepreneurship, abilities, knowledge

ANOVA

Model	Sum of squares	df	Mean Square	F	Sig.	R	R2
Regression	6.266	5	1.253	5.462	.000a	0.57	0.32
Residual	13.080	58	.229				
Total	19.346	63					

a. Predicators: (Constant), technology, experience, entrepren, abilities, knowledge
b. Dependent Variable: stick to standard
Table (8)
Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	sig
1 (constant)	2.801	.374	-.271	7.491	.000
Experience	-.186	093	.528	-1.997	.051
Abilities	.390	.141	.114	2.763	.008
Knowledge	.088	.156	.227	.564	.575
Entrepreneurship	.148	.111	-.516	1.331	.189
technology	-.283	.078		-3.638	.001

Correlations

	experience	abilities	knowledge	entrepreneurship	technology	budget	Stick to stand	quality
Experience Pearson correlation Sig. (2-tailed) N	1 63	.580 .000 63	.536** .000 63	.485** .000 63	.358 .004 63	.282* .025 63	.021 .871 63	.289 .022 63
Abilities Pearson Correlation Sig. (2-tailed)	.580** .000 63	1 63	.783** .000 63	.698** .000 63	.541** .000 63	254 .045 63	.339** .007 63	.410** .001 63
Knowledge Pearson Correlation Sig (2-tailed) N	.536 .000 63	.783 .000 63	1 63	.730** .000 63	.616** .000 63	.237 .061 63	.229 .070 63	.342** .006 63
Entrepreneurship Pearson correlation (2-tailed) N	.485** .000 63	.698** .000 63	.730 .000 63	1 63	.564** .000 6	.320* .011 63	.256** .43 63	.436** .000 63
Technology Pearson Correlation Sig (2-tailed) N	.358** .004 63	.541** .000 63	.616** .000 63	.564** .000 63	1 63	.532* .000 63	-.130 .311 63	.464** .000 63
Budget Pearson Correlation Sig (2-tailed) N	.282* .025 63	.254 .045 63	.237 .061 63	.320* .011 63	1 63	.532** .000 63	-130- .311 63	.464** .000 63
Stick to standards Pearson Correlation Sig 2-tailed) N	.21 .871 63	.339** .007 63	.229 .070 63	.256* .043 63	-.130 .311 63	-.211 .096 63	1 63	.263* .037 63
Quality Pearson Correlation Sig 2-tailed) N	.289* .022 63	.410** .001 63	.342** .006 63	.436** .000 63	.464** .000 63	.887** .000 63	.236* .037 63	1 63

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Conclusions

The top management of universities have to think deeply of the critical issues belonging to the quality of scientific research. Improvement and maintenance of the output of the quality of scientific research depends on discovering faculty core competencies .Analysis and discussion of results lead to accept the primary idea of the general model logic. A comprehensive view of the research functions opens another window and flexible scenario on the interaction between faculty core competencies and quality of scientific research.

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