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A Study on the Social Factors Influencing Scientific Papers Presentations among PhD Candidates at IAU of Babol

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Abstract

The purpose of the present paper was to pursue the social factors involving in scientific papers and also examine the impact of tendency of PhD candidates to participate in research projects, membership and activity of PhD candidate at conferences, the willingness in scientific collaboration of professors and researchers. The sample size consisted of 92 PhD candidates at Islamic Azad University (IAU) of Babol branch in 2016. Furthermore, based on the present research findings, the regression effect indicated the independent variables had a significant effect on presenting scientific papers. Also the Chi-square test showed that there was no significant relationship among age, marital status, gender and presenting scientific paper. But there was significant relationship between the occupation and presentation of scientific papers. Finally, the active PhD candidates who prepared scientific paper among the age group of 26-36 years.

Keywords: Social factors, Scientific papers, Age, Gender, Marital status, regression, IAU, Babol.

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1. Introduction

Scientific research produces new knowledge, some fraction of which can lead to enormous returns. History has a particularly rigorous way of revealing the value of different scientific theories and efforts. Good science leads to novel ideas and changes the way we interpret physical phenomena and the world around us.

Good science influences the direction of science itself, and the development of new technologies and social policies. Poor science leads to dead ends, either because it fails to advance understanding in useful ways or because it contains important errors.

Having this in mind, the proper identification of the determinants of research productivity in different areas of knowledge can be not only useful for a better allocation of financial resources but also to improve the evaluation of researchers and academic institutions, providing new insights about the factors that directly explain the asymmetric productivity in one particular area and across areas (Perlin, et al., 2017).

Gender has been regarded as a factor that can explain research productivity asymmetry (Hasanzadeh, & Ghayouri, 2012). For example in a study that presented in 2002, female research productivity accounted for only 70.6 percent of male productivity (Prpi, 2002).

Furthermore, the scant number of female Nobel laureates has less chance to marry and have children as compared to both their male counterparts and the general population (Charyton et al., 2011).

This posits a trade-off between career success and family life for female researchers, though this trade-off seems to be lessening for the current generation (van Arensbergen et al., 2012).

The effect of holding a PhD from a foreign university has also been considered in the literature regarding the Brazilian experience. Roos, Calabró, De Jesus, Souza, Barbosa and Da Rocha (2014) show strong evidence that Brazilian researchers, in the experimental sciences with doctorate degrees from abroad, are also those who publish less, though in journals of greater impact. Here, the student-supervisor relationship seems to play a role (Tuesta et al., 2015). Indeed, there is a significant correlation between the future productivity of a PhD candidate and the time spent in his or her interaction with the supervisor.

It shows the evidence of a non-linear impact of a researcher age on his or her productivity. This suggests the existence of an inverted U-shaped function (Rorstad & Aksnes, 2015).

In other words, the interaction and deep connections between the stakeholders of education in universities indicate the seriousness of education, on the contrary, associated with the problems of scientific fields (Rabani, Rabani and Maher, 2011).

Perlin et al. (2016) assembled a massive sample of 180,000 of Brazilian academic researchers of all disciplines from the Lattes platform. They gathered information on key variables related to the researchers and their publications. They find males are more productive in terms of quantity of publications, but the effect of gender in terms of research impact is mixed for individual groups of subject areas. For all fields of science, holding a PhD from abroad increases the chance for a researcher to publish in journals of higher impact. They also find that the more years a researcher takes to finish his or her doctorate, the more likely he or she will publish less thereafter, although in outlets of higher impact. The data also support the existence of an inverted U-shaped function relating research age and productivity. Also Borrego, Barrios, Villarroya and Olle (2010) analyzed the scientific output and impact of 731 Ph.D. holders who were awarded their doctorate at Spanish universities between 1990 and 2002. The aim was to identify any differences in the amount of scientific output and the impact of publications, in terms of citations, according to gender. The analysis revealed no significant differences in the amount of scientific output between males and females.

Regarding to the above-mentioned issue, social model presents to enhance presenting scientific papers among the PhD candidates. The scientific paper includes articles which published in journals or conferences in 2016. This paper examines the effect of tendency of the PhD candidates to participate in research project, membership and activity of candidate in conferences, the willingness of candidates in scientific collaboration with professors, marital status, age, gender and occupation on presenting scientific paper.

