The Mentorship Effectiveness of Demographic and Professional Characteristics of University PhD Teachers in Pakistan

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Abstract

The practical significance of the theory of mentors' roles including four mentor functions specified in the literature are; career support, intellectual growth, psychosocial development and research supervision, have been investigated empirically in the private and public sector universities. The perceived mentorship behaviour model has been formulated and tested by evaluating 335 PhD faculty members as mentors from 19 public sectors and 180 from 8 private sector universities. The demographic and professional characteristics of the mentors have been analyzed for mean differences by taking a random sample of 515 PhD faculty members, out of which a total of 440 responded to a structured research instrument. Responses have been analyzed using stratified random sampling technique which revealed that the research model is statistically significant in explaining the mentorship functions in terms of demographic and professional characteristics of mentors. However, gender and research supervision have been identified as significantly different in terms of mentorship of the mentees by mentors in private versus public sector universities.

Disciplinary: Behavioural Studies, Higher Education, Educational Statistics and Analysis, Research & Modeling, Social Sciences.

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1 Introduction

The theory of mentor roles by Karm (1983) has been an important theory that has introduced career as well as psychosocial mentor functions. These mentor roles have continuously been used to examine mentor effectiveness relating to the mentorship activities performed by mentors in education institutions. Hernandez et al. (2017) and Carpenter et al. (2015) have enhanced the mentor functions by introducing and testing intellectual growth and research supervision as third and fourth functions, essential for mentors for mentorship of mentees in educational institutions. This study has been initiated in response to the call for research by Carpenter et al. (2015) to report additional evidence from the world relating effectiveness of mentor's functions in practice.

This research studies four mentor roles as functions have been included, which are career support, intellectual growth, psychosocial development, and research supervision have been taken as professional characteristics of the mentors and consecutively mentors' gender, academic rank, self-efficacy structure in terms of confidence-level and anxiety-level as demographic characteristics of the mentors. The professional, as well as demographic characteristics, have been transformed into a model termed as 'perceived mentorship behaviour model'. The main findings of the study have revealed that the psychosocial development function of the mentors is among the best-performed function in public and private sector universities. Moreover, in private sector universities research supervision has been considered the best mentorship practice as compared to the mentors performing this function in public sector universities. Furthermore, mentors in terms of efficacy structure worked with higher confidence and with low anxiety levels in the universities. Empirically gender and research supervision are reported statistically different in the private sector as the compared public sector in terms of demographic and professional characteristics of the mentors who are PhD faculty members of universities.

This research study certainly adds value to the body of subject knowledge and is valuable for researchers, academicians, and policymakers to get insights relating execution of mentor functions by PhD faculty members' mentoring mentees in Pakistan, a South Asian country with the largest youth population equalling 64 percent (UNDP, 2017; Ahmed et al., 2020). Moreover, this study is an extension of Hussain et al. (2021) with entirely different empirical statistical analyses and results. It is therefore argued with confidence that mentorship is critical and crucial for the young mentees entering the higher education sector of the country with the resolve to play a vital role in the socio-economic development and growth of Pakistan.

2 Literature Review

The literature review compiles theoretical as well as empirical significance provided in support to formulate and analyze perceived mentorship behaviour model.

2.1 The Theory of Mentor Roles and PhD Faculty Mentorship

Karm (1983) invented the Theory of Mentor Roles that had identified as well as explained two main functions of mentor role which are; career and psychosocial. According to Karm (1983),

the Career support function has been sub-divided into the dimensions of sponsorship, visibility, exposure, protection, coaching as well as challenging assignments on the job. Similarly, the function of psychosocial development has been sub-divided into dimensions of role modeling, conformation, and acceptance in an organizational setting relating to performing tasks.

