CHAPTER FOUR

ANALYSIS OF DATA

4.1 Introduction

The purpose of this study was to identify the impact of teacher collegiality on teacher organizational commitment and teacher professional commitment in high-achieving and low-achieving public secondary schools in Islamabad, Pakistan. The study was aimed at identifying the differences in the levels of collegiality, organizational commitment, and professional commitment among the teachers of selected high-achieving and low-achieving public secondary schools. The study also examined the effects of the background variables such as gender, educational attainment, and professional experience on teacher collegiality, organizational commitment, and professional commitment.

The survey was conducted at 17 public secondary schools including eight high-achieving and nine low-achieving schools. All the teaching staff which constituted 445 teachers was requested to fill up the questionnaire. A total of 364 teachers returned the questionnaires for a response rate of 81.79%.

This chapter presents the results of the data analysis. It includes sections on the preliminary analysis, reliability analysis of final survey questionnaire, and demographic characteristics of the survey respondents. The chapter further

provides descriptive statistics for the main study variables and the inferential analyses used to answer each of the research questions.

4.2 Preliminary Analysis of Data

For the purpose of screening data, frequencies for all study variables (both independent and dependent) were generated using SPSS 17.0 to check for the presence of any incorrectly entered data as well as missing values. This study uses SEM and other multivariate analytical procedures such as MANOVA which require a complete data set. Therefore, replacement of missing data with appropriate values was significant before conducting any inferential analysis.

The extent of the missing data was found to be acceptably low (less than 10%) for individual cases and observations and no specific nonrandom patterns appeared, therefore, any imputation technique could be selected without biasing the results (Hair et al., 2006). The Expectation Maximization (EM) imputation method was chosen for the replacement of missing data using the SPSS Missing Value Analysis module which uses a maximum likelihood approach for estimating missing values.

Data including all study variables were then examined for normality or the distribution's shape using the two empirical measures, skewness and kurtosis along with graphical measures histograms for each metric variable. Kurtosis

measures the distribution's peakedness or the flatness. A kurtosis value near zero is a sign that the shape of distribution is close to normal, whereas a positive value indicates a distribution more peaked than normal and a negative value indicates a shape flatter than normal. Generally, a value between ±1 is considered to be ideal and a value between ±2 is considered to be acceptable (George & Mallery, 2005). Skewness measures how much the distribution of the values deviates from the mean. A positive skewness value indicates the distribution shifted to the left and the negative value denotes a rightward shift. Like kurtosis measure, a skewness value between ±1 is considered to be ideal and a value between ±2 is considered to be acceptable (George & Mallery, 2005).

Data was found to be univariately normal. All data values fell within an acceptable range as shown in Appendix C. Skewness values ranged from -.022 to -1.046. Most of the skewness values were negative indicating the rightward shift of the data distribution. Whereas kurtosis values ranged from .000 to 1.811 mostly with a positive value (except for *Observing One Another Teaching* (OT) variable) indicating a distribution more peaked than normal.

From a multivariate perspective, multivariate kurtosis value was found to be 184.589 with critical ratio (C.R.) of 16.603. C.R. value represents Mardia's (1970, 1974) normalized estimate of multivariate kurtosis. Bentler (2005) has suggested that in practice, critical ratio values greater than 5.00 are indicative of data that are non-normally distributed. The present data was multivariately non-normal. When

data reveal evidence of multivariate kurtosis, interpretations based on the usual ML estimation may be problematic, and an alternative method of estimation is likely to be more appropriate (Byrne, 2009). One approach to the analysis of non-normal data is to base analyses on asymptotic distribution free (ADF) estimation (Browne, 1984), however, this method requires sample sizes that are extremely large, otherwise the results from the ADF method generally cannot be trusted (Raykov & Marcoulides, 2000). The current study with sample size of 364 could not use the ADF method of estimation and ML estimation was the only reasonable selection in such a situation.

Outliers were detected using univariate and multivariate detection processes. For identifying univariate outliers in the data set, all of the scores for a variable were converted to standardized scores. As the sample size was larger, therefore, the observations with standardized variable values exceeding ±3.0 or beyond on each of the variables were considered as outliers. Six univariate outliers were detected in the independent variable *Teacher Collegiality*, three within the variable *Demonstrating Mutual Support and Trust* (DMS), two in *Teaching Each Other* (TE), and one in *Developing Curriculum Together* (DC). Seven univariate outliers were identified in dependent variables *Organizational Commitment* and *Professional Commitment*, three in *Continuance Organizational Commitment* (COC) and four in *Continuance Professional Commitment* (CPC).

However, none of the cases was found to be an outlier on more than two

variables. Univariate outliers were also identified using graphical ways like boxplots. Eight cases were detected as univariate outliers using boxplots, four cases (observations 76, 155, 166, and 230) were found to be outliers on more than one variable and four cases (observations 11, 156, 157, and 231) were detected as outliers on more than two variables. None of the observations was detected as outlier on more than three variables. Univariate normality fell within an acceptable range that is ±2; therefore, none of the identified outliers was excluded from the analysis.

Multivariate outliers were detected using Mahalanobis D^2 measure which evaluates the position of each observation compared with the center of all observations on a set of variables. An observation is considered as a multivariate outlier if the probability associated with its D^2 is .001 or less. D^2 follows a chi-square distribution with degrees of freedom equal to the number of variables included in the calculation.

Five multivariate outliers were identified exceeding the critical values. The five observations (shown in Table 4.1) were found to be multivariate outliers where the observation 157 which was also identified as a univariate outlier showed the highest Mahalanobis D^2 value of 142.985 and stands distinctively apart from all the other D^2 values. All analyses run with and without the five cases produced similar results and significance remained the same. A review of the individual cases noted that there were no anomalies in the responses to the

questionnaires so all five cases were included in the analyses presented in this chapter.

Table 4.1

Multivariate Outliers and their Respective Mahalanobis D^2 Values

Observation number	Mahalanobis D^2	p1	p2
157	142.985	.000	.001
111	135.811	.000	.000
104	132.066	.000	.000
96	125.172	.000	.000
112	118.261	.001	.000

4.3 Reliability Analysis of Survey Questionnaire

The survey tool used to collect data for this research was a 74-item, self-administered instrument composed of three separate scales namely Teacher Collegiality Scale (38-items), Organizational Commitment Scale (18-items), and Professional Commitment Scale (18-items). Teacher Collegiality Scale addresses seven factors relative to collegial relations among teachers: (a) *Demonstrating Mutual Support and Trust* (DMS), (b) *Observing One Another Teaching* (OT), (c) *Joint Planning and Assessment* (JPA), (d) *Sharing Ideas and Expertise* (SIE), (e)

Teaching Each Other (TE), (f) *Developing Curriculum Together* (DC), and (g) *Sharing Resources* (SR). Organizational Commitment Scale and Professional Commitment Scale both address three factors: (a) *Affective Commitment*, (b) *Continuance Commitment*, and (c) *Normative Commitment*. The survey asked respondents to rank statements relative to a 7-point Likert scale. The ranges of responses were 1 = strongly disagree to 7 = strongly agree.

Cronbach's alpha coefficients were computed to assess the internal consistency of items which combine to form seven subscales of Teacher Collegiality Scale, three subscales of Organizational Commitment Scale, and three subscales of Professional Commitment Scale. The coefficient alphas for Teacher Collegiality Scale ranged from .71 to .85. The Cronbach's alpha values for Organizational Commitment Scale ranged from .82 to .88 and coefficient alphas for Professional Commitment Scale ranged from .86 to .88.

In the Teacher Collegiality Scale, some of the items were deleted in order to increase its reliability. Cronbach's alpha value of DMS27 indicated that if it is removed from the scale, the overall Cronbach's alpha of *Demonstrating Mutual Support & Trust* (DMS) subscale would increase from .84 to .85. Cronbach's alpha value of JPA10 showed that its deletion could increase overall Cronbach's alpha of *Joint Planning and Assessment* (JPA) subscale from .76 to .77. Similarly, removal of TE25 from the *Teaching Each Other* (TE) subscale increased its Cronbach's alpha value from .65 to .71. However, the final decision for the

removal of these three items (DMS27, JPA10, and TE25) from the final analysis was also made in accordance with the confirmatory factor analysis (CFA) results which are discussed later in this chapter.

Internal consistency coefficients of the three scales: Teacher Collegiality Scale, Organizational Commitment Scale, and Professional Commitment Scale are presented in Table 4.2, Table 4.3, and Table 4.4 respectively. The scale reliabilities for all the study variables exceeded the cut-off value of 0.7, indicating that the variables met the acceptable standard of reliability analysis (Hair et al., 2006).

Table 4.2

Internal Reliability of Teacher Collegiality Scale

Teacher Collegiality Subscales	**No. of Items**	**Cronbach's Alpha**
Demonstrating Mutual Support & Trust (DMS)	6	.85
Observing One Another Teaching (OT)	6	.74
Joint Planning & Assessment (JPA)	6	.77
Sharing Ideas & Expertise (SIE)	6	.78
Teaching Each Other (TE)	4	.71
Developing Curriculum Together (DC)	4	.71
Sharing Resources (SR)	3	.77

Table 4.3

Internal Reliability of Organizational Commitment Scale

Organizational Commitment Subscales	**No. of Items**	**Cronbach's Alpha**
Affective Organizational Commitment (AOC)	6	.88
Continuance Organizational Commitment (COC)	6	.82
Normative Organizational Commitment (NOC)	6	.87

Table 4.4

Internal Reliability of Professional Commitment Scale

Professional Commitment Subscales	**No. of Items**	**Cronbach's Alpha**
Affective Professional Commitment (APC)	6	.86
Continuance Professional Commitment (CPC)	6	.88
Normative Professional Commitment (NPC)	6	.86

4.4 Demographic Characteristics of Survey Respondents

The survey instrument used to collect demographic data from public secondary school teachers included personal characteristics of gender, years of

professional experience, and highest degree attainment. Two types of public secondary schools were selected as research sites: high-achieving schools and low-achieving schools.

Table 4.5

Demographic Features of Survey Respondents

Variable/Category	**High-Achieving**	**Low-Achieving**	**Total**
	n (%)	***n (%)***	***n (%)***
Gender			
Male	84 (46.9)	95 (53.1)	179 (49.2)
Female	112 (60.5)	73 (39.5)	185 (50.8)
Professional Experience			
Less than 5 years	45 (56.2)	35 (43.8)	80 (22.0)
5-10 years	60 (53.1)	53 (46.9)	113 (31.0)
10-15 years	43 (45.3)	52 (54.7)	95 (26.1)
15-20 years	28 (60.9)	18 (39.1)	46 (12.6)
More than 20 years	20 (66.7)	10 (33.3)	30 (8.2)
Educational Attainment			
Bachelor's Degree	49 (43.7)	63 (56.2)	112 (30.8)
Master's Degree	113 (56.8)	86 (43.2)	199 (54.7)
MPhil/Doctorate	34 (64.2)	19 (35.8)	53 (14.6)

Almost half of the participants were male (49.2%) and half were female (50.8%). A total of 196 respondents (53.8%) taught in high-achieving schools and 168 (46.1%) taught in low-achieving schools. Table 4.5 shows that more than half of the teachers (54.7%) were master's degree holders and 30.8% were bachelor's degree holders. Only 14.6% were either MPhil degree holders or PhD holders. Nearly 22% of the staff had less than five years of teaching experience and 31% of the teachers had 5-10 years of experience. Almost 47% of the staff had been teaching for more than 10 years.

4.5 Descriptive Analysis of Data for High-Achieving and Low-Achieving Secondary School Teachers in Islamabad

The descriptive statistics for the study main variables that are teacher collegiality, organizational commitment, and professional commitment among public secondary school teachers in Islamabad (both high-achieving and low-achieving) were generated using frequencies and percentages as well as means and standard deviations.

