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A study of factors affecting research productivity of Iranian women in ISI

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Abstract Based on the fact that in terms of research productivity, performance of women is weaker than men's, and because little is known on the factors affecting academic women's productivity in Iran, the present article aims to study factors affecting research productivity of Iranian women in ISI. To do this, at first, women who have already had published documents indexed in ISI were identified through Web of Science. Afterwards, in order to collect their view regarding factors affecting women's research productivity, a researcher-made questionnaire was used. To analyze the collected data, the statistical software SPSS (version 17) was used. Both descriptive (Percentage and Frequency) and inferential (ANOVA) statistics were employed to reach valid findings. The findings indicate that the most motivational factors affecting positively publishing scholarly articles by Iranian women are 'Getting promoted in scientific rank', 'Intrinsic talents', 'Perseverance and adventitious knowledge', 'Feeling of being useful in society', 'Getting promoted in job', 'Being encouraged by friends and family', 'Religious lessons regarding the importance of science', and 'Attempt to show individual capabilities'. Finally, some remarks for the improvement of the current condition are highlighted.

Keywords Bibliometrics · Scientific products · Scientific collaboration · Affecting factors · Women · Iran

Introduction and background

One of the main indicators of growth and development of any country is its de facto scientific power or capacity. Undoubtedly, the promotion of such a power depends on producing scholarly information. Accordingly, national science policies in many countries

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nowadays aim to promote their research performance especially through their scientists and faculty members working in higher education institutions, or to be precise, universities (Tasviri-Ghamsari and Jahannama 2008). On the other hand, in higher education, this is also true and thus "research productivity often served as a major role in attaining success in academics as it is related to promotion, tenure and salary" (Bloedel 2001 and Kotrlik et al. 2002; quoted in Wichian et al. 2009, p. 68). As mentioned by Fonseca et al. (1997, p. 159) that "science is a human activity", research productivity in related organizations including higher education institutions is highly influenced by human resources namely men and women. According to the literature e.g. Ferber 1986 and Davenport and Snyder 1995: female scientists publish at slower rates than male scientists and also scientific products of female authors were under-cited; Xie and Shauman 1999: female scientists publish at slower rates than male scientists; Ding et al. 2006: women scientists patent at half the rate of men; Abramo et al. 2009: literature dedicated to analyzing performance differences between the women and the men employed in research seems to agree that, factually, males publish more than females, or female star scientists are concentrated in the lower levels of productivity with respect to their male colleagues; Parker et al. 2010: "in terms of gender, the vast majority of highly cited environmental scientists and ecologists are men" (p. 137); and Larivière et al. 2011: on average, women at universities [in Quebec] are generally less productive in terms of publications than men) the status of research productivity in women is lower than men. This is also supported by one of the studies namely Long (1992) that showed a slower rate of publication by women. Long maintained that the sex of a scholar is an important source of variation in scientific productivity. He reviewed the literature and his review showed that the lower productivity of females has been established in a dozen studies covering a relatively wide number of fields. This generally accepted issue is also true in Iran. For instance, with the aim of exploring and testing gender differences in the authorship of Iranian journal articles, Mozaffarian and Jamali (2008, p. 463) found that "the productivity of female authors at the individual level as measured by article per author share was lower than male authors".

Due to such a reality, Leta (2003, p. 340) declared that "several national and international policies and strategies have been developed to examine and improve women's opportunity in academic research and publication…. It is also important for supporting the growing social and political commitment to promote and monitor women's participation in the different fields of science".

Therefore, based on the fact that in terms of research productivity, performance of women is weaker than men's, and because little is known on the factors affecting academic women's productivity in Iran, the present article aims to study factors affecting research productivity of Iranian women in ISI. Hopefully, a part of such a problem characterized as 'the productivity puzzle' by Cole and Zuckerman (1984; quoted in Fox 2005) can be solved in Iran and similar countries by doing this research and publishing its findings.

Research objective and questions

General objective of this research is studying factors affecting research productivity of Iranian women in ISI during years 1993–2009. In line with the objective, the main questions of the present research are:

1. How is the demographic distribution of Iranian female authors?
2. Which factors do affect Iranian women's participation in producing scholarly articles?

3. How is the ranking of factors affecting Iranian women's participation in producing scholarly articles?
4. Is there any difference among respondents' views about affecting factors?