2. Theoretical Framework of the Research

The theoretical framework of this research is a combination of some of the perspectives as discussed above. As shown in the figure below a positive relationship is considering a theoretical framework:

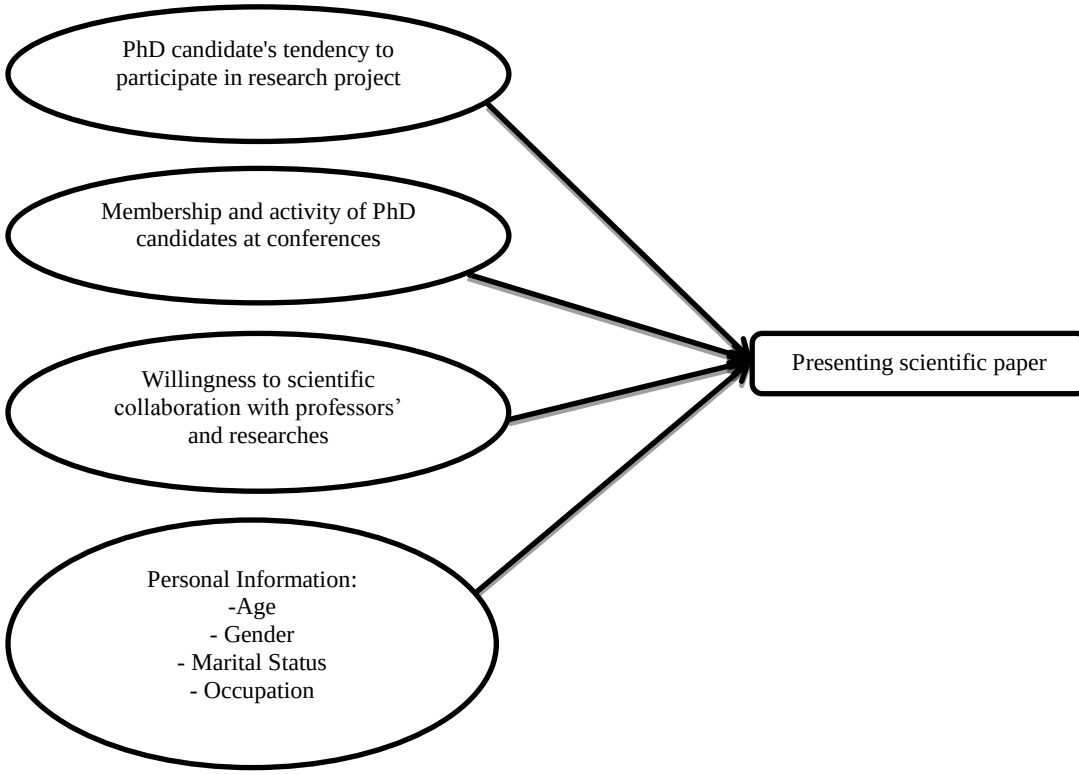

Figure 1. Research conceptual model

3. Research Hypotheses

Considering the theoretical framework, expounded before, this research's hypotheses are:

1. The tendency of PhD candidates to participate in research project affects their scientific papers presentations.

2. The membership and activity of PhD candidates at conferences affect their scientific paper presentation.

3. The willingness to scientific collaboration with professors' and researches affects the scientific paper presentation.

4. The marital status, age, gender and occupation of the PhD candidates affect the scientific paper presentation.

4. Materials and Methods

This is a survey method research. The current study employed the convenience sampling method to collect data from 2016. 92 PhD candidates were selected as a sample size in IAU of Babol. The sampling was carried out based on the simple random sampling among PhD candidates in sociology, psychology and management who subsequently answered the research questionnaire.

The questionnaire has been our main measuring instrument in this research. In order to measure the degrees and aspects of the variables, a combination of comprising 30 questions were used. Having prepared the preliminary questionnaire, a pre-test was administered on a 20-subject sample from the total sample to ensure the reliability of the items.

Cronbach's alpha test for research index was calculated and it observed larger than 0.7. So it shows that there is more consistency among statements of the questionnaire.