4.5.1 Descriptive Statistics (Frequencies and Percentages) on Teacher Collegiality Scale for High-Achieving Public Secondary Schools in Islamabad

The number of respondents from high-achieving schools was 196 (including both male and female) public secondary school teachers. Data were summarized

using frequencies and percentages (shown in Table 4.6). Most of the teachers' responses ranged from 'slightly disagree' to 'strongly agree'. Only two subscales (OT and DC) showed 'strongly disagree' response to some of the items.

A total of 162 teachers (82.7%) were slightly agreed or agreed when asked if they believed that "teachers in their schools provided strong social support for colleagues". However, 9.7% of the teachers showed strong agreement to this item. Eighty four teachers (42.9%) slightly agreed and 68 teachers (34.7%) agreed that "staff in their schools respected the professional competence of their colleagues" while 7.6% showed disagreement and 12.8% remained indecisive about this view. Around 91% of the teachers believed that "professional interaction among teachers is cooperative and supportive". Similarly, nearly 90% of the teachers admit that "there is a feeling of trust and confidence among staff members.

When teachers in high-achieving schools were asked if "they could count on most of their colleagues to help them out anywhere, anytime irrespective of their official assignment", 11.3% showed their disagreement. Around 6.6% of the teachers were unsure about this idea while 82.2% believed that "they could count on their colleagues for any kind of assistance". Nearly 90% of the teachers believed that "their colleagues were their friends" while 7.7% showed uncertainty. A total of 129 teachers (65.8%) in high-achieving schools believed that "the feedback received by the colleagues was considered and responded to appropriately" while 7% opposed this idea and 27% were unsure.

Table 4.6

Frequencies and Percentages for Teacher Collegiality Scale (High-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
DMS1	-	-	6	9	78	84	19
			(3.1)	(4.6)	(39.8)	(42.9)	(9.7)
DMS2*	-	3	12	25	84	68	4
		(1.5)	(6.1)	(12.8)	(42.9)	(34.7)	(2.0)
DMS8	-	-	3	15	78	84	16
			(1.5)	(7.7)	(39.8)	(42.9)	(8.2)
DMS15	-	-	5	15	87	83	6
			(2.6)	(7.7)	(44.4)	(42.3)	(3.1)
DMS21	1	5	16	13	88	65	8
	(0.5)	(2.6)	(8.2)	(6.6)	(44.9)	(33.2)	(4.1)
DMS33	-	-	3	15	70	85	23
			(1.5)	(7.7)	(35.7)	(43.4)	(11.7)
OT3	-	-	14	53	117	12	-
			(7.1)	(27.0)	(59.7)	(6.1)	
OT9	4	31	65	33	58	5	-
	(2.0)	(15.8)	(33.2)	(16.8)	(29.6)	(2.6)	
OT16*	-	-	39	69	88	-	-
			(19.9)	(35.2)	(44.9)		

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
OT22	2	29	72	28	60	5	-
	(1.0)	(14.8)	(36.7)	(14.3)	(30.6)	(2.6)	
OT28	-	1	38	80	76	1	-
		(0.5)	(19.4)	(40.8)	(38.8)	(0.5)	
OT34	-	-	16	46	111	22	1
			(8.2)	(23.5)	(56.6)	(11.2)	(0.5)
JPA4	-	6	33	29	98	28	2
		(3.1)	(16.8)	(14.8)	(50.4)	(14.3)	(1.0)
JPA11*	-	2	16	18	115	42	3
		(1.0)	(8.2)	(9.2)	(58.7)	(21.4)	(1.5)
JPA17	-	1	31	26	106	31	1
		(0.5)	(15.8)	(13.3)	(54.1)	(15.8)	(0.5)
JPA23	-	-	20	14	98	59	5
			(10.2)	(7.1)	(50.0)	(30.1)	(2.6)
JPA29	-	6	32	36	98	22	2
		(3.1)	(16.3)	(18.4)	(50.0)	(11.2)	(1.0)
JPA35	1	4	26	45	93	24	3
	(0.5)	(2.0)	(13.3)	(23.0)	(47.4)	(12.2)	(1.5)
SIE5	-	-	3	4	76	99	14
			(1.5)	(2.0)	(38.8)	(50.5)	(7.1)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
SIE12	-	-	13 (6.6)	16 (8.2)	98 (50.0)	65 (33.2)	4 (2.0)
SIE18	-	1 (0.5)	10 (5.1)	31 (15.8)	105 (53.6)	49 (25.0)	-
SIE24	-	-	17 (8.7)	35 (17.9)	93 (47.4)	50 (25.5)	1 (0.5)
SIE30	-	-	2 (1.0)	11 (5.6)	103 (52.6)	76 (38.8)	4 (2.0)
SIE36*	-	-	1 (0.5)	14 (7.1)	93 (47.4)	82 (41.8)	6 (3.1)
TE6	-	-	1 (0.5)	22 (11.2)	94 (48.0)	72 (36.7)	7 (3.6)
TE19	-	-	7 (3.6)	15 (7.7)	96 (49.0)	69 (35.2)	9 (4.6)
TE31	-	3 (1.5)	12 (6.1)	34 (17.3)	101 (51.5)	41 (20.9)	5 (2.6)
TE37	-	-	17 (8.7)	34 (17.3)	115 (58.7)	29 (14.8)	1 (0.5)
DC13	-	3 (1.5)	26 (13.3)	32 (16.3)	84 (42.9)	49 (25.0)	2 (1.0)

Items	1	2	3	4	5	6	7
	n (%)	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*
DC20	1	13	46	23	81	31	1
	(0.5)	(6.6)	(23.5)	(11.7)	(41.3)	(15.8)	(0.5)
DC26	-	1	28	23	89	50	5
		(0.5)	(14.3)	(11.7)	(45.4)	(25.5)	(2.6)
DC32*	2	15	31	36	67	44	1
	(1.0)	(7.7)	(15.8)	(18.4)	(34.2)	(22.4)	(0.5)
SR7	-	2	13	27	93	57	4
		(1.0)	(6.6)	(13.8)	(47.4)	(29.1)	(2.0)
SR14	1	9	27	37	94	26	2
	(0.5)	(4.6)	(13.8)	(18.9)	(48.0)	(13.3)	(1.0)
SR38	-	1	13	19	110	47	6
		(0.5)	(6.6)	(9.7)	(56.1)	(24.0)	(3.1)

Note. Items marked with "*" are reversed scored.

N = 196

When asked if "teachers invited other teachers to observe their teaching" 33.2% showed slight disagreement, 15.8% showed disagreement, and 2% showed strong disagreement to this statement. On the other hand, 63 teachers (32.2%) claimed that "teachers in their schools invited each other for observing their practice". Around 20% of the teachers in high-achieving schools marked 'slightly disagree' and 45% chose 'slightly agree' response category for item concerning if

"teachers minded being observed by their colleagues while teaching". Sixty nine teachers (35.2%) were indecisive. Sixty five teachers (33.2%) stated that "they observed one another teaching as a part of sharing and improving instructional strategies". When teachers were asked if "majority of the staff in their schools was receptive to the presence of other professionals in their classrooms", nearly 40% agreed and similar number of staff was uncertain. Sixty eight percent of the teachers thought that "being open with their colleagues about their successes and challenges was beneficial for their practice".

Most of the responses (65.7%) were found to be in favor of the item asking if "teachers collectively analyzed their teaching practices". However, 20% opposed this idea. More than half of the teachers (58.7%) slightly agreed and 21.4% agreed that "teachers in their respective schools praised or criticized each others' teaching". When teachers were asked if "they jointly planned and prepared their teaching strategies", again more than half of the teachers (54.1%) chose 'slightly agree' and 15.8% chose 'agree' response.

Only 10% of the teachers thought that "majority of the staff did not participate actively in school meetings". Half of the teachers (50%) slightly believed that "staff in their schools made collective agreements to test new ideas or approaches in teaching" while 12.2% agreed or strongly agreed. On the other hand, 19.4% disagreed to this view while 18.4% remained unsure. A total of 120 teachers (61.1%) said that "they jointly accredited new programs and practices in

their schools" while 38.8% were either uncertain or disagreed.

All of the teachers (except 3.5%) in high-achieving schools believed that "they frequently asked their colleagues for suggestions to specific discipline problems". When teachers were asked if "they frequently discussed about school improvement strategies", 6.6% slightly disagreed while 50% slightly agreed and 33.2% agreed. When asked if "teachers often argued over educational philosophies and approaches", 78.6% were either slightly agreed or agreed. Most of the teachers (73.4%) were of the opinion that they "encouraged each other to contribute ideas and suggestions" while nearly 18% were doubtful and 8.7% disagreed. More than 90% of the teachers in high-achieving schools claimed that "they often asked each other about classroom management ideas and suggestions". Similarly, 92.3% of the staff showed agreement about "feeling comfortable in discussing their students' problems with their colleagues".

A total of 94 teachers (48%) showed slight agreement and 36.7% showed agreement to item asking if "teachers liked to share what they had learned or wanted to learn". When teachers in high-achieving schools were asked if "they often taught each other informally", most of the teachers (88.8%) responded in a positive manner. Nearly 75% of the teachers felt that they were "part of a learning community which valued shared responsibility for ongoing learning". Seventy five percent of the teachers were of the opinion that "teachers in their schools gave demonstrations on how to use new models or strategies".

Twenty nine teachers (14.8%) did not believe that “most of the teachers in their schools contributed actively to making decisions about curriculum”. Thirty two teachers (16.3%) were uncertain, 42.9% slightly agreed, and 25% agreed. Around 30% of the teachers claimed that “they could not find time to work with their colleagues on curriculum during a regular work day”. When teachers were asked about “jointly preparing their lesson plans”, 45.4% slightly agreed, 25.5% agreed, and 2.6% strongly agreed. However, nearly 15% opposed this view. Around 57% of the teachers agreed that “they could ask their colleagues for assistance on instructional issues without hesitation”.

Only 7.6% showed disagreement to the item asking whether “teachers frequently lent and borrowed materials like worksheets and lesson plans” whereas 78.5% agreed. More than 62% of the teachers believed that “they shared journal articles and educational books with their colleagues” whereas more than 80% claimed that “they shared materials related to their subject teaching”.

4.5.2 Descriptive Statistics (Frequencies and Percentages) on Teacher Collegiality Scale for Low-Achieving Public Secondary Schools in Islamabad

A total of 168 (both male and female) teachers from low-achieving public secondary schools in Islamabad responded to the questionnaire. Frequencies and percentages were computed as part of descriptive analysis. Results are presented

in Table 4.7. Most of the responses were ranged from ‘disagree’ to ‘agree’. Extreme response categories like ‘strongly agree’ or ‘strongly disagree’ were observed only for a few items specifically in DMS subscale.

All except three teachers (1.8%) showed their agreement to the item concerning if “teachers believed that they had provided strong social support for their colleagues”. When teachers were asked if they believed that “teachers in their schools respected the professional competence of their colleagues”, nearly 83.3% responded to ‘slightly agree’, ‘agree’, or ‘strongly agree’. Only six percent neither disagreed nor agreed when asked if “there was a feeling of trust and confidence among staff members”. More than half of the teaching staff (55.4%) showed slight agreement and 36.3% showed their agreement to this statement.

Fifteen teachers (8.9%) did not believe that “they could count on their colleagues for help anywhere, anytime if it was not part of their official assignment” while 76.2% were either slightly agreed or agreed. None of the teachers in low-achieving schools disagreed with “considering their colleagues as their friends”. Nearly 59% of the teachers believed that “the feedback received by the colleagues was responded to appropriately” while 14.3% opposed this view. Around 49% of the teachers slightly disagreed or disagreed when asked about “inviting other teachers to observe their teaching practice”.