Research method

To do this applied research, at first, the women who have already had published documents indexed in ISI were identified through searching in Web of Science (WoS). First of all, we searched in WoS database using its Advanced Search facility. We searched 'Iran' in 'CU', the tag defined for country, and set 'time span' to '1993–2009'. This search formula returned us 69,000 records. It means that in this time span, Iranian researchers, whether male or female, had totally published 69,000 articles in international journals indexed in WoS. Since Iranian names have a recognizable gender pattern, in almost all of Iranian names it is possible to recognize female names from male names. Researchers checked all of authors' names against this criterion. Accordingly, 13,550 documents belonged to Iranian women were identified. Contribution in a paper as one of authors was considered. The desirable data retrieved from WoS database were transformed into Microsoft Excell, and after the recognition of female names they were saved in another Excell file and more analysis was done. In order to collect their view regarding factors affecting women's research productivity a researcher-made questionnaire was used. To determine face and content validity of the questionnaire, it was given to eight experts and they were asked to set forth their comments. Once the experts' suggestions were received, the required corrections and amendments were made. Also, by conducting a pilot study and distributing the questionnaire to 32 female researchers, its reliability was examined. As a result, Cronbach's alpha was equal to .96 and thus, the reliability of the questionnaire was confirmed. It is notable that on the basis of simple random sampling method, 100 women were chosen and the questionnaire was sent to them via their e-mail. And, in effect, 77 respondents filled and returned the questionnaire. A simple random sampling was selected so that all samples of the same size to have an equal chance of being selected from the entire population. Some disciplines such as Medical Sciences have had greater share compared to other disciplines. Yet, the researchers were not to investigate differences between disciplines. To analyze the collected data, the statistical software SPSS (version 17) was used. Both descriptive (percentage and frequency) and inferential (ANOVA) statistics were employed to reach valid findings.

Research findings

Q1: How is the demographic distribution of Iranian female authors?

Table 1 reports the demographic distribution of Iranian female authors in terms of age, number of published articles, discipline, work experience, and job.

As Table 1 shows, among 77 participants, 21 ones (27.3%) are at ages between 25 and 30 and totally, the majority of them ($N = 35$; 45.5%) are at ages between 31 and 45, meaning that most of research products are produced by young women who are at fourth and fifth decades of their life. In terms of number of published articles, 14 participants (18.2%) have had more than 20 articles, while 42 individuals (54.6%) have published

Table 1 Descriptive information about respondents

Category	Frequency	Percent
Age		
25–30	21	27.3
31–35	14	18.2
36–40	7	9.1
41–45	14	18.2
46–50	7	9.1
Total	63	81.8
Missing	14	18.2
Total	77	100
Number of published articles		
1–5	21	27.3
6–10	21	27.3
11–15	7	9.1
16–20	7	9.1
20+	14	18.2
Total	70	90.9
Missing	7	9.1
Total	77	100
Discipline		
Social sciences	7	9.1
Medical sciences	42	54.5
Engineering	7	9.1
Basic sciences	7	9.1
Total	63	81.8
Missing	14	18.2
Total	77	100
Work experience		
−10	35	45.5
10	14	18.2
Total	49	63.6
Missing	28	36.4
Total	77	100
Job		
Faculty member	35	45.5
Non-faculty member	35	45.5
Total	70	90.9
Missing	7	9.1
Total	77	100

between 1 and 10 articles, meaning that more than half of mentioned women are researchers whose ISI-ranked publications are equal to 10 or lower than 10 ones in number. Moreover, most of researchers (42 persons; 54.5%) are of Medical Sciences, while researchers of other disciplines like Social Sciences, Engineering, and Basic Sciences were 7 in number. This can be rooted in the place of Medicine in Iran where its practitioners

have high social status and because it is easier and more convenient for women to work at this area compared to other fields especially Engineering and Basic Sciences. As indicated that most of the participants are young, most of them (35 cases; 45.5%) had lower than 10-year work experience. 28 persons (36.4%) avoided to respond to this item. And finally, in terms of participants' job, 35 ones (45.5%) were faculty member. Similarly, 35 ones (45.5%) were non-faculty member. This finding indicates that being faculty or non-faculty member has not affected Iranian women researchers' research products indexed in ISI.

Q2: Which factors do affect Iranian women's participation in producing scholarly articles?