Table 1. The result of Cronbach test for the following items

Indexes	Cronbach's Alpha
The tendency of PhD candidates to participate in research project	0.732
Membership and activity of PhD candidates at conferences	0.781
The willingness to scientific collaboration with professors' and researches	0.693
Presenting scientific paper	0.715

5. The Findings

Now, it is the time to test the research hypotheses:

Table2. Results of Kolmogorov-Smirnov Test

		Tendency of PhD candidate to participate in research project	Membership and activity of PhD students at conferences	The willingness in scientific collaboration with professors' and researches	Presenting Scientific paper
N		92	92	92	92
Normal Parameters[a,b]	Mean	3.334783	3.586957	3.282609	3.433
	Std. Deviation	.3509594	.5260714	.4349078	.2590
Most Extreme Differences	Absolute	.150	.106	.165	.261
	Positive	.133	.106	.165	.261
	Negative	-.150	-.103	-.089	-.185
Kolmogorov-Smirnov Z		1.437	1.019	1.586	2.505
Asymp. Sig. (2-tailed)		.132	.250	.113	.142

As it reported in the above table, Z statistic of presenting scientific paper variable is equal to 2.505 and also the significant level has observed 0.142. Since the significant level of this variable is acquired 0.05 that is greater than 0.05, It can be understood that the data distribution does not have significant difference with normal distribution.

5.1. Testing hypotheses

Since the distribution of research variables follow the normal distribution, to test the research hypotheses, a multivariate regression analysis is tested. The results of this test are shown in the table below.

Table3. Identifying the variables regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.679[a]	.461	.456	.0983

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5.252	3	1.751	181.243	.000[b]
Residual	.850	88	.010		
Total	6.102	91			

Table 4. Identifying the statistical level and direction of impact of independent variables on scientific paper presentation

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.457	.133		3.437	.001
PhD candidate's tendency to participate in research project	.209	.034	.283	6.174	.000
Membership and activity of PhD students at conferences	.292	.020	.594	14.705	.000
The willingness to scientific collaboration with professors' and researches	.375	.028	.630	13.565	.000

This table states that the independent variables have significant effects on presenting scientific paper. According to the regression coefficient analyses, there is a positive relationship. Considering the amount of the coefficient that has obtained respectively 0.209, 0.292 and 0.375, it will be expected that an increase in a unit in each variables of the independent increases the dependent variable with the amount of 0.209, 0.292 and 0.375 units.

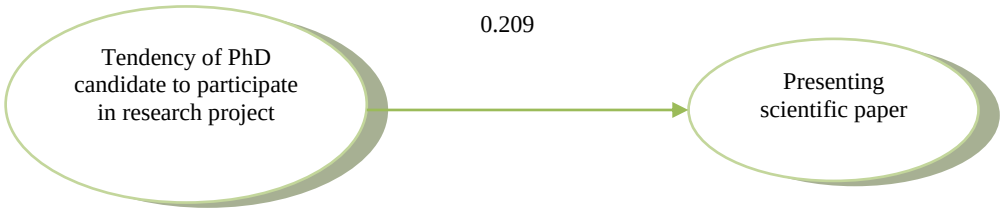

Figure2. Regression effect of PhD candidate's tendency to participate in research project

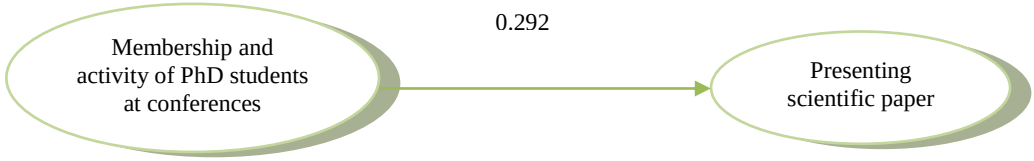

Figure 3. Regression effect of membership and activity of PhD candidates in conferences