2.2 Significance of Mentorship of Mentors around the World

An interesting study that supported the theory of mentor roles by Alisic et al. (2016) studied the mentorship in the field of medicine and examined two broad functions of mentors including; career development and psychosocial support by examining the trainees who were getting trained in different specialized medicine Sciences. Similarly, Brewer et al. (2016) had highlighted mentorship in terms of career support, contextual linkage, relationship as well as interaction as the vital constructs which need to be characterized as knowledge capacity of mentor, time spent on mentoring as investment and creation of growth opportunities for the students or trainees getting mentored by the mentors. Likewise, Carpenter et al. (2015) highlighted that the mentorship process for the supervision and mentorship of the doctoral students in a university had been an important process and system that must include career, intellectual, psychosocial as well as research as four functions of mentors. Carpenter et al. reported that mentors' research function was significantly and positively associated with the gender, academic ranks, and self-efficacy structure of the mentorship activities. However, mentor gender was not associated with the mentors' functions, but academic rank had a significantly negative association with the mentors' functions. Conversely, Ooms et al. (2018) argued that heterogeneity between mentor and mentee during early career mentorship work was considered vital for the mentors' career progression if mentors as faculty members want to secure tenure in their respective departments and universities operating globally. However, Katz et al. (2019) had emphasized mentoring as an important process for the professional development of doctoral students and signified it as an ingredient to achieve higher productivity through quality research.

2.3 Review of Literature Relating Gender, Academic Rank, and Self-Efficacy Structure of Mentors

In the higher education universities of Australia, Fowler (2017) reported that early-career faculty members were struggling hard to perform duties relating to research productivity and teaching assignments besides the fact that these faculty members have to bear women inequality while availing growth opportunities relating to academics in higher education sector. Angervall (2016) found that female mentors had to complete heavy teaching workloads and therefore these mentors were unable to perform mentor functions effectively. Welton et al. (2014) reported mentorship experiences of mentors mentoring doctoral students in different educational leadership PhD programs and recommended that a mentor must facilitate mentee in skill development, professional and career development. Rosati et al. (2017) was on the mentorship effectiveness and career achievements of the surgeons who were working in 56 different American academic

institutions, reported that surgeons with different academic ranks successfully performed their duties and mentored subordinates. Relatedly, Yehia et al. (2016) studied the mentorship of faculty members working in different medical-related careers and emphasized the grooming of the next generation of physicians as effective mentors at all the academic ranks.

Trube and VanDerveer (2015) discussed mentor roles in developing, supporting, and grooming scholars joining universities to foster a research environment required to deliver excellence and expert supervision. But, Nowell et al. (2015) had reported that formal as well as informal ways of mentoring in the form of peers, telementoring arrangement, dyadic and online mentoring promoted by the Canadian government created positive effects on all the ranks of nursing faculty members' mentorship across nursing educational institutions in Canada. Further, Kalen et al. (2015) concluded that long-term mentorship had ensured the effective deployment of mentorship functions in Sweden, and mentors with higher academic ranks had completed mentorship responsibilities in multiple training programs. The studies on self-efficacy structure including confidence and anxiety as factors have been done by many researchers. Gonzalez et al. (2017) reported that the self-efficacy structure of mentors had been positively associated with teaching commitment and teaching styles in the higher education sector. Moreover, Hemmings and Kay (2016) studied the mentorship of Australian university faculty members and found a close link of higher self-efficacy with higher research productivity.

2.4 Null Hypotheses of This Study

The null hypotheses formulated in line with the cited literature are as follows;

Ho1: Mentors' perceived mentorship behaviour has no significant differences in terms of career support as mentor function execution in public versus private sector universities.

Ho2: Mentors' perceived mentorship behaviour has no significant differences in terms of intellectual growth as mentor function execution in public versus private sector universities.

Ho3: Mentors' perceived mentorship behaviour has no significant differences in terms of psychosocial development as mentor function execution in public versus private sector universities.

Ho4: Mentors' perceived mentorship behaviour has no significant differences in terms of research supervision as mentor function execution in public versus private sector universities.

Ho5: Demographic characteristics versus professional characteristics of perceived mentorship behaviour model have no significant differences during mentorship functions execution in public versus private sector universities.