Table 4.7

Frequencies and Percentages for Teacher Collegiality Scale (Low-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
DMS1	-	-	-	3 (1.8)	76 (45.2)	77 (45.8)	12 (7.1)
DMS2*	-	-	5 (3.0)	23 (13.7)	100 (59.5)	38 (22.6)	2 (1.2)
DMS8	-	-	1 (0.6)	3 (1.8)	95 (56.5)	69 (41.1)	-
DMS15	-	-	3 (1.8)	10 (6.0)	93 (55.4)	61 (36.3)	1 (0.6)
DMS21	-	2 (1.2)	13 (7.7)	25 (14.9)	93 (55.4)	35 (20.8)	-
DMS33	-	-	-	6 (3.6)	84 (50.0)	73 (43.5)	5 (3.0)
OT3	-	-	24 (14.3)	45 (26.8)	83 (49.4)	16 (9.5)	-
OT9	-	21 (12.5)	61 (36.3)	33 (19.6)	52 (31.0)	1 (0.6)	-
OT16*	-	-	29 (17.3)	57 (33.9)	82 (48.8)	-	-

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
OT22	-	15 (8.9)	79 (47.0)	35 (20.8)	38 (22.6)	1 (0.6)	-
OT28	-	1 (0.6)	27 (16.1)	57 (33.9)	83 (49.4)	-	-
OT34	-	-	16 (9.5)	50 (29.8)	88 (52.4)	14 (8.3)	-
JPA4	-	2 (1.2)	38 (22.6)	41 (24.4)	79 (47.0)	8 (4.8)	-
JPA11*	-	1 (0.6)	14 (8.3)	24 (14.3)	111 (66.1)	18 (10.7)	-
JPA17	-	-	23 (13.7)	35 (20.8)	101 (60.1)	9 (5.4)	-
JPA23	-	-	5 (3.0)	17 (10.1)	109 (64.9)	37 (22.0)	-
JPA29	-	-	23 (13.7)	46 (27.4)	93 (55.4)	6 (3.6)	-
JPA35	-	-	15 (8.9)	46 (27.4)	95 (56.5)	12 (7.1)	-
SIE5	-	-	2 (1.2)	10 (6.0)	88 (52.4)	67 (39.9)	1 (0.6)
SIE12	-	-	16 (9.5)	27 (16.1)	91 (54.2)	34 (20.2)	-

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
SIE18	-	-	11 (6.5)	27 (16.1)	98 (58.3)	32 (19.0)	-
SIE24	-	-	8 (4.8)	35 (20.8)	103 (61.3)	22 (13.1)	-
SIE30	-	-	1 (0.6)	4 (2.4)	114 (67.9)	47 (28.0)	2 (1.2)
SIE36*	-	-	1 (0.6)	17 (10.1)	97 (57.7)	53 (31.5)	-
TE6	-	-	4 (2.4)	20 (11.9)	90 (53.6)	54 (32.1)	-
TE19	-	-	6 (3.6)	16 (9.5)	91 (54.2)	55 (32.7)	-
TE31	-	1 (0.6)	7 (4.2)	35 (20.8)	87 (51.8)	36 (21.4)	2 (1.2)
TE37	-	-	11 (6.5)	42 (25.0)	106 (63.1)	9 (5.4)	-
DC13	-	2 (1.2)	7 (4.2)	25 (14.9)	88 (52.4)	46 (27.4)	-
DC20	-	7 (4.2)	51 (30.4)	28 (16.7)	76 (45.2)	6 (3.6)	-
DC26	-	3 (1.8)	15 (8.9)	23 (13.7)	99 (58.9)	28 (16.7)	-

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
DC32*	-	-	13 (7.7)	24 (14.3)	94 (56.0)	37 (22.0)	-
SR7	-	1 (0.6)	8 (4.8)	28 (16.7)	100 (59.5)	30 (17.9)	1 (0.6)
SR14	-	2 (1.2)	34 (20.2)	40 (23.8)	81 (48.2)	11 (6.5)	-
SR38	-	-	8 (4.8)	29 (17.3)	89 (53.0)	42 (25.0)	-

Note. Items marked with "*" are reversed scored.

N = 168

Most of the teachers in low-achieving schools (55.9%) believed that "they did not regularly observe one another teaching as a part of sharing and improving instructional strategies" while 23.2% thought otherwise. Nearly half of the teachers (49.4%) showed slight agreement to the fact that "teachers in their schools were receptive to the presence of other professionals in their classrooms". Only 9.5% of the teaching staff said that "they did not think it to be beneficial for their teaching to be open with colleagues about their successes and challenges". On the other hand, 52.4% slightly agreed and 8.3% agreed.

A total of 87 teachers (51.8%) positively responded to the item asking if "teachers collective analyzed their teaching practices" while 24.4% were doubtful and around similar number of teachers (23.8%) did not agree to this perception. Responses to the item concerning if "teachers praised or criticized each others' teaching" showed that most of the teachers (76.8%) either slightly agreed or agreed to this idea. When teachers in low achieving schools were asked if they believed that "most of the teachers in their schools participate actively in meetings", nearly 65% showed slight agreement and 22% showed agreement. Only 3% opposed this idea while 10% did not show their agreement or disagreement. More than half of the teachers (63.6%) thought that "they jointly accredited new programs and practices" while 27.4% were doubtful about this perception and 8.9% opposed this view.

All except 7.2% of the teachers in low-achieving schools thought that "they frequently asked each other for suggestions to specific discipline problems". When teachers were asked if "they used to discuss about school improvement strategies more often", 74.4% of the teachers showed their agreement. Around 58% slightly agreed and 19% agreed about "frequently arguing over educational philosophies and theories". Most of the teachers (74.4%) were of the opinion that "they encouraged each other to contribute new ideas and suggestions" while 20.8% were unsure about this view. More than 95% of the total respondents from low-achieving schools agreed that "they often asked each other about classroom management ideas and suggestions".

Nearly 86% of the teachers either agreed or slightly agreed that “their colleagues liked to share what they had learned or wished to learn”. Almost similar number of teachers (86.9%) believed that “they frequently taught each other informally”. When teachers in low-achieving schools were asked if “they felt as part of a learning community which valued shared responsibility for ongoing learning”, 74.4% responded positively while 20.8% showed uncertainty and 4.8% opposed this opinion. Nearly 68.5% of the teachers believed that “staff in their schools gave demonstrations on how to use new models or strategies”.

Eighty eight teachers (52.4%) slightly agreed and 27.4% agreed that “they contributed actively to making decisions about curriculum”. Around 75% of the teachers in low-achieving schools believed that “they jointly prepared their lesson plans” and 78% of the teaching staff thought that “they did not feel hesitation in asking for assistance from their colleagues on specific instructional problems”. When teachers were asked if “they often lent and borrowed instructional materials”, 78% showed their agreement. Around 21% of the teachers responded negatively to the item asking if “they frequently shared journal articles and educational books in their schools”. On the other hand, 54.7% believed that “they shared educational books and journals with their colleagues”. The majority of the staff in low-achieving schools (78%) thought that “they shared materials related to their subject teaching”. However, 17.3% remained undecided and 4.8% opposed this view.

4.5.3 Descriptive Statistics (Means and Standard Deviations) on Teacher Collegiality for High-Achieving and Low-Achieving Secondary Schools in Islamabad

To find out the differences between high-achieving and low-achieving public secondary school teachers' perceptions regarding collegiality in their respective schools, the means and standard deviations were calculated for each survey item. Table 4.8 provides the means and standard deviations for each individual item and the average subscale means and standard deviations. As the average mean scores and standard deviations were calculated for the subscales, all negatively worded items were initially reverse scored. A seven-point Likert scale was used to report agreement levels. To better understand the results, responses of 6.50 to 7 are considered strongly agree, 5.50 to 6.49 agree, 4.50 to 5.49 slightly agree, 3.50 to 4.49 neither disagree nor agree, 2.50 to 3.49 slightly disagree, 1.50 to 2.49 disagree, and 1 to 1.49 strongly disagree.

Teachers' perceptions about teacher collegiality subscales were found to be different in both types of schools, mostly on the higher side for two subscales namely DMS (high-achieving schools: $M = 5.35$, $SD = .73$ and low-achieving schools: $M = 5.27$, $SD = .45$) and SIE (high-achieving schools: $M = 5.35$, $SD = .73$ and low-achieving schools: $M = 5.27$, $SD = .45$). While on the other hand, lowest mean values were found for OT subscale (high-achieving schools: $M = 4.19$, $SD = .61$ and low-achieving schools: $M = 4.18$, $SD = .56$).

Table 4.8

Means and Standard Deviations of Teacher Collegiality Scale for High-Achieving and Low-Achieving Secondary Schools

Items in Subscales	***High-Achieving*** ***N = 196***		***Low-Achieving*** ***N = 168***	
	Mean	***SD***	***Mean***	***SD***
Demonstrating Mutual Support & Trust (DMS)				
1. Teachers provide strong social support for colleagues.	5.52	.85	5.58	.65
2*. Teachers in this school do not respect the professional competence of their colleagues.	5.09	.97	5.05	.73
8. Professional interactions among teachers are cooperative and supportive.	5.48	.82	5.38	.56
15. There is a feeling of trust and confidence among staff members.	5.36	.77	5.28	.66
21. I can count on most of my colleagues to help me out anywhere, anytime even though it may not be part of their official assignment.	5.09	1.09	4.87	.87
33. Teachers consider their colleagues as their friends.	5.56	.85	5.46	.62
Total	5.35	.73	5.27	.45

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
Observing One Another Teaching (OT)				
3. Feedback received by the colleagues is considered and responded to appropriately.	4.65	.70	4.54	.85
9. We invite other teachers to observe our teaching.	3.64	1.19	3.71	1.06
16*. Teachers in this school mind being observed by their colleagues while teaching.	4.25	.77	4.32	.75
22. We regularly observe one another teaching as a part of sharing and improving instructional strategies.	3.66	1.16	3.59	.96
28. Most of the teachers in this school are receptive to the presence of other professionals in their classrooms.	4.19	.77	4.32	.76
34. I believe it to be beneficial for my teaching to be open with colleagues about my successes and challenges.	4.72	.79	4.60	.78
Total	4.19	.61	4.18	.56
Joint Planning & Assessment (JPA)				
4. My colleagues and I collectively analyze our teaching practice.	4.59	1.06	4.32	.92

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
11*. Teachers do not praise or criticize each others' teaching.	4.96	.89	4.78	.77
17. We jointly plan and prepare teaching strategies and procedures.	4.70	.95	4.57	.79
23. Majority of the teachers participate actively in meetings.	5.08	.94	5.06	.66
29. We make collective agreements to test an idea or new approach in teaching.	4.53	1.02	4.49	.77
35. We jointly accredit new programs and practices.	4.58	1.02	4.62	.75
Total	4.74	.70	4.64	.49
Sharing Ideas & Expertise (SIE)				
5. Teachers in this school often ask for suggestions to specific discipline problems.	5.60	.72	5.33	.65
12. We discuss frequently about school improvement strategies.	5.16	.86	4.85	.85
18. We often argue over educational theories, philosophies, or approaches.	4.97	.81	4.90	.78
24. Teachers encourage each other to contribute ideas and suggestions.	4.91	.89	4.83	.71

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
30. We often ask each other about classroom management ideas and suggestions.	5.35	.67	5.27	.55
36*. Teachers in this school do not feel comfortable about discussing their students' problems.	5.40	.69	5.20	.63
Total	5.23	.56	5.06	.45
Teaching Each Other (TE)				
6. Teachers in this school like to share what they have learned or want to learn.	5.32	.74	5.15	.72
19. We often teach each other informally.	5.30	.82	5.16	.74
31. We feel part of a learning community which values shared responsibility for ongoing learning.	4.92	.93	4.93	.83
37. Teachers give demonstrations on how to use new models or strategies.	4.81	.81	4.67	.68
Total	5.08	.58	4.98	.56
Developing Curriculum Together (DC)				
13. Most teachers contribute actively to making decisions about curriculum.	4.80	1.04	5.01	.84

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
20. I find time to work with my colleagues on curriculum during a regular work day.	4.36	1.23	4.14	1.03
26. Teachers in this school jointly plan and prepare their lesson plans.	4.89	1.04	4.80	.89
32*. Teachers in this school feel hesitant in asking for help on specific instructional problems.	4.46	1.28	4.92	.82
Total	4.63	.88	4.72	.60
Sharing Resources (SR)				
7. Teachers in this school often lend and borrow materials like worksheets and lesson plans.	5.03	.93	4.91	.78
14. We often share journal articles and educational books.	4.53	1.09	4.39	.92
38. My colleagues and I share materials related to my subject teaching.	5.06	.88	4.98	.78
Total	4.87	.82	4.76	.67

Note. Items marked with "*" are reversed scored.