There are some factors affecting research productivity which have been mentioned and studied in some related studies. For instance, institutional or organizational factors such as positive culture for the research at research institution, skill and experience, organizational structure, resources of facilities, research orientation, organizational culture, counseling system, corporate management, clear research objectives, research opportunities, reward system, and network of communication with colleagues were among the most important affecting factors studied by Creswell and Bean (1981), Teodorescu (2000), and Hedjazi and Behravan (2011). Much emphasis on individual factors (e.g. creativity, working habits, motivation, socialization, autonomy and commitment, and self confidence) has been made by Hedjazi and Behravan (2011). Additionally, the results of Babu and Singh's (1998) survey indicated eleven factors affecting research productivity of scientists. "They were: persistence, resource adequacy, access to literature, initiative, intelligence, creativity, learning capability, stimulative leadership, concern for advancement, external orientation, and professional commitment" (p. 309). In a newly published research entitled *Determinates of scientific productivity of Agricultural scientists*, Manjunath and Shashidahra (2011) defined some affecting factors including education, experience, job autonomy, task identity, personal importance, achievement motivation, organizational climate, organizational commitment, job involvement, job satisfaction, organizational stress, and Job stress. It is notable that some studies like Hedjazi and Behravan (2011) considered demographic factors (such as gender, marital status, and degree and appointment type) as effective variables. Finally, on the basis of the related literature, and according to the Iranian context and consulting with eight experts working at National Research Institute for Science Policy,[1] 12 factors—'Attempt to show individual capabilities', 'Being encouraged by colleagues and top managers', 'Being encouraged by friends and family', 'Collaboration with others and colleagues', 'Feeling of being useful in society', 'Getting promoted in job', 'Getting promoted in scientific rank', 'Intrinsic talents', 'Religious lessons regarding the importance of science', 'Language proficiency', 'Perseverance and adventitious knowledge', and 'Rules and regulations of research and development'—which may have an impact on producing scholarly articles were identified. Here, for instance, the rate of the impact of some of them is reported in the form of Tables 2, 3, 4. Positive and motivational impact of the rest is reported in response to the third question.

According to Table 2, 56 respondents (72.8%) rated the impact of factor 'Getting promoted in job' high ($n = 35$; 54.5%) and very high ($n = 21$; 27.3%), respectively.

As Table 3 demonstrates, equally 42 respondents (54.6%) rated the impact of factor 'Collaboration with others and colleagues' high ($n = 21$; 27.3%) and very high ($n = 21$; 27.3%). Similarly, 21 subjects (27.3%) rated the impact of this factor average.

[1] www.nrisp.ac.ir.

Table 2 Getting promoted in job

Rate	Frequency	Percentage
Low	7	9.1
Average	7	9.1
High	35	45.5
Very high	21	27.3
Total	70	90.9
Missing	7	9.1
Total	77	100.0

Table 3 Collaboration with others and colleagues

Rate	Frequency	Percentage
Low	7	9.1
Average	21	27.3
High	21	27.3
Very high	21	27.3
Total	70	90.9
Missing	7	9.1
Total	77	100.0

Table 4 Rules and regulations of research and development

Rate	Frequency	Percentage
Low	14	18.2
Average	14	18.2
High	14	18.2
Very high	28	36.4
Total	70	90.9
Missing	7	9.1
Total	77	100.0

Respondents' view on the impact of factor 'Rules and regulations of research and development' is included in Table 4. Accordingly, about 60% rated its impact on research productivity high and very high. The rest, about 40% rated equally the impact of the factor average and low.

Q3: How is the ranking of factors affecting Iranian women's participation in producing scholarly articles?

In order to respond to this question and thus to rank factors affecting Iranian women's participation in producing scholarly articles, percentages 'high' and 'very high' rated in the second question were summed together to obtain an estimated percentage. Table 5 reports this finding.

As can be seen in Table 5, in order of ranking, the respondents believed that the most effective factors are 'Getting promoted in scientific rank', 'Intrinsic talents', and 'Perseverance and adventitious knowledge'. After them, factors 'Feeling of being useful in

Table 5 Ranking of factors affecting Iranian women's participation in producing scholarly articles

Rank	Affecting factors	Percentage[a]
3	Religious lessons regarding the importance of science	64
5	Being encouraged by colleagues and top managers	0
2	Feeling of being useful in society	73
3	Attempt to show individual capabilities	64
2	Getting promoted in job	73
1	Getting promoted in scientific rank	82
4	Rules and regulations of research and development	55
2	Being encouraged by friends and family	73
1	Intrinsic talents	82
1	Perseverance and adventitious knowledge	82
4	Language proficiency	55
4	Collaboration with others and colleagues	55