3 Method and Model of the Study

In this study, an adopted research questionnaire has been initially pilot-tested and further face validated by collecting primary data from two public and two private sector universities imparting higher education in the areas of Rawalpindi and Islamabad, Pakistan. Then statistical tests of mean difference have been applied on professional and demographic characteristics of PhD faculty members working as mentors in public and private sector universities. The mentors'

responses have been collected from a sample of 440 mentors where 310 mentors are from the public sector and 130 mentors.

Figure 1 shows the research model of this study between professional characteristics and demographic characteristics as indicated in the hypotheses.
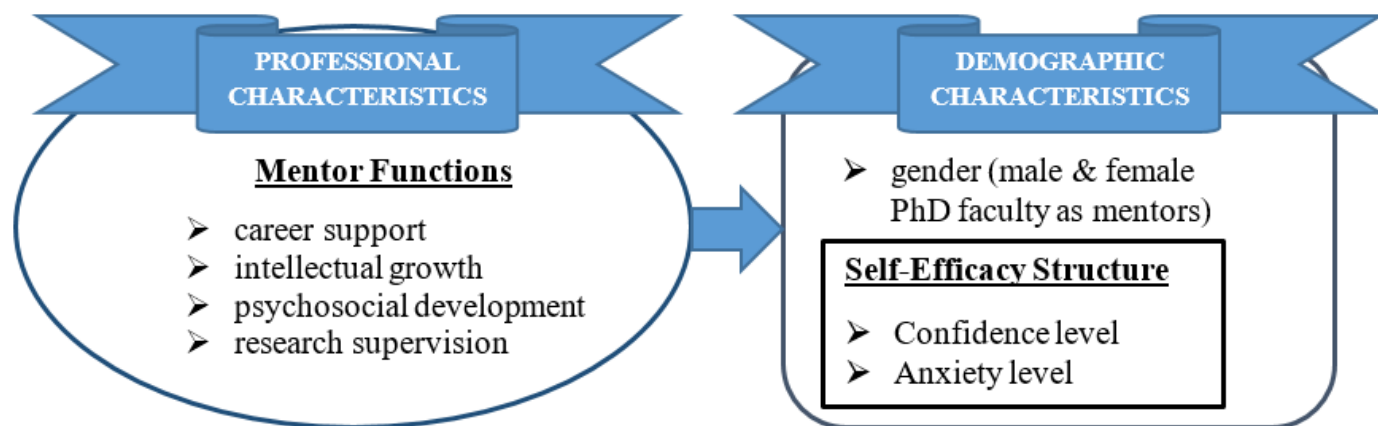
Figure 1: Perceived Mentorship Behaviour Model.

4 Result and Discussion

Table 1 reports population mean relating professional as well as demographic characteristics of mentor functions performed by mentors in public and private sector universities.

Table 1: Population Mean Statistics of Professional and Demographic Characteristics of Mentors

Mentor Characteristics		Career Support Function	Intellectual Growth Function	Psychosocial Development Function	Research Supervision Function
Professional	N	440	440	440	440
	Mean	3.76	4.25	4.21	3.47
		Mentor Gender	Mentor Academic Rank	Mentor Confidence Level	Mentor Anxiety Level
Demographic	N	440	440	440	440
	Mean	1.23	1.31	4.25	3.10

The population mean of career support is 3.76, the means of intellectual growth is 4.24, the mean of psychosocial development is 4.21 and the mean of research supervision is 3.47 for the professional characteristics of the mentors, however, the population mean of mentor gender is 1.23, the mean value of mentor academic rank is 1.31, the mean value of mentor self-efficacy structure in terms of confidence level is 4.25 and the mean value of mentor self-efficacy structure in terms of anxiety level is 3.10 for the demographic characteristics of the mentors.