The means for item asking if "teachers provided strong social support for colleagues" were found to be higher in low-achieving schools (M = 5.58, SD = .65) as compared to high-achieving schools (M = 5.52, SD = .85). Teachers in both types of secondary schools slightly agreed to the fact that "their colleagues respected each others' professional competence" (high-achieving schools: M = 5.09, SD = .97 and low-achieving schools: M = 5.05, SD = .73). When asked about "the presence of confidence and trust among staff members", most of the teachers in both the schools slightly agreed (high-achieving schools: M = 5.36, SD = .77 and low-achieving schools: M = 5.28, SD = .66). Similarly, teachers in both types of schools slightly agreed to the fact that "they could count on most of their colleagues to help them out anywhere, anytime irrespective of their official assignment" (high-achieving schools: M = 5.09, SD = 1.09 and low-achieving schools: M = 4.87, SD = .87).

Most of the teachers in high-achieving schools showed their agreement when asked if "they would consider their colleagues as their friends" (M = 5.56, SD = .85) while low-achieving schools' staff slightly agreed to the same item (M = 5.46, SD = .62). Teachers' response to the item concerning if they thought that "their feedback is received and responded to appropriately by the colleagues", indicated slight agreement in both schools (high-achieving schools: M = 4.65, SD = .70 and low-achieving schools: M = 4.54, SD = .85).

When asked if "teachers did not mind being observed by their colleagues while teaching", most of the teachers in both types of schools chose 'neither disagree nor agree' response (high-achieving schools: $M = 4.25$, $SD = .77$ and low-achieving schools: $M = 4.32$, $SD = .75$). For the item asking if "teachers regularly observed one another teaching as a part of sharing and improving instructional strategies", most of the teachers in both schools were again unsure about their decision to either agree or disagree (high-achieving schools: $M = 3.66$, $SD = 1.16$ and low-achieving schools: $M = 3.59$, $SD = .96$). Teachers in high-achieving schools agreed to the opinion that "being open with the colleagues about successes and challenges was beneficial for their teaching practice" ($M = 4.72$, $SD = .79$).

Results for the *joint planning and assessment* (JPA) subscale showed slightly agreed response from both types of schools' teaching staff (high-achieving schools: $M = 4.74$, $SD = .70$ and low-achieving schools: $M = 4.64$, $SD = .49$). Teachers in high-achieving schools showed more positive response to the perception that "teachers in their schools analyzed their teaching practice collectively" ($M = 4.59$, $SD = 1.06$) as compared to low-achieving school teachers ($M = 4.32$, $SD = .92$). More staff members in high-achieving schools slightly agreed about "jointly planning and preparing teaching strategies" ($M = 4.70$, $SD = .95$) than teachers in low-achieving schools ($M = 4.57$, $SD = .79$). When asked about "making collective agreements to test new ideas and approaches in teaching", teachers in high-achieving schools again responded to 'slightly agree'

(*M* = 4.53, *SD* = 1.02) while teachers in low-achieving schools showed uncertainty (*M* = 4.49, *SD* = .77).

Teachers in high-achieving schools agreed that "they often asked each other for suggestions to specific discipline problems" (*M* = 5.60, *SD* = .72) while teachers in low-achieving schools slightly agreed to the same item (*M* = 5.33, *SD* = .65). For the item concerning if "teachers regularly asked each other about classroom management ideas and suggestions", high-achieving schools' staff was found to be on the higher side (*M* = 5.35, *SD* = .67) than low-achieving school teachers (*M* = 5.27, *SD* = .55). When teachers were asked if "they felt comfortable about discussing their students' problems", more teachers in high-achieving schools showed their agreement (*M* = 5.40, *SD* = .69) as compared to low-achieving schools' staff members (*M* = 5.20, *SD* = .63).

Teachers in high-achieving schools also showed more positive attitude towards *teaching each other* (TE) subscale (*M* = 5.08, *SD* = .58) than low-achieving schools' staff (*M* = 4.98, *SD* = .56). More teachers in high-achieving schools slightly agreed to the fact that "they liked to share what they had learned or wanted to learn" (*M* = 5.32, *SD* = .74) when compared with teachers in low-achieving schools (*M* = 5.15, *SD* = .72). Similarly, they slightly agreed about "teaching their colleagues informally" (high-achieving schools: *M* = 5.30, *SD* = .82 and low-achieving schools: *M* = 5.16, *SD* = .74). Teachers in high-achieving schools responded more positively to the item asking if "they gave

demonstrations on how to use new models in their respective schools" (high-achieving schools: $M = 4.81$, $SD = .81$ and low-achieving schools: $M = 4.67$, $SD = .68$).

Although the overall results indicated slight agreement to the *developing curriculum together* (DC) subscale in both types of schools, however teachers' perceptions in low-achieving schools were found to be on the higher side ($M = 4.72$, $SD = .60$). Most of the teachers in low-achieving schools believed that "they contributed actively to making decisions about curriculum" ($M = 5.01$, $SD = .84$) when compared with staff's perceptions in high-achieving schools ($M = 4.80$, $SD = 1.04$). Teachers in low-achieving schools slightly agreed that "their colleagues did not feel hesitation in asking for assistance on specific instructional problems" ($M = 4.92$, $SD = .82$) while high-achieving schools' staff showed uncertainty to this item ($M = 4.46$, $SD = 1.28$).

Sharing resources (SR) subscale showed more positive trend towards high-achieving school staffs' perceptions ($M = 4.87$, $SD = .82$) than teachers' perceptions in low-achieving schools ($M = 4.76$, $SD = .67$). Teachers in high-achieving schools slightly agreed to the items concerning "frequent lending and borrowing of materials" ($M = 5.03$, $SD = .93$) and "sharing of materials related to their subject teaching" ($M = 5.06$, $SD = .88$).

4.5.4 Descriptive Statistics (Frequencies and Percentages) on Organizational Commitment Scale for High-Achieving Secondary School Teachers in Islamabad

Data were analyzed descriptively using frequency counts and percentages. Table 4.9 shows the frequencies and percentages for each item in Organizational Commitment Scale for high-achieving public secondary school teachers.

Out of 196 teachers, nearly 19% slightly disagreed and 4.6% disagreed about the idea of "spending the rest of their career with their current organization". Around 17% were uncertain while more than half of the staff chose 'slightly agree' (37.8%), 'agree' (18.4%), or 'strongly agree' (3.6%) response. When teachers were asked if "they felt emotional attachment with their organization", 41.3% marked 'slightly agree' and 30.1% chose 'agree'.

However, most of the teachers (84.7%) in high-achieving schools felt that "their organization's problems were their own". Similarly, 77% of the teachers "felt like part of the family at their respective school". Only 10.8% disagreed while 12.2% were doubtful about their opinion. More than 10% of the teachers did not feel "a strong sense of belonging at their respective school" while 75% agreed to this belief. Around 15% of the teachers were uncertain and similar number of teachers disagreed about the idea that "the current organization had a great deal of personal meaning for them".

Table 4.9

Frequencies and Percentages for Organizational Commitment Scale (High-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
AOC39	1	8	37	33	74	36	7
	(0.5)	(4.1)	(18.9)	(16.8)	(37.8)	(18.4)	(3.6)
AOC40*	-	6	23	24	81	59	3
		(3.1)	(11.7)	(12.2)	(41.3)	(30.1)	(1.5)
AOC45	-	-	13	17	90	70	6
			(6.6)	(8.7)	(45.9)	(35.7)	(3.1)
AOC46*	-	6	15	24	88	59	4
		(3.1)	(7.7)	(12.2)	(44.9)	(30.1)	(2.0)
AOC51*	-	5	19	25	93	49	5
		(2.6)	(9.7)	(12.8)	(47.4)	(25.0)	(2.6)
AOC52	-	1	27	30	81	54	3
		(0.5)	(13.8)	(15.3)	(41.3)	(27.6)	(1.5)
COC41	-	1	8	18	112	52	5
		(0.5)	(4.1)	(9.2)	(57.1)	(26.5)	(2.6)
COC42	-	1	9	30	108	45	3
		(0.5)	(4.6)	(15.3)	(55.1)	(23.0)	(1.5)
COC47	-	1	8	16	93	77	1
		(0.5)	(4.1)	(8.2)	(47.4)	(39.3)	(0.5)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
COC48	-	2	20	43	98	30	3
		(1.0)	(10.2)	(21.9)	(50.0)	(15.3)	(1.5)
COC53	-	1	7	23	104	57	4
		(0.5)	(3.6)	(11.7)	(53.1)	(29.1)	(2.0)
COC54	-	-	11	24	106	53	2
			(5.6)	(12.2)	(54.1)	(27.0)	(1.0)
NOC43*	-	2	28	43	86	37	-
		(1.0)	(14.3)	(21.9)	(43.9)	(18.9)	
NOC44	-	-	5	22	80	84	5
			(2.6)	(11.2)	(40.8)	(42.9)	(2.6)
NOC49	-	4	24	31	98	36	3
		(2.0)	(12.2)	(15.8)	(50.0)	(18.4)	(1.5)
NOC50	-	2	28	34	84	46	2
		(1.0)	(14.3)	(17.3)	(42.9)	(23.5)	(1.0)
NOC55	-	3	35	55	73	29	1
		(1.5)	(17.9)	(28.1)	(37.2)	(14.8)	(0.5)
NOC56	-	-	23	34	84	50	5
			(11.7)	(17.3)	(42.9)	(25.5)	(2.6)

Note. Items marked with "*" are reversed scored.

N = 196

When teachers were asked whether "staying with their current school was a matter of necessity as much as desire", 112 teachers (57.1%) responded to 'slightly agree', 52 teachers (26.5%) chose 'agree', and only 5 teachers (2.6%) marked 'strongly agree' response category. Only 4.6% of the staff chose disagreement scale. Nearly 80% of the teachers believed that "they had too few options to consider leaving their current workplace". Similarly, 87% of the teachers believed that "it would be hard for them to leave their organization, even if they wanted to".

More than 65% of the teachers thought that if "they had not already put so much of themselves into their current organization, they would have considered working elsewhere". While 22% were indecisive and 11.2% opposed this view. Most of the teachers (84.2%) believed that "too much of their lives would be disrupted if they decided to leave their current workplace". The response to item concerning if "teachers viewed the scarcity of available alternatives to be one of the few negative consequences of leaving their current organization" was mostly positive. Only 17.8% either slightly disagreed (5.6%) or showed uncertainty (12.2%).

Around 62% of the staff in high-achieving schools felt "a sense of obligation to remain with their current employer". Nearly 22% were unsure and 15.3% disagreed. All teachers (except 13.8%) believed that "their respective organization deserved their loyalty". When teachers were inquired if they felt "it would be

right to leave their school if it were to their advantage", around 70% of the teachers replied negatively while 14.2% answered positively. A total of 132 teachers (67.4%) believed that "they would not leave their school because they had a sense of obligation to the people in it". While 17.3% were undecided and 15.3% disagreed to this idea.

Fifty five teachers (28.1%) did not know if "they would feel guilty on leaving their organization" while 19.4% opposed this view. On the other hand, 73 teachers (37.2%) slightly agreed and 30 teachers (15.3%) agreed to this item. Most of the teachers (71%) in high-achieving schools believed that "they owed a great deal to their organization".

