

Interaction Effect of Multiple Intelligence, Emotional Intelligence and Social Intelligence on Professional Effectiveness of Teachers

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ABSTRACT

The present normative survey was aimed to study the main effect and interaction effect of multiple intelligence, emotional intelligence, and social intelligence on professional effectiveness of secondary school teachers of Kerala. Standardised tools to measure the variables were administered on a sample of 618 secondary school teachers, selected on a stratified random basis, from four districts of Kerala. The data, thus collected, were subjected to statistical analysis (three-way ANOVA) by keeping the objectives and hypotheses in mind. The study revealed that multiple intelligence and social intelligence have significant main effect on professional effectiveness of teachers. The main effect of social intelligence on professional effectiveness is, however, not significant. Emotional intelligence have significant interaction effect with both multiple intelligence and social intelligence on professional effectiveness of teachers. The interaction effect of social intelligence and multiple intelligence on professional effectiveness is, however, not significant. The interaction of the three independent variables on the dependent variable is significant.

Keywords: *Professional Effectiveness, Multiple Intelligence, Emotional Intelligence, Social Intelligence, Main Effect, Interaction Effect.*

The role of teacher in the process of education is vital. Research has emphasized the importance of effective teachers as the most critical factor in determining school and student success (Mathers & Olivia, 2008). The effectiveness of a teacher depends largely on his/her personality (Khatal, 2010). His abilities, both inborn and acquired, his talents, professional skills, his attitudes, temperament etc. are all decisive factors in classroom effectiveness. Successful teaching is the net result of the harmonious integration of so many component abilities, skills, knowledge and motivational factors of the teacher (Peter, 2012). Cognitive intelligence of the teacher is not a guarantee for effective classroom teaching (Aloe & Becker, 2009). Teaching is not only a cognitive challenge; it is also socially and emotionally

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demanding (Jennings & Greenberg, 2009). The teacher characteristics, especially his abilities other than cognitive abilities such as multiple intelligences, emotional intelligence, social intelligence and the like, may have a decisive influence on performing effectively in the classroom. Though few attempts have made to investigate the relationship of the effectiveness of teachers to their multiple intelligence (D'Costa & Deshmukh, 2010), emotional intelligence (Bala, 2017), and social intelligence (Paul & Arjunan, 2016; Mahaboobvali & Vijaya, 2016), the interplay of these non-cognitive ability factors on professional effectiveness of teachers is totally an unexplored area of research investigation. This study is a modest attempt to bridge this research gap by investigating the main effect and interaction effect of the multiple intelligence, emotional intelligence and social intelligence of secondary school teachers to their professional effectiveness.

Objective

- To study the main effect and interaction effect of multiple intelligence, emotional intelligence, and social intelligence of secondary school teachers on their professional effectiveness.

Hypothesis

- There will be no significant main effect and interaction effect of multiple intelligences, emotional intelligence, and social intelligence on professional effectiveness of secondary school teachers.

METHODOLOGY

Normative survey method was used in the present study. The study made use of a sample of 618 secondary school teachers (male = 164, and female = 454), selected on the basis of 'stratified random sampling technique' from Kottayam, Ernakulam, Thrissur and Palakkad districts of Kerala. The average age of the subjects were estimated to be 42.36. The measuring instruments employed are: (1) Multiple Intelligence Scale for Secondary School Teachers developed (Arjunan & Bindu, 2012), (2) Professional Effectiveness Scale for Secondary School Teachers, (3) Emotional Intelligence Scale for Secondary School Teachers, and (4) Social Intelligence Test for Secondary School Teachers. The last three instruments were developed by the authors in 2015 for the purpose of the research study.

Procedure

The tools were administered on the sample in small group situation under standardized conditions, their responses were collected in the response sheets, and the total score on the instruments were found out. A personal data sheet was also attached with the tools, so as to collect the required demographic information. The data thus obtained were subjected to appropriate statistical techniques and interpreted accordingly. The statistical analysis was accomplished with the help of SPSS (Windows 17.0).

