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RESEARCH ARTICLE

Investigating the Relationship Between Teaching Performance and Research Performance of Faculty Members using Scientometric Analysis (Case Study: Faculty of Management of the University of Tehran)

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ABSTRACT

Purpose: The aim of this study was to identify the relationship between the educational and research performance of faculty members of the Faculty of Management, University of Tehran. **Methodology:** The statistical population of this study consists of faculty members of the Faculty of Management, University of Tehran. The present research is applied research based on the objective and is descriptive based on the research method and has been done with a scientometric approach. This study covers a 10-year course to evaluate the research performance and a 4-year course to evaluate the educational performance (teaching quantity). The data of this scientometric study were collected using the library studies method and the documents available in the Vice Chancellor for Research of the University of Tehran as well as the Faculty of Management. **Findings:** Findings showed that there is a direct and significant relationship between the variables of research performance and educational performance. No significant relationship was shown between gender and research performance. There is also a significant statistical relationship between academic rank and research performance and educational performance of faculty members. **Conclusion:** It is concluded that education performance and research performance are positively related to each other and a faculty member with good teaching quality needs to be strong in terms of research. Otherwise, they initiate the repetition of past topics in teaching. Good research performance of a faculty member can be considered a prerequisite for good teaching and good researchers apply the results of the previous research in their teaching.

Key words: Faculty members, Research performance, Academic performance, University of Tehran

INTRODUCTION AND PROBLEM STATEMENT

University faculty members, in addition to teaching, have a significant role in research and scientific activities. These factors have attracted the attention and efforts of the governments to the extent that it has caused universities to focus on scientific and research activities in many international ranking systems and compilation of their performance indicators.

Studying educational activities in universities are one of the most important issues that provide appropriate feedback for the analysis of educational issues and also help the decision-making and strategic planning of officials and those involved in higher education. It also helps teachers to know the quality of their performance during education, which will make them able to improve their educational methods and as a result, increase the quality of their teaching.

Considering the relevance of the educational and research activities of university lecturers (Barnett, 2005), education will be effective and beneficial when the research activities of lecturers

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are sufficiently considered and the (Alpert, 1985) effective factors in this field are investigated.[1,2]

So far, many studies have been conducted on the relationship between research and education, which express different and diverse views on the relationship between the two. For example, Lindsey and Breen (2002) believe that there is a symbiotic, reciprocal, and synergistic relationship between research and teaching. Furthermore, when a faculty member's research activities increase in terms of quantity and quality, their knowledge, income, credit, and motivation also increase.[3] This view emphasizes the positive role of research in education and considers research activity as an effective activity in education. Research is an activity that, if shared, causes the growth and strengthening of education. As Brew (2003) argues, not all academics need to be researchers;[4] but what is important is the sharing of research among academics. Research and education should be used as two complementary activities to advance and strengthen each other, and each of them lead to the growth and development of universities and educational centers. Jenkins and Zetter (2003) argue that the relationship between research and teaching should be developed effectively in university departments, in such a way that research becomes teaching and teaching becomes research.

Some believe that education can be useful and effective when it is based on good and new research. In other words, when a teacher cannot research the latest developments in his field of expertise, he will have a poor education.[5] As Horlock (1991) states, increasing the quality of university education requires teachers to do research on the latest developments in their subjects, and teachers will not be at the forefront of knowledge unless they are active researchers.[6] However, the opposite point of view states that due to the lack of time and energy, education and research are more likely to intervene in each other's tasks than to strengthen and promote each other.

Education and teaching in universities will be effective and useful when it is derived from research and there is a connection between education and research activities. Hence, it seems that conducting research to investigate the relationship between education performance and research performance is essential.

If university faculty members are aware of the effective relationship between education and research, they can include not only their research findings but also the principles and methods of scientific research in their teaching and be good role models for students. In this regard, the present research aims to examine the relationship between research performance and educational performance of faculty members of the Faculty of Management, University of Tehran.

Research questions

This research aims to answer the following questions:

1. What is the relationship between the research activities of faculty members in different departments of the Faculty of Management?
2. What is the difference between the educational performance of faculty members in different departments of the Faculty of Management?
3. What is the relationship between the research performance and educational performance of faculty members in the faculty of management?
4. What is the relationship between gender and research performance and relationship between gender and educational performance of faculty members in Faculty of Management?
5. What is the relationship between the academic rank and the research performance of the faculty members in the Faculty of Management?
6. What is the relationship between the academic rank and the educational performance of the faculty members in the faculty of management?