4.1 Mean Differences Results Relating Professional Characteristics of Mentors in Public Sector

Table 2 reports the results of one sample t-test performed to examine the mean scores of mentor functions of mentors in the public sector universities. The population mean of career support is 3.76 and the sample mean is 3.76. Thus, the mean difference value of 0.039 at 95 percent confidence interval with difference lower and upper values from -0.028 to 0.107 is considered very

small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.250 which is greater than the 5% significance level. Conversely, the population mean of intellectual growth is 4.25 and the sample mean is 4.23. Therefore, the mean difference value of -0.022 at 95 percent confidence interval with difference lower and upper values from -0.083 to 0.039 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.473 which is greater than the 5 percent significance level. Moreover, the population mean of psychosocial development is 4.21 and the sample mean is 4.19. Thus, the mean difference value of -0.015 at 95 percent confidence interval with difference lower and upper values from -0.085 to 0.055 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.678 which is greater than the 5 percent significance level. Finally, the population mean of research supervision is 3.47 and the sample mean is 3.43. Therefore, the mean difference value of -0.039 at 95 percent confidence interval with difference lower and upper values from -0.124 to 0.046 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.370 which is greater than the 5 percent significance level. Thus null hypotheses Ho1, Ho2, Ho3, Ho4 are supported.

Table 2: One-Sample t-test Statistics of modeled variables in Public Sector

Variables	N	Mean	SD.	Std. Error Mean	Test Value	t value	df	Sig. (2-tailed)	Mean Diff.	95% Confidence Interval of the Difference	
										Lower	Upper
Career Support	310	3.79	.602	.034	3.76	1.152	309	.250	.039	-.028	.107
Intellectual Growth	310	4.23	.545	.031	4.25	-.719	309	.473	-.022	-.083	.039
Psychosocial Development	310	4.19	.629	.036	4.21	-.415	309	.678	-.015	-.085	.055
Research Supervision	310	3.43	.760	.043	3.47	-.899	309	.370	-.039	-.124	.046

4.2 Mean Differences Results Relating Professional Characteristics of Mentors in the Private Sector

Table 3 reports the results of one sample t-test performed to examine the mean scores of mentor functions of mentors in the private sector universities. The population mean of career support is 3.76 and the sample mean is 3.67. Therefore, the mean difference value of -0.089 at 95 percent confidence interval with difference lower and upper values from -0.190 to 0.012 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.083 which is greater than the 5% significance level. Conversely, the population mean of intellectual growth is 4.25 and the sample mean is 4.32. Therefore, the mean difference value of 0.068 at 95 percent confidence interval with difference lower and upper values from -0.019 to 0.156 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.124 which is greater than a 5% significance level.

Table 3: One-Sample t-test Statistics of modeled variables in Private Sector

Variables	N	Mean	SD	Std. Error Mean	Test Value	t value	df	Sig. (2-tailed)	Mean Diff.	95% Confidence Interval of the Difference	
										Lower	Upper
Career Support	130	3.67	.583	.051	3.76	-1.745	129	.083	-.089	-.190	.012
Intellectual Growth	130	4.32	.505	.044	4.25	1.547	129	.124	.068	-.019	.156
Psychosocial Development	130	4.24	.693	.061	4.21	.531	129	.596	.032	-.088	.153
Research Supervision	130	3.58	.734	.064	3.45	2.012	129	.046	.129	.002	.257

Moreover, the population mean of psychosocial development is 4.21 and the sample mean is 4.24. Therefore, the mean difference value of 0.032 at 95% confidence interval with difference lower and upper values from -0.088 to 0.153 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the two-tailed significance value of 0.596 which is greater than the 5% significance level. Finally, the population mean of research supervision is 3.47 and the sample mean is 3.58. Thus, the mean difference value of 0.129 at 95 percent confidence interval with difference lower and upper values from 0.002 to 0.257 is considered the moderate difference between means. This fact is also endorsed by the two-tailed significance value of 0.046 which is less than the 5% significance level. Thus null hypotheses Ho1, Ho2, Ho3 are supported but Ho4 is rejected.