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RESULT AND DISCUSSION

In order to find out the main effect and interaction effect of Multiple Intelligence (MI), Emotional Intelligence (EI) and Social Intelligence (SI) on Professional Effectiveness (PE) of Secondary School Teachers, three-way ANOVA was carried out. The result is presented in Table 1.

Table 1: Summary of 3 X 3 factorial design ANOVA for professional effectiveness of secondary school teachers

Dependent variable: PE

Source	Type III Sum of	df	Mean Square	F	Sig.
Corrected Model	126952.618a	23	5519.679	13.822	.000
Intercept	3362908.413	1	3362908.413	8.421E3	.000
MI	21434.678	2	10717.339	26.837	.000
SI	12822.358	2	6411.179	16.054	.000
EI	2211.260	2	1105.630	2.769	.064
MI * SI	2095.184	4	523.796	1.312	.264
MI * EI	4183.240	4	1045.810	2.619	.034
SI * EI	4412.981	4	1103.245	2.763	.027
MI * SI * EI	4943.921	5	988.784	2.476	.031
Error	237210.327	594	399.344		
Total	2.622E7	618			
Corrected Total	364162.945	617			

a. R Squared = .349 (Adjusted R Squared = .323)

The data and result of the three-way ANOVA reveals that of the three independent variables, Multiple Intelligence ($F = 26.837$, $p < 0.001$) and Social Intelligence ($F = 16.054$; $p < 0.001$) have significant main effects on the Professional Effectiveness of secondary school teachers. Whereas, the effect of Emotional Intelligence on the Professional Effectiveness is not significant ($F = 2.769$; $p > 0.05$). The result indicates that the mean scores of professional effectiveness for secondary school teachers having different levels of multiple intelligence and social intelligence differ significantly. No significant difference, however, exists among the mean scores of professional effectiveness of secondary school teachers having high-, average-, and low levels of emotional intelligence.

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The F-value for interaction between Multiple Intelligence and Social Intelligence is 1.312, which is not significant. It shows that mean scores of professional effectiveness of secondary school teachers in different of levels of multiple intelligence having different levels of social intelligence do not differ significantly ($F = 1.312$; $P > 0.05$). The F-value obtained for interaction between Multiple Intelligence and Emotional Intelligence is significant ($F = 2.619$; $p < 0.05$). The secondary school teachers in different levels of multiple intelligence having different levels of emotional intelligence differ significantly in their professional effectiveness. The F-value estimated for interaction between Social Intelligence and Emotional Intelligence is also significant ($F = 2.763$; $p < 0.05$), exposing the fact that teachers in different levels of social intelligence possessing different emotional intelligence differ significantly in their professional effectiveness. The F-ratio obtained for interaction between Multiple Intelligence, Emotional Intelligence and Social Intelligence is significant ($F = 2.476$; $p > 0.05$). It discloses that there exists significant interaction effect of Multiple Intelligence, Emotional Intelligence and Social Intelligence on Professional Effectiveness of Secondary School Teachers.

In the light of obtaining significant main effect and interaction effect of Multiple Intelligence (MI) and Emotional Intelligence (EI) on Professional Effectiveness (PE) of secondary school teachers, *post-hoc* comparison of group means was done to find out exactly which levels of the independent variables create a significant change in the dependent variable. Scheffé's test of multiple comparisons was used for comparing groups categorized into three levels on the basis of Multiple Intelligence as well as Emotional Intelligence. Comparison of the mean scores of Professional Effectiveness (PE) between groups formed on the basis of High-, Average-, and Low levels of Multiple Intelligence (MI) was done, and the details are given in Table 2.

Table 2: Post-hoc test for the comparison of high-, average-, and low levels of multiple intelligence with respect to professional effectiveness

(I) MI	(J) MI	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LOW	Average	-21.09*	2.314	.000	-26.77	-15.41
	High	-28.01*	2.955	.000	-35.26	-20.75
AVERAGE	Low	21.09*	2.314	.000	15.41	26.77
	High	-6.91*	2.283	.011	-12.52	-1.31
HIGH	Low	28.01*	2.955	.000	20.75	35.26
	Average	6.91*	2.283	.011	1.31	12.52

The error term is Mean Square (Error) = 399.344.