[a] All percentages are rounded to the nearest full point

society', 'Getting promoted in job', and 'Being encouraged by friends and family' ranked as factors that have high impact on Iranian women's participation in producing scholarly articles. It is notable that they believed less place for three factors namely 'Rules and regulations of research and development', 'Language proficiency', and 'Collaboration with others and colleagues'. Also, they supposed that factor 'Being encouraged by colleagues and top managers' has no effect in their scientific productivity. Another outstanding and quite interesting finding deserving to be highlighted is the compatibility of the Iranian women's standpoint with what the prophet of Islam emphasizes concerning the importance of knowledge, education, and research. For example, he reminds such lessons through his sayings like 'seek knowledge from the cradle to the grave' (Nahj al-Fasahah[2] 2005, Hadith 327), 'seek knowledge even unto China, and the acquisition of knowledge is a duty incumbent upon every Muslim, male and female' (Nahj al-Fasahah 2005, Hadith 324), and 'ink of a scholar is holier than the blood of a martyr' (Bihar al-Anwar 2001, Hadith 40).[3] That may be why the affecting factor 'Religious lessons regarding the importance of science' has reached a high rank of 3 (64%) in the view of the present research Iranian participants.

Q4: Is there any difference among respondents' views about affecting factors?

The results of the ANOVA, which is a method to check the significance of results, are indicated in Tables 6, 7, 8 in which the difference among respondents' views about affecting factors by their discipline, age, and number of published article are reported. By means of comparing the 'Sig.' value to alpha (.05), the decision rule is as follows: if the significance value is less than alpha, we can conclude that there is a significant difference between the groups, meaning that the participants have different views about affecting factors.

[2] See also http://messageofthaqalayn.com/39-pearls.pdf.

[3] See also http://en.wikiquote.org/wiki/Muhammad.

According to Table 6, except of factor 'Getting promoted in scientific rank' ($F = 2.740$, $p = .053$), there is a difference among respondents' views about defined affecting factors.

According to Table 7, except of factor 'Getting promoted in job' ($F = 2.071$, $p = .096$), there is a difference among respondents' views about defined affecting factors.

According to Table 8, except of factor 'Feeling of being useful in society' (F = 2. 197, p = .081), there is a difference among respondents' views about defined affecting factors.

Discussion and conclusion

It is hoped that this research can contribute to the field of scientific productivity or science production which as a competitive advantage is of high importance in the world of knowledge. Paying attention to the factors defined and analyzed here may enrich the literature related to Scientometrics, and help related bodies especially authorities, decision makers as well as policy makers do their best, taking outstanding steps towards the betterment and facilitation of doing research and publishing scholarly articles. In general, the findings indicate that the most motivational factors affecting positively publishing scholarly articles by Iranian women are 'Getting promoted in scientific rank', 'Intrinsic talents', 'Perseverance and adventitious knowledge', 'Feeling of being useful in society', 'Getting promoted in job', 'Being encouraged by friends and family', 'Religious lessons regarding the importance of science', and 'Attempt to show individual capabilities'. Additionally, totally, on the basis of data included in Tables 6, 7, 8, it is apparent that discipline, age, and number of published articles of participants have effect on their view regarding affecting factors. But, the rate of perceived effect is different from Iranian women's perspective. It should be reminded that they had a consensus on the effect of three factors 'Getting promoted in scientific rank', 'Getting promoted in job', and 'Feeling of being useful in society'. In other words, there was not a difference among respondents' views about these three affecting factors. Like Babu and Singh (1998) whose study showed that factor 'concern for advancement' affects research productivity, the present study which defined three similar factors (i.e. 'Getting promoted in scientific rank', 'Getting promoted in job', and 'Attempt to show individual capabilities') showed that advancement or promotion, whether for academic rank or occupational, are of significance for the women who are interested in better place and status among their colleagues. Also, Babu and Singh's (1998) findings under which factors 'persistence', 'initiative', 'intelligence', 'creativity', 'learning capability', are among the factors influencing the research productivity are supported by our findings that identified factors 'Intrinsic talents' and 'Perseverance and adventitious knowledge' as affecting factors. Comparing our findings with Hedjazi and Behravan's (2011), it is realized that as we introduced factor 'Intrinsic talents' as an affecting factor they ranked two similar factors 'creativity' and 'self-confidence' as determinants that have a meaningful relationship with the faculty members' research productivity. It is notable that they identified factor 'network of communication with colleagues' as an influential factor, while similar factor 'Collaboration with others and colleagues' in our study was less considered compared to other defined factors. Such a finding is also relatively incompatible with Fonseca et al. (1997, p. 170) results showing that "in spite of the great sophistication of science in our days, scientists still give much more importance to human factors as the main driving force for scientific productivity". In this line, they found that "the most productive scientists tend to attribute more importance to human relations than their colleagues with lower productivity scores." Moreover, regardless of Manjunath and Shashidahra's (2011) study indicating that "the personal, socio-psychological and organizational related factors