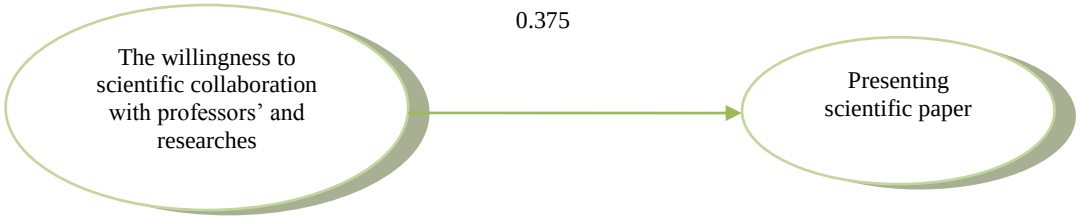

Figure4. Regression effect of the the willingness to scientific collaboration with professors and researches

Percent distribution and the proportion of presenting scientific paper among three age groups of PhD candidatess at IAU of Babol are presented in the following table:

Table 5. Percent distribution and the proportion of presenting scientific paper among three age groups

			Presenting scientific paper			Total
			Low scientific paper	Medium scientific paper	High scientific paper	
Age	Between 26-36 years old	Count	24	8	1	33
		% of Total	26.1%	8.7%	1.1%	35.9%
	Between 37-47 years old	Count	16	11	3	30
		% of Total	17.4%	12.0%	3.3%	32.6%
	Between 48-58 years old	Count	18	10	1	29
		% of Total	19.6%	10.9%	1.1%	31.5%
Total		Count	58	29	5	92
		% of Total	63.0%	31.5%	5.4%	100.0%

The comparison cross table of presenting scientific paper among three age groups can compare three age groups (between 26-36 years old, between 37-47 years old and between 48-58 years old) with different classes of presenting scientific paper.

Consequently, presenting scientific paper at the age between 26-36 years old is 35.9 percent; at the age between 37-47 years old is 32.6 percent; and at the age between 48-58 years old is 31.5 percent. 1.1 percent of PhD candidates are at the age between 26-36 years old; 3.3 percent of PhD candidates are at the age between 37-47 years; and 1.1 percent of PhD candidates are at the age between 48-58 years who have been presented high scientific paper. Also, 8.7 percent of PhD candidates at the age between 26-36 years; 12.0 percent of PhD candidates at the age between 37-47 years; and 10.9 percent of PhD candidates at the age between 48-58 years have been arranged medium scientific paper. Finally, 26.1 percent of PhD candidates at the age between 26-36 years: 17.4 percent of PhD candidates at the age between 37-47 years; and 19.6 percent of PhD candidates at the age between 48-58 years have been organized the low scientific paper.

Existence or non-existence test of the relationship between presenting scientific paper and age is demonstrated in the following table:

Table 6. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.543[a]	4	.471
Likelihood Ratio	3.447	4	.486
Linear-by-Linear Association	.619	1	.431
N of Valid Cases	92		

The Chi-square has been obtained 3.543 that is not significant with confidence of 95 percent and the error level is more than 0.05. So, the H_0 is accepted and H_1 is rejected. Therefore, there is not a relationship between age and presenting scientific paper.

Percent distribution and the proportion of presenting scientific paper and gender are displayed in the following table:

Table 7. Percent distribution and the proportion of presenting scientific output and gender

			Presenting scientific paper			Total
			Low scientific paper	Medium scientific paper	High scientific paper	
Sex	Female	Count	25	12	3	40
		% of Total	27.2%	13.0%	3.3%	43.5%
	Male	Count	33	17	2	52
		% of Total	35.9%	18.5%	2.2%	56.5%
Total		Count	58	29	5	92
		% of Total	63.0%	31.5%	5.4%	100.0%

Existence or non-existence test of the relationship between presenting scientific paper and gender is presented in the following table:

Table 8. Chi-square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.611[a]	2	.737
Likelihood Ratio	.605	2	.739
Linear-by-Linear Association	.135	1	.713
N of Valid Cases	92		

Chi-square has been obtained 0.611 that is not significant with confidence of 95 percent and the error level of more than 0.05. So, the H_0 is accepted and H_1 is rejected. Therefore, there is no relationship between gender and presenting scientific paper.