4.5.5 Descriptive Statistics (Frequencies and Percentages) on Organizational Commitment Scale for Low-Achieving Secondary School Teachers in Islamabad

Table 4.10 shows the frequencies and percentages for each individual item in the Organizational Commitment Scale for low-achieving public secondary school teachers.

The first item asked if "teachers would be happy to spend the rest of their career with their current organization", 50 teachers (29.8%) remained neutral while 41 teachers (24.4%) disagreed. However, around 45% of the staff

Table 4.10

Frequencies and Percentages for Organizational Commitment Scale (Low-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
AOC39	-	4	37	50	70	7	-
		(2.4)	(22.0)	(29.8)	(41.7)	(4.2)	
AOC40*	-	2	22	30	92	22	-
		(1.2)	(13.1)	(17.9)	(54.8)	(13.1)	
AOC45	-	1	15	33	96	23	-
		(0.6)	(8.9)	(19.6)	(57.1)	(13.7)	
AOC46*	-	1	19	31	90	27	-
		(0.6)	(11.3)	(18.5)	(53.6)	(16.1)	
AOC51*	-	3	18	27	87	31	2
		(1.8)	(10.7)	(16.1)	(51.8)	(18.5)	(1.2)
AOC52	-	4	11	41	96	16	-
		(2.4)	(6.5)	(24.4)	(57.1)	(9.5)	
COC41	-	1	11	30	109	17	-
		(0.6)	(6.5)	(17.9)	(64.9)	(10.1)	
COC42	-	3	16	30	100	19	-
		(1.8)	(9.5)	(17.9)	(59.5)	(11.3)	
COC47	-	1	8	21	106	31	1
		(0.6)	(4.8)	(12.5)	(63.1)	(18.5)	(0.6)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
COC48	-	1 (0.6)	22 (13.1)	51 (30.4)	82 (48.8)	12 (7.1)	-
COC53	-	1 (0.6)	14 (8.3)	27 (16.1)	95 (56.5)	30 (17.9)	1 (0.6)
COC54	-	1 (0.6)	15 (8.9)	35 (20.8)	103 (61.3)	14 (8.3)	-
NOC43*	-	2 (1.2)	35 (20.8)	57 (33.9)	73 (43.5)	1 (0.6)	-
NOC44	-	-	4 (2.4)	18 (10.7)	116 (69.0)	30 (17.9)	-
NOC49	-	1 (0.6)	16 (9.5)	43 (25.6)	93 (55.4)	15 (8.9)	-
NOC50	-	1 (0.6)	22 (13.1)	51 (30.4)	81 (48.2)	13 (7.7)	-
NOC55	-	-	41 (24.4)	57 (33.9)	68 (40.5)	2 (1.2)	-
NOC56	-	1 (0.6)	7 (4.2)	31 (18.5)	108 (64.3)	21 (12.5)	-

Note. Items marked with "*" are reversed scored.

N = 168

responded positively towards this item. Nearly 18% of the teachers were uncertain while more than half of the staff chose ‘slightly agree’ and 13.1% marked ‘agree’ when inquired about “their emotional attachment with their organization”. More than 70% responded positively while 9.5% responded negatively to the item asking if “teachers felt their organization’s problems as their own”.

When staff was asked if “they felt like part of the family at their respective organization”, 53.6% slightly agreed, 16.1% agreed while 11.9% disagreed. More than 10% of the teachers did not “feel a strong sense of belonging at their respective school” while nearly 70% either slightly agreed or agreed. Around 24% of the teachers were uncertain and only 9% disagreed that “their schools had a great deal of personal meaning for them”. On the other hand, nearly 67% of the teachers believed otherwise.

When teachers were asked if “they regarded their stay with their current school as a matter of necessity as much as desire”, 109 teachers (64.9%) slightly agreed and 17 teachers (10.1%) agreed. Only 7.1% disagreed while 17.9% neither disagreed nor agreed. Nearly 70% of the teachers believed that “they had too few options to consider leaving their current workplace”. Around 82% of the teachers were of the opinion that “it would be hard for them to leave their organization, even if they wished to”. More than half of the staff (55.9%) in low-achieving schools thought that if “they had not already put so much effort in their current school, they would have considered working elsewhere”. Most of the teachers

(75%) believed that “too much of their lives would be disrupted if they decided to leave their current workplace”. Similarly, 70% of the staff either slightly agreed or agreed.

Around 44% of the low-achieving schools’ staff “felt obligation to remain with their current employer” while 22% thought in an opposite way. Most of the teachers (87%) replied positively to the item asking if “teachers felt that their organization deserved their loyalty”. Only 10.7% neither disagreed nor agreed and 2.4% showed slight disagreement. When teachers were asked if “they felt it would be right to leave their school if it were to their advantage”, around 64% replied negatively. Nearly 56% of the teachers believed that “they would not leave their school as they had a sense of obligation to the people in it”. More than 40% believed that “they would feel guilty if they left their school”.

4.5.6 Descriptive Statistics (Means and Standard Deviations) on Organizational Commitment for High-Achieving and Low-Achieving Secondary School Teachers in Islamabad

To determine the differences between high-achieving and low-achieving public secondary school teachers’ commitment to their respective organization, means and standard deviations were calculated. Table 4.11 provides the means and standard deviations for the individual survey items for organizational commitment scale and the average subscale means and standard deviations. Here

again, all the negatively worded items were initially reverse scored to get the average means of the subscales. A seven-point Likert scale was used to report agreement levels, therefore, the same standard was used in understanding the results as previously mentioned for teacher collegiality scale.

Table 4.11

Means and Standard Deviations of Organizational Commitment Scale for High-Achieving and Low-Achieving Secondary Schools

	High-Achieving		***Low-Achieving***	
Items in Subscales	***N = 196***		***N = 168***	
	Mean	***SD***	***Mean***	***SD***
Affective Organizational Commitment (AOC)				
39. I would be very happy to spend the rest of my career with this organization.	4.57	1.23	4.23	.92
40*. I do not feel "emotionally attached" to this organization.	4.88	1.10	4.65	.91
45. I really feel as if this organization's problems are my own.	5.20	.89	4.74	.83
46*. I do not feel like "part of the family" at my organization.	4.97	1.04	4.73	.89
51*. I do not feel a strong sense of "belonging" to my organization.	4.90	1.05	4.78	.97

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
52. This organization has a great deal of personal meaning for me.	4.86	1.04	4.65	.83
Total	4.90	.87	4.63	.65
Continuance Organizational Commitment (COC)				
41. Right now, staying with my organization is a matter of necessity as much as desire.	5.13	.81	4.77	.74
42. I feel that I have too few options to consider leaving this organization.	5.00	.82	4.69	.86
47. It would be hard for me to leave my organization right now, even if I wanted to.	5.22	.81	4.96	.76
48. If I had not already put so much of myself into this organization, I might consider working elsewhere.	4.73	.93	4.49	.83
53. Too much of my life would be disrupted if I decided I wanted to leave my organization now.	5.13	.82	4.85	.85
54. One of the few negative consequences of leaving this organization would be the scarcity of available alternatives.	5.06	.81	4.68	.78
Total	5.04	.61	4.74	.55

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
Normative Organizational Commitment (NOC)				
43*. I do not feel any obligation to remain with my current employer.	4.65	.98	4.21	.82
44. This organization deserves my loyalty.	5.32	.80	5.02	.62
49. Even if it were to my advantage, I do not feel it would be right to leave my organization now.	4.75	1.01	4.63	.80
50. I would not leave my organization right now because I have a sense of obligation to the people in it.	4.77	1.03	4.49	.84
55. I would feel guilty if I left my organization now.	4.47	1.01	4.18	.82
56. I owe a great deal to my organization.	4.90	1.00	4.84	.71
Total	4.81	.80	4.56	.54

Note. Items marked with "*" are reversed scored.

Although teachers' organizational commitment was found to be low in both types of schools, however, COC subscale showed a little higher mean values

(high-achieving schools: $M = 5.04$, $SD = .61$ and low-achieving schools: $M = 4.74$, $SD = .55$) as compared to other two subscales. NOC subscale showed the lowest mean values (high-achieving schools: $M = 4.81$, $SD = .80$ and low-achieving schools: $M = 4.56$, $SD = .54$) indicating that public secondary school teachers "felt little obligation to continue their membership with their respective organization".

Teachers in high-achieving schools slightly agreed ($M = 4.57$, $SD = 1.23$) to "happily spending the rest of their career with their current school" while teachers in low-achieving schools were mostly unsure ($M = 4.23$, $SD = .92$). High-achieving schools' teaching staff was found to be more "emotionally attached to their organization" ($M = 4.88$, $SD = 1.10$). Similarly, item concerning if "teachers felt like part of the family at their respective school", high-achieving schools ($M = 4.97$, $SD = 1.04$) responded more positively than low-achieving schools ($M = 4.73$, $SD = .89$), even though both groups were found to be slightly agreed. When asked if "teachers felt a strong sense of belonging at their respective school", low-achieving schools' staff showed less commitment ($M = 4.78$, $SD = .97$) than high-achieving schools ($M = 4.90$, $SD = 1.05$). Teachers in high-achieving schools also believed that "their current organization had a great deal of personal meaning for them" ($M = 4.86$, $SD = 1.04$).

The average mean values of the COC subscale showed that public secondary school teachers were quite "aware of the costs associated with leaving their

organization". However, here again most of the items showed more continuance commitment from the high-achieving schools' teaching staff. High-achieving schools' staff regarded "staying with their current school as a matter of necessity as much as desire" (M = 5.13, SD = .81) and felt that "they had too few options to consider if they left their workplace" (M = 5.00, SD = .82). Teachers in both types of schools slightly agreed to the fact that "it would be very hard for them to leave their current school right now even if they wanted to" (high-achieving schools: M = 5.22, SD = .81 and low-achieving schools: M = 4.96, SD = .76).

Teachers in low-achieving schools were uncertain (M = 4.49, SD = .83) when asked whether "they might consider working elsewhere if they had not already put so much effort in their current school". More teachers in high-achieving schools agreed that "too much of their lives would be disrupted if they decided to leave their organization" (M = 5.13, SD = .82) as compared to low-achieving schools' staff (M = 4.85, SD = .85). Teachers also believed that "one of the few negative consequences of leaving their current school would be the scarcity of available alternatives" (high-achieving schools: M = 5.06, SD = .81 and low-achieving schools: M = 4.68, SD = .78).

The overall average mean scores for the NOC subscale were the lowest among the three subscales (high-achieving schools: M = 4.81, SD = .80 and low-achieving schools: M = 4.56, SD = .54). Teachers in high-achieving schools reported slight agreement in "feeling obligation to remain with their current

employer" (M = 4.65, SD = .98) while teachers in low-achieving schools showed neutral response (M = 4.21, SD = .82). Less teachers in low-achieving schools believed that "their respective organization deserved their loyalty" (M = 5.02, SD = .62) as compared to high-achieving schools (M = 5.32, SD = .80).

Teachers in high-achieving schools responded to 'slightly agree' when asked if "they felt restricted in leaving their organization due to the sense of obligation to the people in it" (M = 4.77, SD = 1.03) while teachers in low-achieving schools reported uncertainty (M = 4.49, SD = .84). Teachers in both types of schools neither agreed nor disagreed about "feeling guilty if they left their organization immediately" (high-achieving schools: M = 4.47, SD = 1.01 and low-achieving schools: M = 4.18, SD = .82). Teachers showed slight agreement but here again high-achieving school teachers showed a little higher mean values when asked if "they owed a great deal to their organization" (high-achieving schools: M = 4.90, SD = 1.00 and low-achieving schools: M = 4.84, SD = .71).

4.5.7 Descriptive Statistics (Frequencies and Percentages) on Professional Commitment Scale for High-Achieving Secondary School Teachers in Islamabad

Table 4.12 presents the frequencies and percentages for each item in Professional Commitment Scale for high-achieving school teachers.