Table 6 ANOVA for Q4 by respondents' discipline

Sig.	*F*	Mean square	df	Sum of squares		
.000	11.104	7.175	3	21.525	Between groups	Religious lessons regarding the importance of science
		.646	52	33.6	Within groups	
			55	55.125	Total	
.000	7.429	2.8	3	8.4	Between groups	Feeling of being useful in society
		.377	52	19.6	Within groups	
			55	28	Total	
.000	66.625	7.175	3	21.525	Between groups	Attempt to show individual capabilities
		.108	52	5.6	Within groups	
			55	27.125	Total	
.000	25.226	9.508	3	28.525	Between groups	Getting promoted in job
		.377	52	19.6	Within groups	
			55	48.125	Total	
.053	2.74	2.508	3	7.525	Between groups	Getting promoted in scientific rank
		.915	52	47.6	Within groups	
			55	55.125	Total	
.000	37.607	14.175	3	42.525	Between groups	Rules and regulations of research and development
		.377	52	19.6	Within groups	
			55	62.125	Total	
.008	4.333	1.867	3	5.6	Between groups	Being encouraged by friends and family
		.431	52	22.4	Within groups	
			55	28	Total	
.000	14.49	6.242	3	18.725	Between groups	Being encouraged by colleagues and top managers
		.431	52	22.4	Within groups	
			55	41.125	Total	
.000	7.493	4.842	3	14.525	Between groups	Intrinsic talents
		.646	52	33.6	Within groups	
			55	48.125	Total	
.000	19.286	2.25	3	6.75	Between groups	Perseverance and adventitious knowledge
		.117	45	5.25	Within groups	
			48	12	Total	
.000	53.083	8.575	3	25.725	Between groups	Language proficiency
		.162	52	8.4	Within groups	
			55	34.125	Total	
.036	3.059	2.8	3	8.4	Between groups	Collaboration with others and colleagues
		.915	52	47.6	Within groups	
			55	56	Total	

Table 7 ANOVA for Q4 by respondents' age

Sig.	*F*	Mean square	df	Sum of squares		
.000	29.254	11.181	4	44.722	Between groups	Religious lessons regarding the importance of science
		.382	58	22.167	Within groups	
			62	66.889	Total	
.002	4.833	1.847	4	7.389	Between groups	Feeling of being useful in society
		.382	58	22.167	Within groups	
			62	29.556	Total	
.000	8.056	3.889	4	15.556	Between groups	Attempt to show individual capabilities
		.483	58	28	Within groups	
			62	43.556	Total	
.096	2.071	1.75	4	7	Between groups	Getting promoted in job
		.845	58	49	Within groups	
			62	56	Total	
.008	3.842	3.014	4	12.056	Between groups	Getting promoted in scientific rank
		.784	58	45.5	Within groups	
			62	57.556	Total	
.000	13.565	8.458	4	33.833	Between groups	Rules and regulations of research and development
		.624	58	36.167	Within groups	
			62	70	Total	
.000	8.458	2.722	4	10.889	Between groups	Being encouraged by friends and family
		.322	58	18.667	Within groups	
			62	29.556	Total	
.000	26.583	8.556	4	34.222	Between groups	Being encouraged by colleagues and top managers
		.322	58	18.667	Within groups	
			62	52.889	Total	
.002	4.833	3.014	4	12.056	Between groups	Intrinsic talents
		.624	58	36.167	Within groups	
			62	48.222	Total	
.000	9.107	1.458	4	5.833	Between groups	Perseverance and adventitious knowledge
		.16	51	8.167	Within groups	
			55	14	Total	
.000	9.227	4.083	4	16.333	Between groups	Language proficiency
		.443	58	25.667	Within groups	
			62	42	Total	