Theoretical framework

Examining the performance of faculty members and the type of their interaction has provided appropriate feedback for the analysis of educational issues and strategic decisions and strategic planning to the officials of the higher education system. Furthermore, faculty members can learn about their performance and take action to increase the quality of their activities (Mizani *et al.*, 2011).[7] These activities include: Education, research, and providing (executive) services (Maroufi *et al.*,2006).[8] Educational and research activities are more important and find meaning in the context of the university.[9] It means that the interaction of the two mentioned factors guarantees the university's dynamism and vitality (Jenkins, 2000).[10]

Literature review

In summarizing and inferring from the studies conducted in this field, four assumptions and models can be presented in relation to research and teaching (Khaled, 2001); Hattie and Marsh, 1996; (Jafarithani *et al*., 2012) which are, first: Research improves the quality of teaching and makes faculty members familiar with new methods and be updated theoretically and practically;[11-13] and with new questions and new topics, they stimulate and encourage students (Hughes, 2004); Second: Research causes a decline in the quality of teaching (Linsky and Strauss, 1975; (Marver and patten, 1976))[14-16] and it causes attention to be transferred from teaching to research and therefore reduces the focus on teaching (Hughes, 2004; Ramsden and Moses, 1992; Wahlean, 2002); third: Research and teaching do not have any positive or negative effects on each other since these two functions require different abilities, therefore, their influence on each other is not significant (McKenna *et al.*, 2002); and Fourth: Research and teaching in some aspects strengthen each other (Jenkins, 2000) and in some aspects, they negatively affect each other (Horlock, 1991).[5,15,17,18]

Among the researches that have been conducted within the Persian literature, almost all of them have emphasized on one of the two main aspects of the current research, that is, "teaching" or "research" and have not investigated the relationship between these two functions. Regarding the English literature mentioned in the background, all of them have emphasized on the relationship between research and teaching, and in each of them, there are different views on the types of relationship between these two functions.

Overall, a review of the existing literature showed that no research has been conducted in Iran on the relationship between teaching and research performance of faculty members. Therefore, this research, in an attempt to fill this gap, aims to use the educational and research information of Tehran University faculty members and their analysis to determine the relationship between educational and research performance and the alignment of these two factors.

RESEARCH METHODOLOGY

The current research is applied research based on the objective, is descriptive based on the research method, and was carried out with a scientometric approach. This study covers a 10-year period to investigate the research performance and a 4-year period to investigate the educational performance (teaching quantity). The method of data collection in this research was the library study and the use of available information and documents. The total number of the current research population consists of 83 faculty members from the faculty of management, of which 12 (14.46%) are women and 71 (85.54%) are men.

The methods of data analysis in this research are:

a) In this research, to analyze descriptive information such as goals, scientific rank, employment status, and research and educational performance (teaching quantity) of faculty members, SPS and Excel software were utilized.
b) In the current research, the list of faculty members' courses, which was in the form of a course selection sheet that was entered in an Excel file, separated by the name of the faculty member, the main department, the secondary department, and the title of the courses were used for statistical analysis. Furthermore, collecting research information by faculty and each faculty by faculty member's name, main department, secondary department, article or research title, and educational information in an Excel file was set. By faculty members' names, main department, secondary department, and course title were entered into the Excel file as well. With the list of educational groups of each faculty in front of the name of each faculty member, the title of the article and the title of each course that was related to each department were placed in that department. The separation of the data of this stage was done with the help of expert students of each departments. In the last step, the correlation is extracted from the data in the form of graphs and tables through SPS software.

In the present study, information was collected through the Research Deputy of University of Tehran and the Education Unit of each faculty.

Research findings

Table 1 shows the descriptive statistics related to the number of faculty members, the number of

Table 1: Frequency distribution of faculty members, research, education, and subjects

Departments	Number of Faculty Members	Frequency Percentage	Research Frequency	Frequency Percentage	Education Frequency	Frequency Percentage	Subjects frequency	Frequency Percentage
Futurology	2	2/41	159	3/37	2	0/62	140	2/94
Information Science and Knowledge Studies	8	9/64	317	6/71	53	16/41	289	6/06
MBA	7	8/43	333	7/05	30	29/9	341/65	7/17
Accounting	8	9/64	334	7/07	33	22/10	299/49	6/28
Business Management	9	10/84	576	12/20	38	76/11	506/83	10/63
Governmental Management	16	19/28	903	19/13	60	58/18	916/32	19/22
Industrial Management	14	16/87	1132	23/98	48	86/14	1087/17	22/81
IT Management	6	7/23	338	7/16	24	43/7	473/83	9/94
Financial Management and Insurance	8	9/64	261	5/53	12	72/3	293/7	6/16
Human Resources Management	5	6/02	368	7/79	23	12/7	392/34	8/23
Total	83	100	4767	100	323	67/26	4767	100

research, and the number of courses taught by the faculty members of the Faculty of Management.

To use inferential statistics tests, it is necessary to determine the state of the data in terms of normality. For this purpose, the Kolmogorov–Smirnov test is used [Table 2].

As can be seen, for the two variables of research and educational activities, the significance level of the test is <0.05, which shows that the population distribution is abnormal and non-parametric tests should be used.

Answer to the first research question. What is the difference between the research activities of faculty members in different educational groups of the Faculty of Management?

Considering that the variable of department is a multilevel nominal variable and the variables of research and educational performance are non-normal, the Kruskal–Wallis test was used to answer this question, the results of which are shown in Table 3.

As Table 3 shows, the significance level is >0.05. As a result, it can be said that there is no significant difference in the research performance of faculty members indifferent departments.