Teachers in high-achieving schools mostly (92.8%) agreed that “teaching was important to their self-image” and “they liked being teachers” (93.8%). All (except 10.7%) of the teachers believed that “they never regretted having entered the teaching profession”. Only two percent of the staff said that “they did not identify with the teaching profession” while 171 teachers (87.3%) thought otherwise. Nearly 94% of the teachers in high-achieving schools were “proud to be in the teaching profession” and 90% claimed that “they were enthusiastic about their profession”.

Nineteen teachers (9.7%) did not think that “they had put too much into the teaching profession to consider changing now” while similar number of teachers showed uncertainty. Around 41.3% chose ‘slightly agree’, 36.7% chose ‘agree’, and 2.6% marked ‘strongly agree’ to this item. When teachers were asked if “they thought it would be costly for them to change their profession now”, 70 teachers (35.7%) showed slight agreement, 86 teachers (43.9%) showed agreement, and 13 teachers (6.6%) showed strong agreement. On the other hand, 6.6% were indecisive and 7.1% disagreed. Nearly 13% of the staff did not believe that “changing professions would be difficult for them to do”. However, 7.7% were doubtful while 79.6% agreed to this statement.

A total of 152 teachers (77.6%) thought that “there were pressures that kept them away from changing professions” while 11.7% thought otherwise. Around 85% of the staff in high-achieving schools believed that “too much of their lives

Table 4.12

Frequencies and Percentages for Professional Commitment Scale (High-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
APC57	-	1	4	9	77	82	23
		(0.5)	(2.0)	(4.6)	(39.3)	(41.8)	(11.7)
APC58*	-	-	6	6	59	93	32
			(3.1)	(3.1)	(30.1)	(47.4)	(16.3)
APC63*	-	1	9	11	58	91	26
		(0.5)	(4.6)	(5.6)	(29.6)	(46.4)	(13.3)
APC64*	-	-	4	21	81	85	5
			(2.0)	(10.7)	(41.3)	(43.4)	(2.6)
APC69	-	-	2	10	62	93	29
			(1.0)	(5.1)	(31.6)	(47.4)	(14.8)
APC70	-	-	5	14	78	88	11
			(2.6)	(7.1)	(39.8)	(44.9)	(5.6)
CPC59	-	6	13	19	81	72	5
		(3.1)	(6.6)	(9.7)	(41.3)	(36.7)	(2.6)
CPC60	-	1	13	13	70	86	13
		(0.5)	(6.6)	(6.6)	(35.7)	(43.9)	(6.6)
CPC65	-	7	18	15	78	73	5
		(3.6)	(9.2)	(7.7)	(39.8)	(37.2)	(2.6)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
CPC66*	-	3	20	21	88	58	6
		(1.5)	(10.2)	(10.7)	(44.9)	(29.6)	(3.1)
CPC71	-	2	13	14	79	80	8
		(1.0)	(6.6)	(7.1)	(40.3)	(40.8)	(4.1)
CPC72	-	-	6	7	74	98	11
			(3.1)	(3.6)	(37.8)	(50.0)	(5.6)
NPC61	-	-	1	-	42	112	41
			(0.5)		(21.4)	(57.1)	(20.9)
NPC62	-	1	24	20	89	58	4
		(0.5)	(12.2)	(10.2)	(45.4)	(29.6)	(2.0)
NPC67*	-	2	20	19	88	63	4
		(1.0)	(10.2)	(9.7)	(44.9)	(32.1)	(2.0)
NPC68	-	7	22	31	71	57	8
		(3.6)	(11.2)	(15.8)	(36.2)	(29.1)	(4.1)
NPC73	-	2	14	16	78	72	14
		(1.0)	(7.1)	(8.2)	(39.8)	(36.7)	(7.1)
NPC74	-	4	7	13	56	95	21
		(2.0)	(3.6)	(6.6)	(28.6)	(48.5)	(10.7)

Note. Items marked with "*" are reversed scored.

N = 196

would be disrupted if they were to change their profession now" and more than 93% thought that "changing professions now would require considerable personal sacrifices".

All of the teachers (except 0.5%) in high-achieving schools were of the opinion that "whoever had got training in a profession should stay in that profession for a reasonable period of time". More than 20% showed their strong agreement to this opinion. Around 13% of the staff thought "it would be right to leave teaching if it were to their advantage" while 10.2% were uncertain and 77% thought it to be inappropriate. Nearly 45% showed slight agreement and 34% showed agreement about the item inquiring if "teachers felt any obligation to remain in the teaching profession". Twenty two teachers (11.2%) disagreed and 9.7% showed uncertainty.

Most of the teachers (69.4%) believed that "they would feel guilty if they left teaching", 15.8% were unsure while 14.8% opposed this view. More than 83% of the teachers in high-achieving schools "felt a responsibility to the teaching profession to continue in it". Only few teachers (16.3%) were either uncertain (8.2%) or disagreed (8.1%). Nearly 88% of the high-achieving schools' staff claimed that "they were in teaching because of their sense of loyalty to it".

4.5.8 Descriptive Statistics (Frequencies and Percentages) on Professional Commitment Scale for Low-Achieving Secondary School Teachers in Islamabad

Frequencies and percentages for each individual item in Professional Commitment Scale for low-achieving schools' teaching staff are presented in Table 4.13.

Nearly 95% of the total respondents from low-achieving schools marked 'slightly agree' (48.8%), 'agree' (41.1%), or 'strongly agree' (4.8%) when inquired whether "they believed that teaching was important to their self-image". All of the teachers (except 3%) "liked being teachers" and nearly 92% thought that "they had never regretted about entering the teaching profession". Hundred teachers (59.5%) slightly agreed and 45 teachers (26.8%) agreed that "they identified themselves with the teaching profession". Only 4.2% of the teachers were not sure while all the rest of the staff claimed that "they were proud to be in the teaching profession". Around 86% thought that "they were enthusiastic about their profession".

Fifteen teachers (8.9%) did not believe and nearly 15% were unsure if "they had put too much into the teaching profession to consider changing now". On the other hand, 75 teachers (44.6%) showed slight agreement, 49 teachers (29.2%) showed agreement, and four teachers (2.4%) showed strong agreement to this

Table 4.13

Frequencies and Percentages for Professional Commitment Scale (Low-Achieving Schools)

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
APC57	-	-	1 (0.6)	8 (4.8)	82 (48.8)	69 (41.1)	8 (4.8)
APC58*	-	-	-	5 (3.0)	76 (45.2)	79 (47.0)	8 (4.8)
APC63*	-	-	4 (2.4)	10 (6.0)	87 (51.8)	63 (37.5)	4 (2.4)
APC64*	-	-	1 (0.6)	18 (10.7)	100 (59.5)	45 (26.8)	4 (2.4)
APC69	-	-	1 (0.6)	7 (4.2)	83 (49.4)	68 (40.5)	9 (5.4)
APC70	-	-	5 (3.0)	19 (11.3)	110 (65.5)	34 (20.2)	-
CPC59	-	-	15 (8.9)	25 (14.9)	75 (44.6)	49 (29.2)	4 (2.4)
CPC60	-	-	13 (7.7)	18 (10.7)	88 (52.4)	49 (29.2)	-
CPC65	-	1 (0.6)	10 (6.0)	16 (9.5)	96 (57.1)	45 (26.8)	-

Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
	n (%)	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***	***n (%)***
CPC66*	-	2 (1.2)	8 (4.8)	21 (12.5)	95 (56.5)	42 (25.0)	-
CPC71	-	1 (0.6)	11 (6.5)	17 (10.1)	82 (48.8)	56 (33.3)	1 (0.6)
CPC72	-	1 (0.6)	4 (2.4)	11 (6.5)	91 (54.2)	60 (35.7)	1 (0.6)
NPC61	-	-	-	-	69 (41.1)	90 (53.6)	9 (5.4)
NPC62	-	3 (1.8)	19 (11.3)	30 (17.9)	85 (50.6)	31 (18.5)	-
NPC67*	-	-	8 (4.8)	35 (20.8)	81 (48.2)	44 (26.2)	-
NPC68	-	1 (0.6)	20 (11.9)	40 (23.8)	77 (45.8)	30 (17.9)	-
NPC73	-	1 (0.6)	2 (1.2)	27 (16.1)	91 (54.2)	46 (27.4)	1 (0.6)
NPC74	-	-	3 (1.8)	15 (8.9)	99 (58.9)	49 (29.2)	2 (1.2)

Note. Items marked with "*" are reversed scored.

N = 168

opinion. Nearly 82% of the staff in low-achieving schools viewed that “it would be costly for them to change their profession now” and 84% believed that “changing professions now would be difficult for them to do”.

When teachers were asked if “they thought that certain pressures kept them away from changing professions”, most of the staff (81.5%) replied positively, 12.5% remained indecisive, and only six percent opposed it. Twelve teachers (7.1%) did not believe that “too much of their lives would be disrupted if they were to change their profession now”. On the other hand, 82 teachers (48.8%) showed slight agreement while 56 teachers (33.3%) showed agreement to this statement. Around 90% of the teachers in low-achieving schools also believed that “changing professions now would require considerable personal sacrifices”.

Similar to the high-achieving schools’ teaching staff, all of the teachers in low-achieving schools believed that “those who had got training in a certain profession must stay in that profession for a reasonable period of time”. However, nearly 13% of the staff believed that “it would be right to leave teaching if it were to their advantage” while 69.1% thought otherwise. When teachers were inquired if “they felt any obligation to remain in the teaching profession”, 35 teachers (20.8%) showed uncertainty, 81 teachers (48.2%) slightly agreed, and 44 teachers (26.2%) agreed. Around 64% of the staff said that “they would feel guilty if they left teaching”, 23.8% were unsure and 12.5% opposed this view. More than 82% of the teachers in low-achieving schools “felt a responsibility to the teaching

profession to continue in it" and 89% claimed that "they were in teaching because of their sense of loyalty to it".

4.5.9 Descriptive Statistics (Means and Standard Deviations) on Professional Commitment for High-Achieving and Low-Achieving Secondary School Teachers in Islamabad

Teachers in high-achieving and low-achieving schools jointly showed their agreement levels on a number of items regarding their professional commitment (shown in Table 4.14). The overall mean scores for Professional Commitment Scale were found to be higher than the mean scores for Organizational Commitment Scale and/or Teacher Collegiality Scale. Teachers in high-achieving schools reported stronger commitment to the teaching profession as compared to low-achieving schools' teaching staff members.

Teachers in low-achieving schools slightly agreed that "teaching is important to their self-image" ($M = 5.45$, $SD = .69$) while teachers in high-achieving schools chose 'agree' to this item ($M = 5.55$, $SD = .87$). More teachers in high-achieving schools "liked to be a teacher" ($M = 5.71$, $SD = .88$) when compared with low-achieving school teachers ($M = 5.54$, $SD = .64$) and high-achieving school teachers also denied more strongly when asked if "they regretted having entered the teaching profession" (high-achieving schools: $M = 5.57$, $SD = .98$ and low-achieving schools: $M = 5.32$, $SD = .73$).