Table 7 continued

Sig.	*F*	Mean square	df	Sum of squares		
.000	28.463	10.306	4	41.222	Between groups	Collaboration with others and colleagues
		.362	58	21	Within groups	
			62	62.222	Total	

have a pronounced effect on productivity and job perspective" (p. 12), the importance of two certain factors defined by them (i.e. 'personal importance' and 'achievement motivation') are also confirmed by our findings which highlighted outstanding place for similar factors namely 'Getting promoted in scientific rank', 'Getting promoted in job', 'Attempt to show individual capabilities', and 'Feeling of being useful in society'. It is notable that we recognized factor 'Being encouraged by friends and family' as an effective factor; a finding that is compatible with findings of other studies including Stack (2004) and Barzebat (2006) which have demonstrated that the impact of family on women's research productivity is positive.

In terms of quantity and in a similar context, Mozaffarian and Jamali (2008, p. 471) declared that "women accounted for slightly less than a sixth of the academics in Iran at the time of the study (articles published by Iranian authors in the year 2003), which means they were in a low minority and this could have had an impact on their productivity…Women contributed in 13.4% (352 from the total of 2,626) of the articles published by Iranian scholars in 2003 and in this contribution they only accounted for .34 of the contributing authors", whereas according to our findings, Iranian documents indexed in WoS during 1993–2009 were 69,000 in number among which 13,550 documents belonged to Iranian women. In fact, women's contribution in publishing scholarly articles is about 19.6%. This is more likely due to the importance of research productivity given to this area by Iran's policy makers whose decisions have been highly revolving around slogan "Science Production Movement" in recent years. Also, we can make a reference to other factors like increased budget allocated to research in the form of grants and awards, holding research-oriented festivals such as Farabi,[4] Kharazmi,[5] and so forth, and especially, increased entrance of girls into universities and so increased employment of women as faculty members and research staff in related institutions.

Generally, emphasizing the role personal or individual factors can play in research productivity, it is recommended that the women redesign their research planning through thinking functionally and promote their research skills more so that their knowledge gap (Hüsing and Selhofer 2002) can be bridged or diminished significantly. On the other hand, we should accept that 'research productivity' is a multi-dimensional phenomenon. Hence, other basic and essential requirements—infrastructural, psychological, organizational and managerial, economic, social, and cultural—must be taken into consideration to enhance research products of women.

As for the future, we would like to study inhibitory factors hindering Iranian women's research productivity.

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[4] http://www.farabiaward.ir/.

[5] http://www.khwarizmi.ir/.

Table 8 ANOVA for Q4 by respondents' number of published articles

Sig.	*F*	Mean square	df	Sum of squares		
.000	20.139	9.722	4	38.889	Between groups	Religious lessons regarding the importance of science
		.483	58	28	Within groups	
			62	66.889	Total	
.081	2.197	.972	4	3.889	Between groups	Feeling of being useful in society
		.443	58	25.667	Within groups	
			62	29.556	Total	
.000	120.833	9.722	4	38.889	Between groups	Attempt to show individual capabilities
		.08	58	4.667	Within groups	
			62	43.556	Total	
.000	31.9	9.625	4	38.5	Between groups	Getting promoted in job
		.302	58	17.5	Within groups	
			62	56	Total	
.008	3.842	3.014	4	12.056	Between groups	Getting promoted in scientific rank
		.784	58	45.5	Within groups	
			62	57.556	Total	
.000	109.786	15.458	4	61.833	Between groups	Rules and regulations of research and development
		.141	58	8.167	Within groups	
			62	70	Total	
.000	37.976	5.347	4	21.389	Between groups	Being encouraged by friends and family
		.141	58	8.167	Within groups	
			62	29.556	Total	
.000	149.833	12.056	4	48.222	Between groups	Being encouraged by colleagues and top managers
		.08	58	4.667	Within groups	
			62	52.889	Total	
.021	3.127	2.139	4	8.556	Between groups	Intrinsic talents
		.684	58	39.667	Within groups	
			62	48.222	Total	
.000	9.107	1.458	4	5.833	Between groups	Perseverance and adventitious knowledge
		.16	51	8.167	Within groups	
			55	14	Total	
.000	14.5	5.25	4	21	Between groups	Language proficiency
		.362	58	21	Within groups	
			62	42	Total	
.000	26.202	10.014	4	40.056	Between groups	Collaboration with others and colleagues
		.382	58	22.167	Within groups	
			62	62.222	Total	

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