* Significant at the .05 level.

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The result of *Scheffe post-hoc comparison* (vide Table 2) clearly indicate that significant difference exists between all the pair combinations of High-, Average-, and Low levels of Multiple Intelligence (MI) considered in the study. The means of Professional Effectiveness (PE) for groups in homogeneous subsets are given in Table 3.

Table 3: Means for groups in homogeneous subtests of professional effectiveness

Levels of MI	N	Subset ($\alpha = .01$)		
		1	2	3
Low	90	185.49		
Average	435		206.58	
High	93			213.49

The error term is Mean Square (Error) = 399.344.

The result of analysis present in Table 3 shows that the mean scores of Professional Effectiveness of secondary school teachers with Low level of Multiple Intelligence is 185.49, which is significantly lower than that of teachers with Average (M = 206.58) and High (M = 213.49) levels of multiple intelligence. It is evident that the secondary school teachers with high level of multiple intelligence are better in their professional effectiveness compared to teachers with average and low levels of multiple intelligence. Similarly, comparison of mean scores of professional effectiveness between groups formed on the basis of high-, average-, and low levels of Social Intelligence was also done and the result is given in Table 4.

Table 4: Post-hoc test for the comparison of high-, average-, and low levels social intelligence with respect to professional effectiveness.

(I) SI	(J) SI	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence	
					Lower Bound	Upper Bound
LOW	Average	-16.96*	2.116	.000	-22.15	-11.76
	High	-38.32*	2.624	.000	-44.76	-31.88
AVERAGE	Low	16.96*	2.116	.000	11.76	22.15
	High	-21.36*	2.116	.000	-26.56	-16.17
HIGH	Low	38.32*	2.624	.000	31.88	44.76
	Average	21.36*	2.116	.000	16.17	26.56

The error term is Mean Square (Error) = 399.344. *. Significant at the .05 level.

The result of the *post-hoc* comparison, given in Table 4, visibly indicate that significant difference exists between all pair combinations of high-, average-, and low levels of Social

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Intelligence considered in the study. The means of Professional Effectiveness (PE) for groups in homogeneous subsets are given in Table 5.

Table 5: Means for groups in homogeneous subsets of professional effectiveness

Levels of SI	N	Subset ($\alpha = .01$)		
		1	2	3
Low	116	186.77		
Average	386		203.72	
High	116			225.09

The error term is Mean Square (Error) = 399.344.

It is evident from the result of analysis present in Table 5 that the mean scores of Professional Effectiveness of Secondary School Teachers with low level of Social Intelligence is 186.77, which is significantly lower than that of secondary school teachers with average and high levels of social intelligence which is 203.72 and 225.09 respectively. Thus it can be concluded that the secondary school teachers with high level of social intelligence excel teachers with average and lower levels of social intelligence in their professional effectiveness; and teachers with average level of social intelligence excel their counterparts with low levels of social intelligence in professional effectiveness.

CONCLUSION

The F-ratios obtained on carrying out the three-way ANOVA (vide Table 1) make clear that there is significant main effect of multiple intelligence, and social intelligence on professional effectiveness of secondary school teachers. Emotional intelligence, however, does not have a significant main effect on the dependent variable ($F = 2.769$; $p > 0.05$). The analysis further revealed that Multiple Intelligence and Emotional Intelligence have significant interactive effect on Professional Effectiveness of teachers. Likewise, Social Intelligence and Emotional Intelligence also have significant interactive effect on the dependent variable. The interactive effect of Multiple Intelligence and Social Intelligence on Professional Effectiveness of secondary school teachers, however, is not significant ($F = 1.312$; $p > 0.05$). Another noteworthy finding generated from the analysis is that the three independent variables viz., Multiple Intelligence, Social Intelligence, and Emotional Intelligence have significant interactive effect on the Professional Effectiveness of secondary school teachers ($F = 2.476$; $p < 0.05$).

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