Percent distribution and the proportion of presenting scientific paper and marital status are shown in the following table:

Table 9. Percent distribution and the proportion of present scientific paper and marital status

			Presenting scientific paper			Total
			Low scientific paper	Medium scientific paper	High scientific paper	
marital status	Single	Count	27	12	2	41
		% of Total	29.3%	13.0%	2.2%	44.6%
	Married	Count	31	17	3	51
		% of Total	33.7%	18.5%	3.3%	55.4%
Total		Count	58	29	5	92
		% of Total	63.0%	31.5%	5.4%	100.0%

The comparison table of presenting scientific paper and marital status (single and married) can be compared with marital status of different classes for presenting scientific paper.

Accordingly, low scientific paper in single candidates is 29.3 percent; and in married candidates is 33.7 percent; medium scientific papers in single candidates is 13.0 percent of candidate.

Existence or non-existence test of the relationship between presenting scientific paper and marital status is displayed in the following table:

Table 10. Chi-square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.254[a]	2	.881
Likelihood Ratio	.255	2	.880
Linear-by-Linear Association	.235	1	.628
N of Valid Cases	92		

Chi-square has been shown 0.254 which is significant with confidence of 95 percent and the error level is more than 0.05. So, the H_0 is accepted and H_1 is rejected. Therefore, there is no relationship between marital status and presenting scientific paper.

Percent distribution and the proportion of presenting scientific paper and occupation are shown in the following table:

Table 11. Percent distribution and the proportion of presenting scientific paper and occupation

			Presenting scientific paper			Total
			Low scientific paper	Medium scientific paper	High scientific paper	
occupation	Public job	Count	12	1	2	15
		% of Total	13.0%	1.1%	2.2%	16.3%
	Private job	Count	11	5	2	18
		% of Total	12.0%	5.4%	2.2%	19.6%
	Teaching job	Count	17	9	1	27
		% of Total	18.5%	9.8%	1.1%	29.3%
	Researching job	Count	13	14	0	27
		% of Total	14.1%	15.2%	0.0%	29.3%
	Others	Count	5	0	0	5
		% of Total	5.4%	0.0%	0.0%	5.4%
Total		Count	58	29	5	92
		% of Total	63.0%	31.5%	5.4%	100.0%

Accordingly, presenting scientific paper in PhD groups which have public jobs is 13.0 percent; in PhD candidates who have private jobs is 12.0 percent; in PhD candidates who have a teaching job is 18.5 percent; in PhD candidates who are researchers themselves is 14.1 percent; and in PhD candidates who have other jobs is 14.1 percent.; in PhD candidates who have a private work is 5.4 percent; in PhD candidates who have a teaching job is 9.8 percent; in PhD candidates involved in researching job is 15.2 percent; and in PhD candidates who have other jobs is 0.0 percent. The results also shows that in high presenting the scientific paper in PhD candidates who has a public job is 2.2 per cent; in PhD candidates who have a private job is 2.2 percent; in PhD candidates who have a teaching job is 1.1 percent.

Existence or non-existence test of the relationship between presenting scientific paper and occupation is displayed in the following table:

Table 12. Chi-square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.570[a]	8	.049
Likelihood Ratio	18.847	8	.016
Linear-by-Linear Association	.003	1	.960
N of Valid Cases	92		

Chi-square has been attained 15.570 that is significant with confidence of 95 percent and the error level is less than 0.05. Thus, the H_0 is rejected and H_1 is accepted. Therefore, there is a meaningful relationship between occupation and presenting scientific paper.

6. Discussion and conclusion

The result of the research show that tendency of the PhD candidate to participate

in research project, membership and activity of student in conferences and the willingness of candidates in scientific collaboration with professors of the PhD candidates are positive and have significant effect on presenting scientific paper. Also the intersection table indicated that presenting scientific papers can be different with diverse position of marital status, age, gender and occupation. In fact, the active PhD candidates who prepared scientific paper are among the age group of 26-36 years old (35.9 percent); the active PhD students who arranged scientific paper are male (56.5 per cent); the active PhD candidates who organized scientific paper are associated to the married ones (55.4 percent). As the result, young researchers are well-advised to strive for publishing their scientific papers in journals with high impact factors– especially if they are not sure yet whether they want to pursue a career in academia or in the non-academic job market. So, it is better to solve the fiscal problem of the researches and have the professional manner in doing the research and increase the staff's knowledge at the universities and institutes can play an important role in improving scientific communications and the culture of researching too.

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