Table 4.14

Means and Standard Deviations of Professional Commitment Scale for High-Achieving and Low-Achieving Secondary Schools

Items in Subscales	***High-Achieving*** ***N = 196***		***Low-Achieving*** ***N = 168***	
	Mean	***SD***	***Mean***	***SD***
Affective Professional Commitment (APC)				
57. Teaching is important to my self-image.	5.55	.87	5.45	.69
58*. I dislike being a teacher.	5.71	.88	5.54	.64
63*. I regret having entered the teaching profession.	5.57	.98	5.32	.73
64*. I do not identify with the teaching profession.	5.34	.78	5.20	.68
69. I am proud to be in the teaching profession.	5.70	.82	5.46	.69
70. I am enthusiastic about teaching.	5.44	.81	5.03	.66
Total	5.55	.67	5.33	.51
Continuance Professional Commitment (CPC)				
59. I have put too much into the teaching profession to consider changing now.	5.10	1.05	5.01	.95
60. It would be costly for me to change my profession now.	5.36	.98	5.03	.84
65. Changing professions now would be difficult for me to do.	5.06	1.11	5.04	.81

Items in Subscales	*High-Achieving* *N = 196*		*Low-Achieving* *N = 168*	
	Mean	***SD***	***Mean***	***SD***
66*. There are no pressures to keep me from changing professions.	5.00	1.04	4.99	.82
71. Too much of my life would be disrupted if I were to change my profession now.	5.26	.97	5.10	.88
72. Changing professions now would require considerable personal sacrifices.	5.52	.79	5.24	.74
Total	5.21	.80	5.07	.64
Normative Professional Commitment (NPC)				
61. I believe that people who have been trained in a profession have a responsibility to stay in that profession for a reasonable period of time.	5.98	.69	5.64	.58
62. Even if it were to my advantage, I do not feel that it would be right to leave teaching now.	4.97	1.01	4.73	.95
67*. I do not feel any obligation to remain in the teaching profession.	5.03	1.00	4.96	.81
68. I would feel guilty if I left teaching.	4.88	1.17	4.68	.92
73. I feel a responsibility to the teaching profession to continue in it.	5.26	1.03	5.08	.75
74. I am in teaching because of my sense of loyalty to it.	5.50	1.03	5.19	.68
Total	5.27	.79	5.05	.56

Note. Items marked with "*" are reversed scored.

Both types of schools' teaching staff reported slight agreement when asked if "they identified with the teaching profession" (high-achieving schools: $M = 5.34$, $SD = .78$ and low-achieving schools: $M = 5.20$, $SD = .68$). Teachers in high-achieving schools "felt more proud to be in the teaching profession" ($M = 5.70$, $SD = .82$) than teachers in low-achieving schools ($M = 5.46$, $SD = .69$). Similarly, low-achieving schools' teaching staff was found to be "less enthusiastic about teaching" ($M = 5.03$, $SD = .66$) when compared with high-achieving school teachers ($M = 5.44$, $SD = .81$).

Table 4.14 showed that teachers in both types of schools believed that "they had put too much into the teaching profession to consider changing now" (high-achieving schools: $M = 5.10$, $SD = 1.05$ and low-achieving schools: $M = 5.01$, $SD = .95$). High-achieving schools' staff reported more agreement to the item asking if "it would be costly for them to change their profession now" ($M = 5.36$, $SD = .98$).

Almost similar number of teachers from both types of schools equally agreed that "changing professions now would be difficult for them to do" (high-achieving schools: $M = 5.06$, $SD = 1.11$ and low-achieving schools: $M = 5.04$, $SD = .81$) and admitted that "there were pressures that kept them away from changing professions" (high-achieving schools: $M = 5.00$, $SD = 1.04$ and low-achieving schools: $M = 4.99$, $SD = .82$). Teachers in high-achieving schools agreed that

"changing professions would require considerable personal sacrifices" (M = 5.52, SD = .79) while teachers in low-achieving schools reported slight agreement to the same item (M = 5.24, SD = .74).

Mean scores for item asking if teachers believed that "people who had got training in a profession must stay in that profession for a reasonable period of time", showed that most of the teachers responded positively to this item (high-achieving schools: M = 5.98, SD = .69 and low-achieving schools: M = 5.64, SD = .58) as compared to any other item in NPC subscale. Teachers' response to the item asking if "they felt obligation to remain in the teaching profession" showed almost similar results for both types of schools' staff (high-achieving schools: M = 5.03, SD = 1.00 and low-achieving schools: M = 4.96, SD = .81).

However, more teachers in high-achieving schools believed that "they would feel guilty if they left teaching" (M = 4.88, SD = 1.17) and they also "felt more responsibility to the teaching profession to continue in it" (M = 5.26, SD = 1.03). Teachers in low-achieving schools reported slight agreement to the belief that "they were in the teaching profession because of their sense of loyalty to it" (M = 5.19, SD = .68) while teachers in high-achieving schools agreed to the same statement (M = 5.50, SD = 1.03).

4.6 Descriptive Statistics for Male and Female Secondary School Teachers in Islamabad

Male and female teachers were found to have different perceptions about teacher collegiality in their respective schools. However, both male and female secondary school teachers showed more positive beliefs about *Demonstrating Mutual Support and Trust* (male: $M = 5.37$, $SD = .60$ and female: $M = 5.26$, $SD = .63$) and *Sharing Ideas and Expertise* (male: $M = 5.20$, $SD = .52$ and female: $M = 5.10$, $SD = .51$). Male and female secondary school teachers' perceptions about OT subscale were found to be uncertain (male: $M = 4.15$, $SD = .55$ and female: $M = 4.21$, $SD = .62$).

Table 4.15 presents the means and standard deviations for teacher collegiality subscales for both male and female teachers. It is evident from the results that male teaching staff of public secondary schools in Islamabad showed agreement to three subscales namely DMS ($M = 5.37$, $SD = .60$), JPA ($M = 4.71$, $SD = .59$), and SIE ($M = 5.20$, $SD = .52$) when compared with female teaching staffs' perceptions. On the other hand, female staff showed more positive trend towards three subscales namely OT ($M = 4.21$, $SD = .62$), DC ($M = 4.88$, $SD = .69$), and SR ($M = 4.99$, $SD = .77$).

Table 4.15

Descriptive Analysis of Data on Teacher Collegiality Scale for Male and Female Secondary School Teachers

Teacher Collegiality Subscales	***Male*** ***N = 179***		***Female*** ***N = 185***	
	Mean	***SD***	***Mean***	***SD***
Demonstrating Mutual Support & Trust (DMS)	5.37	.60	5.26	.63
Observing One Another Teaching (OT)	4.15	.55	4.21	.62
Joint Planning & Assessment (JPA)	4.71	.59	4.67	.63
Sharing Ideas & Expertise (SIE)	5.20	.52	5.10	.51
Teaching Each Other (TE)	5.03	.62	5.04	.54
Developing Curriculum Together (DC)	4.44	.77	4.88	.69
Sharing Resources (SR)	4.64	.69	4.99	.77

Table 4.16 presents the descriptive analysis of male and female public secondary schools' teaching staff on their commitment to their respective organization. The mean values for COC subscale showed that male teachers were more "aware of the costs associated with leaving the organization" (M = 4.82, SD = .54) as compared to other two subscales while female teachers showed more commitment for two subscales, AOC (M = 4.94, SD = .79) as well as COC (M = 4.98, SD = .65). The overall results indicated that female teachers were more committed to their schools than male teachers.

Table 4.16

Descriptive Analysis of Data on Organizational Commitment Scale for Male and Female Secondary School Teachers

Organizational Commitment Subscales	***Male*** ***N = 179***		***Female*** ***N = 185***	
	Mean	***SD***	***Mean***	***SD***
Affective Organizational Commitment (AOC)	4.60	.75	4.94	.79
Continuance Organizational Commitment (COC)	4.82	.54	4.98	.65
Normative Organizational Commitment (NOC)	4.57	.65	4.82	.73

Table 4.17

Descriptive Analysis of Data on Professional Commitment Scale for Male and Female Secondary School Teachers

Professional Commitment Subscales	***Male*** ***N = 179***		***Female*** ***N = 185***	
	Mean	***SD***	***Mean***	***SD***
Affective Professional Commitment (APC)	5.41	.58	5.49	.63
Continuance Professional Commitment (CPC)	5.15	.59	5.14	.85
Normative Professional Commitment (NPC)	5.15	.63	5.18	.77

Professional commitment of both male and female teachers was found to be higher as compared to their organizational commitment. Here again, female teaching staff showed higher mean values for APC (M = 5.49, SD = .63) and NPC (M = 5.18, SD = .77) when compared with male teaching staff (shown in Table 4.17). However, both male and female teachers showed almost similar range of continuance commitment to teaching (male: M = 5.15, SD = .59 and female: M = 5.14, SD = .85).

4.7 Descriptive Statistics for Teachers with Different Levels of Educational Attainment

Table 4.18 presents the means and standard deviations for teacher collegiality subscales for public secondary school teachers having bachelors, masters, and MPhil/PhD degrees. The results showed that there is a gradual increase in teachers' perceptions about collegiality in their schools as they possess a higher degree. Teachers having MPhil/PhD degrees showed the most positive trend towards their agreement to the items concerning DMS (M = 5.78, SD = .50), JPA (M = 4.94, SD = .62), SIE (M = 5.48, SD = .51), TE (M = 5.37, SD = .53), and SR (M = 5.06, SD = .68). Similarly, teachers having master's degree as the highest degree attained showed higher mean values for all teacher collegiality subscales when compared with bachelor's degree holders.

Table 4.18

Descriptive Analysis of Data on Teacher Collegiality Scale for Teachers with Different Educational Levels

Teacher Collegiality Subscales	**Bachelors** ***N* = 112**		**Masters** ***N* = 199**		**MPhil/PhD** ***N* = 53**	
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***
Demonstrating Mutual Support & Trust (DMS)	5.01	.62	5.36	.55	5.78	.50
Observing One Another Teaching (OT)	3.97	.57	4.28	.57	4.24	.58
Joint Planning & Assessment (JPA)	4.41	.56	4.79	.58	4.94	.62
Sharing Ideas & Expertise (SIE)	4.96	.50	5.18	.47	5.48	.51
Teaching Each Other (TE)	4.80	.59	5.08	.53	5.37	.53
Developing Curriculum Together (DC)	4.37	.71	4.82	.74	4.74	.80
Sharing Resources (SR)	4.55	.72	4.91	.75	5.06	.68

The subscales that showed higher means for master's degree holders as compared to MPhil/doctoral degree holders were OT (master's degree holder: M = 4.28, SD = .57 and MPhil/Doctoral degree holder: M = 4.24, SD = .58) and DC (master's degree holder: M = 4.82, SD = .74 and MPhil/Doctoral degree holder: M = 4.74, SD = .80).

When organizational commitment of teachers with different educational levels was calculated, the mean values showed that teachers with higher educational degrees were more committed to their organizations than teachers with lower educational attainment (as presented in Table 4.19). Teachers having bachelor and/or master degrees showed more continuance commitment (bachelor's degree holder: $M = 4.67$, $SD = .64$ and master's degree holder: $M = 4.99$, $SD = .55$), while teachers with MPhil/PhD degrees responded more positively towards AOC subscale ($M = 5.18$, $SD = .53$).

Table 4.19

Descriptive Analysis of Data on Organizational Commitment Scale for Teachers with Different Educational Levels

	Bachelors		**Masters**		**MPhil/PhD**	
Organizational Commitment	***N* = 112**		***N* = 199**		***N* = 53**	
Subscales	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
Affective Organizational Commitment (AOC)	4.42	.76	4.87	.79	5.18	.53
Continuance Organizational Commitment (COC)	4.67	.64	4.99	.55	5.06	.58
Normative Organizational Commitment (NOC)	4.31	.66	4.82	.67	5.05	.52

Table 4.20 presents the descriptive analysis on professional commitment subscales for teachers with different educational levels. Here again, teachers having MPhil/PhD degrees as the highest degree were found to be more committed to teaching profession. Master's degree holders were more committed to teaching as compared to bachelor's degree holders.