Answer to the second research question. What is the difference between the educational performance of faculty members in different departments of the Faculty of Management?

Table 4 shows that the significance level for the variable of department is more than 0.05. As a result, it can be stated that there is no significant difference in the educational performance of the faculty members in different departments of the faculty of management.

Answer to the third research question. What is the relationship between the research and educational performance of faculty of management?

Table 2: Kolmogorov–Smirnov test results for research variables

Variable	Kolmogorov-Smirnov value	Significance level
Research Performance	506/0	000/0
Educational performance	519/0	000/0

Table 3: Comparison of research performance in different departments of the Faculty of Management

Variable	Research performance		
	Chi- squared value	Degrees of freedom	Significance level
Department	243/12	9	2/0

Table 4: Comparison of the average educational performance between different departments in the Faculty of Management

Variable	Educational performance		
	Chi- squared value	Degrees of freedom	Significance level
Department	243/12	9	2/0

Table 5: Spearman's test for the main research variables

Variable	Educational performance	
	Correlation coefficient	Significance level
Research performance	**479/0	000/0

*Significance level at 0.5

Table 6: Chi-square test results

Variables	Chi-square value	Significance level	Result
"Gender" and "Research performance"	532/94	742/0	The relationship is not statistically significant
"Gender" and "Educational performance"	37/135	000/0	The relationship is statistically significant

Table 7: V Kramer test results

Variables	V Kramer value	Decision criterion
"Scientific rank" and "Research performance"	423/0	000/0

Table 8: V Kramer test results

Variables	V Kramer value	Decision criterion
"Scientific rank" and "Educational performance"	358/0	000/0

Because the two variables of research and educational performance were non-normal, we used Spearman's correlation test. Table 5 shows the correlation test between research and educational performance.

As can be seen, there is a direct and statistically significant relationship between research and educational performance (significance level is >0.05).

Answer to the fourth research question. What is the relationship between gender and research performance and relationship between gender and educational performance of faculty members in Faculty of Management?

Since the gender is a two-level nominal variable and the variables of research and educational performance are ordinal, Chi-square test was used to answer this question, the results of which are shown in Table 6.

As shown in Table 6, the significance level for the relationship between gender and research activities is equal to 0.742, which is >0.05. Therefore, these variables are independent and it can be concluded that there is no relationship between gender and the educational performance of faculty members in the Faculty of Management.

The significance level for the relationship between gender and educational performance is 0.000, which is less than the error level of 0.05. Therefore, it can be concluded that there is a statistically significant relationship between gender and the educational performance of faculty members of faculty of management

Answer to the fifth research question. Is there a relationship between the academic rank and the research performance of the faculty members of the Faculty of Management?

The scientific rank variable is a multi-level and non-parametric nominal variable; therefore, to answer this research question, V. Kramer's inferential test was used and the results of which are shown in Table 7.

Table 7 shows that the value of Kramer's correlation coefficient was obtained as 0.423 and 0.358. Considering that the value of the decision criterion (0.000) is smaller than 0.05; therefore, there is a significant statistical relationship between the scientific rank and the research performance of faculty members of the Faculty of Management.

Answer to the sixth research question. Is there a relationship between the academic rank and the research performance of the faculty members of the Faculty of Management?

Table 8 shows that the value of Kramer's correlation coefficient is 0.423 and 0.358. Considering that the value of the decision criterion (0.000) is smaller than 0.05; therefore, there is a significant relationship between the scientific rank and the educational performance of faculty members of the Faculty of Management.

DISCUSSION AND CONCLUSION

The findings of the research showed that there was no significant difference between the average educational performance of faculty members in different departments. The studies of Vashghani *et al*. (2005) and Hosseinpour (2011) are also consistent with this result.[19,20]

The findings of the research showed that there is a significant direct relationship between the variables of research performance and educational performance. The studies of Karamdoust (2004), Alamdari and Afshun (2003), and Gholami (2006) showed that there was a direct significant relationship between the research activities and teaching performance (teaching quantity) of

faculty members.[21-23] Neumann (1992) conducted a study to describe the relationship between teaching and research and the context of the study was Australia.[21,24] The analysis of findings in Newman's study showed that there is a complete agreement among university administrators about the existence of a relationship between teaching and research (p. 161).

The results also showed that there is a significant relationship between the research performance of faculty members and their scientific rank (instructor, faculty member, and associate faculty member). This result was consistent with the results of Ghanchi *et al.* (2012). Similar conflicting results showed that the teaching performance (teaching quantity) of faculty members did not have any significant difference with the rank of instructor.[25]

In examining the relationship between gender and educational performance, the results showed that there is a relationship between gender and educational performance.

The research results showed that there is no significant relationship between gender and research performance. Fahimnia *et al.* (2015) in a research titled "Investigation of the impact of individual and organizational factors on the research productivity of faculty members of the University of Tehran" showed that there was no significant relationship between gender and research productivity.[26]

The results of the present research are consistent with Mohedi *et al.* (2011) and Hosseinpour (2011) studies.[19]

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