4.3 Mean Differences Results Relating Demographic Characteristics of Mentors in Public Sector

Table 4: One-Sample t-test Statistics of modeled variables in Public Sector

Variables	N	Mean	SD	Std. Error Mean	Test Value	t value	df	Sig. (2-tailed)	Mean Diff.	95% Confidence Interval of the Difference	
										Lower	Upper
Gender	310	1.26	.441	.025	1.23	1.376	309	.170	.034	-.015	.084
Academic Rank	310	1.26	.564	.032	1.31	-1.420	309	.157	-.045	-.108	.018
Confidence Level	310	4.27	.545	.031	4.25	.552	309	.581	.017	-.044	.078
Anxiety Level	310	3.06	1.090	.062	3.10	-.703	309	.482	-.043	-.165	.078

Table 4 reports the results of one sample t-test performed to examine the mean scores of mentor functions of mentors in the public sector universities. The population mean of gender is 1.23 and sample mean is 1.26. Therefore, the mean difference value of 0.034 at 95 percent confidence interval with difference lower and upper values from -0.015 to 0.084 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.170 which is greater than the 5 percent significance level. Conversely, the population relating to academic rank is 1.31, and the mean value of the sample is 1.26. Therefore, the mean difference value of -0.045 at 95 percent confidence interval with difference lower and upper values from -0.108 to 0.018 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.157 which is greater than the 5 percent significance level. Moreover, the population mean confidence

level is 4.25 and the sample mean is 4.27. Therefore, the mean difference value of 0.581 at 95 percent confidence interval with difference lower and upper values from -0.044 to 0.078 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.581 which is greater than the 5 percent significance level. Finally, the population mean anxiety level is 3.10 and the mean value of the sample is 3.06. Therefore, the mean difference value of -0.043 at 95 percent confidence interval with difference lower and upper values from -0.165 to 0.078 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.482 which is greater than the 5 percent significance level. Thus null hypothesis Ho5 is supported.

4.4 Mean Differences Results Relating Demographic Characteristics of Mentors in Private Sector

From Table 5, the results are of one sample t-test examining the mean scores of mentor functions of mentors in the private sector universities. The population mean of gender is 1.23 and the sample mean is 1.15. Therefore, the mean difference value of -0.076 at a 95 percent confidence interval with different lower and upper values from -0.139 to 0.013 is considered a moderate mean difference. This fact is also endorsed by the 2 tailed significance value of 0.018 which is less than the 5 percent significance level. Conversely, the population mean of academic rank is 1.31 and the sample mean is 1.41. Therefore, the mean difference value of 0.105 at 95% confidence interval with difference lower and upper values from -0.010 to 0.221 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the two-tailed significance value of 0.074 which is greater than the 5% significance level. Moreover, the population mean confidence level is 4.25 and the sample mean is 4.20. Therefore, the mean difference value of -0.045 at 95 percent confidence interval with difference lower and upper values from -0.135 to 0.045 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.321 which is greater than the 5 percent significance level. Finally, the population mean anxiety level is 3.10 and the sample mean is 3.22. Therefore, the mean difference value of 0.121 at 95% confidence interval with difference lower and upper values from -0.068 to 0.311 is considered very small and thus the mean difference is minimal and negligible. This fact is also endorsed by the 2 tailed significance value of 0.209 which is greater than the 5 percent significance level. Thus null hypothesis H_{o5} is not supported only for gender.

Table 5: One-Sample t-Test Statistics of modeled variables in Private Sector

Variables	N	Mean	Std. Dev.	Std. Error Mean	Test Value	t value	df	Sig. (2-tailed)	Mean Diff.	95% Confidence Interval of the Difference	
										Lower	Upper
Gender	130	1.15	.362	.032	1.23	-2.397	129	.018	-.076	-.139	-.013
Academic Rank	130	1.41	.668	.058	1.31	1.799	129	.074	.105	-.010	.221
Confidence Level	130	4.20	.520	.045	4.25	-.996	129	.321	-.045	-.135	.045
Anxiety Level	130	3.22	1.093	.096	3.10	1.263	129	.209	.121	-.068	.311

5 Conclusion

This research has formulated and tested the perceived mentorship behaviour model. The results revealed that the mean difference between mentors from the public versus private sector universities is not statistically different in performing mentor functions in the case of career support, intellectual growth, and psychosocial development, also true for mentor academic rank and efficacy structure in public as well private sector universities. However, gender and research supervision are statistically different in the private sector as compared to public sector universities in terms of the professional and demographic characteristics of the PhD faculty mentors.

6 Availability of Data and Material

Data can be made available by contacting the corresponding author by email.

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