Table 4.20

Descriptive Analysis of Data on Professional Commitment Scale for Teachers with Different Educational Levels

	Bachelors		**Masters**		**MPhil/PhD**	
Professional Commitment	***N* = 112**		***N* = 199**		***N* = 53**	
Subscales	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
Affective Professional Commitment (APC)	5.12	.58	5.50	.55	5.96	.47
Continuance Professional Commitment (CPC)	4.74	.81	5.25	.63	5.60	.51
Normative Professional Commitment (NPC)	4.74	.68	5.29	.64	5.59	.50

However, all three groups of teachers showed more agreed behavior towards APC subscale (bachelor's degree holder: $M = 5.12$, $SD = .58$, master's degree

holder: *M* = 5.50, *SD* = .55, and MPhil/PhD degree holder: *M* = 5.96, *SD* = .47). Bachelor's degree holders showed almost similar commitment levels for CPC (*M* = 4.74, *SD* = .81) and NPC (*M* = 4.74, *SD* = .68).

4.8 Descriptive Statistics for Teachers with Different Levels of Professional Experience

When data were analyzed for teacher collegiality subscales for teachers having different levels of professional experience, most of the subscales showed gradual increase in the mean values as the professional experience increases. Teachers with more than 20 years of working experience showed the most positive trend as compared to all other groups of teachers. However, most of the groups showed agreeable trend towards subscales like DMS, SIE, and TE as shown in Table 4.21.

Table 4.22 presents descriptive statistics for organizational commitment subscales for teachers having different levels of professional experience. Teachers with less than five years of professional experience agreed to COC (*M* = 4.62, *SD* = .63) while they were uncertain about their AOC (*M* = 4.32, *SD* = .80) and NOC (*M* = 4.23, *SD* = .68).

Table 4.21

Descriptive Analysis of Data on Teacher Collegiality Scale for Teachers with Different Levels of Professional Experience

Teacher Collegiality Subscales	**< 5 y**		**5-10 y**		**10-15 y**		**15-20 y**		**> 20 y**	
	***N* = 80**		***N* = 113**		***N* = 95**		***N* = 46**		***N* = 30**	
	Mean	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
DMS	4.91	.63	5.18	.57	5.49	.49	5.59	.46	5.92	.40
OT	3.93	.57	4.16	.61	4.27	.51	4.21	.51	4.60	.60
JPA	4.40	.60	4.60	.62	4.83	.42	4.83	.62	5.17	.66
SIE	4.89	.51	5.09	.46	5.25	.45	5.34	.52	5.51	.52
TE	4.79	.56	4.95	.59	5.15	.53	5.15	.47	5.47	.54
DC	4.32	.73	4.69	.75	4.83	.62	4.70	.76	4.93	1.03
SR	4.49	.82	4.75	.75	4.97	.67	5.04	.59	5.16	.75

Analysis for professional commitment showed gradual increase in APC and NPC subscale (Table 4.23). However, all five groups of teachers with different range of professional experience were found to be more agreed to APC subscale (teachers with less than 5 years of experience: $M = 5.12$, $SD = .57$, teachers with 5-10 years of experience: $M = 5.31$, $SD = .58$, teachers with 10-15 years of experience: $M = 5.62$, $SD = .54$, teachers with 15-20 years of experience: $M = 5.69$, $SD = .55$, and teachers with more than 20 years of experience: $M = 5.93$, $SD = .49$).

Table 4.22

Descriptive Analysis of Data on Organizational Commitment Scale for Teachers with Different Levels of Professional Experience

Organizational	**< 5 y**		**5-10 y**		**10-15 y**		**15-20 y**		**> 20 y**	
Commitment	***N* = 80**		***N* = 113**		***N* = 95**		***N* = 46**		***N* = 30**	
Subscales	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
AOC	4.32	.80	4.63	.75	4.99	.67	5.12	.74	5.31	.53
COC	4.62	.63	4.91	.55	5.00	.60	4.97	.56	5.23	.48
NOC	4.23	.68	4.61	.65	4.90	.59	4.94	.68	5.25	.50

Table 4.23

Descriptive Analysis of Data on Professional Commitment Scale for Teachers with Different Levels of Professional Experience

Professional	**< 5 y**		**5-10 y**		**10-15 y**		**15-20 y**		**> 20 y**	
Commitment	***N* = 80**		***N* = 113**		***N* = 95**		***N* = 46**		***N* = 30**	
Subscales	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
APC	5.12	.57	5.31	.58	5.62	.54	5.69	.55	5.93	.49
CPC	4.67	.77	4.96	.77	5.48	.41	5.45	.55	5.59	.52
NPC	4.77	.74	5.04	.69	5.39	.54	5.41	.57	5.64	.60

4.9 Impact of Teacher Collegiality on Organizational Commitment and Professional Commitment in High-Achieving and Low-Achieving Public Secondary School Teachers in Islamabad – (Results of Research Question 1 and 2)

Research question one and two asked what impact does teacher collegiality have on organizational commitment and professional commitment among public secondary school teachers in Islamabad. The hypotheses to be tested states:

Hypothesis 1: Teacher collegiality will have a positive impact on teacher organizational commitment.
Hypothesis 2: Teacher collegiality will have a positive impact on teacher professional commitment.

In order to determine the impact of teacher collegiality on organizational commitment and professional commitment, Structural Equation Modeling (SEM) techniques were performed using AMOS 16.0. Structural equation modeling (SEM) serves purposes similar to multiple regression, but in a more powerful way which takes into account the modeling of interactions, nonlinearities, measurement error, correlated error terms, multiple latent independents each measured by multiple indicators, and one or more latent dependents also each with multiple indicators. SEM may be used as a more powerful alternative to multiple regression, path analysis, factor analysis, and analysis of covariance as it

is an extension of the general linear model (GLM) of which multiple regression is a part (Byrne, 2009). In addition, SEM procedures can incorporate both unobserved (i.e., latent) and observed variables.

SEM comprises of two main models, a measurement model and a structural model; the measurement model depicting the relations between the latent variables and their observed measures/indicators (i.e., the CFA model), and the structural model depicting the potential causal dependencies between endogenous and exogenous variables. The measurement model is first estimated and the correlations or covariance matrix between constructs or factors then serves as input to estimate the structural coefficients between constructs or latent variables.

Therefore, the current study initially tested a measurement model for the total sample to assess whether observed indicators were loaded on hypothesized latent variables using Confirmatory factor analysis (CFA). Following this, a structural model was tested for the total sample to determine whether these data fit the hypothesized model. And finally, multiple-group SEM analysis was performed to determine if school type based on achievement (i.e., high-achieving school versus low-achieving school) functioned as the moderator of the relationships in the proposed model.

4.9.1 Measurement Model

The measurement model defines relations between the observed and unobserved latent variables using confirmatory factor analytic approach. Confirmatory factor analysis (CFA) enables us to test how well the measured variables represent the constructs (Hair et al., 2006). The results of CFA were used to test construct validity. In CFA, indicators with a low factor loading (less than 0.5) were removed initially and then the goodness-of-fit (GOF) index was checked to verify each latent construct. For the current analysis, some modifications were carried out during CFA as the measurement model was found to be less-fitted. Changes based on the modification indices and standardized residual covariances were made to increase GOF in order to get the acceptable fit.

4.9.2 Confirmatory Factor Analysis Results

An initial check of the hypothesized model was conducted to ensure that the number of degrees of freedom associated with the model under test was in order to ascertain its model identification status. SEM models both confirmatory factor analytic or structural models must be over-identified in which the number of estimable parameters is less than the number of data points (i.e., variances and covariances of the observed variables) as this situation results in positive degrees of freedom that allow for rejection of the model.

In order to determine if the present model was identified, the number of parameters to be estimated was summed up; the model had 74 first-order regression coefficients (factor loadings) but as 1 was assigned to one of each set of regression path parameters to give it a fixed value of 1.0; therefore, these parameters were not estimated, making a total of 61 first-order regression coefficients. There were 13 second-order regression coefficients, out of which again 1 was assigned to each of the three sets for the purpose of setting the scale of each construct, making it 10 second-order regression coefficients. In addition there were three correlational paths, 74 measurement error variances, 13 residual error terms, and three second-order factor variances, making a total of 164 distinct parameters to be estimated.

Table 4.24

CFA Model Summary

Computation of degrees of freedom	
Number of distinct sample moments:	2775
Number of distinct parameters to be estimated:	164
Degrees of freedom (2775 - 164):	2611

Result of CFA model

Minimum was achieved

Chi-square = 4513.381

Degrees of freedom = 2611

Probability level = .000

As the CFA model contained 74 observed variables, therefore, there were 74(74+1)/2 = 2775 data points or sample moments in the sample variance-covariance matrix, concluding that the model was identified with 2611 degrees of freedom. Table 4.24 shows the results for the model identification.

The result of the CFA model showed that the minimum was achieved which indicated that AMOS successfully estimated the variances and covariances. Chi-square value obtained was equal to 4513.38 with statistically significant *p*-value ($p < .001$) showing that the two (observed sample and SEM estimated covariance) matrices were statistically different, thus indicating problems with the fit. But due to the fact that chi-square test is very sensitive to both sample size and number of observed variables, therefore, it was expected to get significant *p*-value as the present model contained 74 observed variables and sample size was 364.

Table 4.25

Variable Counts for CFA Model

Variable counts of CFA Model	
Number of variables in your model:	177
Number of observed variables:	74
Number of unobserved variables:	103
Number of exogenous variables:	90
Number of endogenous variables:	87

The model contained 74 observed and 103 unobserved variables. Observed variables were the items from the Teacher Collegiality Scale (38-items), Organizational Commitment Scale (18-items), and Professional Commitment Scale (18-items). The unobserved variables included 74 error terms associated with each observed variable/indicator, 13 first-order factors, 3 second-order factors, and 13 residual error terms. The exogenous variables consisted of 74 error terms, 3 second-order factors, and 13 residual error terms making a total of 90 variables while endogenous variables consisted of 74 observed variables and 13 first-order factors. Table 4.25 shows the summary of the variable counts for hypothesized measurement model.

Table 4.26

Parameter Summary

	Weights	**Covariances**	**Variances**	**Means**	**Intercepts**	**Total**
Fixed	103	0	0	0	0	103
Labeled	0	0	0	0	0	0
Unlabeled	71	3	90	0	0	164
Total	174	3	90	0	0	267

The model contained total of 267 parameters, out of which 103 were fixed weights including 74 error term regression paths (fixed to 1.0), 13 first-order

factor loadings (fixed to 1.0), 3 second-order factor loadings (fixed to 1.0), and 13 residual regression paths (fixed to 1.0), while 71 were unlabeled weights (61 first-order and 10 second-order). Variances (unlabeled) included 74 error variances, 13 residual variances, and three second-order factor variances, making a total of 90 variances. There were three covariances in the model. The parameter summary is presented in Table 4.26.

The list of endogenous variables (both observed and unobserved) is presented in Table 4.27, whereas Table 4.28 shows the list of all unobserved exogenous variables.

Regression weights (also termed as factor loadings) both unstandardized and standardized were estimated. The unstandardized regression coefficients are simply the weights applied to the raw scores, while the standardized regression coefficients are the weights applied to the scores in standard score form which is simply the unstandardized regression coefficient multiplied by the ratio of the standard deviation of the variable in question to the standard deviation of the criterion.

The unstandardized regression weights, Standard errors (S.E), critical ratio (C.R.), and significant *p*-values are presented in Appendix D. The critical ratio (C.R.) is the test statistic which represents the parameter estimate divided by its standard error; as such, it operates as a z-statistic in testing that the estimate is

Table 4.27

List of Observed and Unobserved Endogenous Variables

Observed Endogenous Variables				Unobserved Endogenous Variables
DMS1	JPA35	AOC39	APC58	DMS
DMS2	SIE5	AOC40	APC63	OT
DMS8	SIE12	AOC45	APC64	JPA
DMS15	SIE18	AOC46	APC69	SIE
DMS21	SIE24	AOC51	APC70	TE
DMS27	SIE30	AOC52	CPC59	DC
DMS33	SIE36	COC41	CPC60	SR
OT3	TE6	COC42	CPC65	AOC
OT9	TE19	COC47	CPC66	COC
OT16	TE25	COC48	CPC71	NOC
OT22	TE31	COC53	CPC72	APC
OT28	TE37	COC54	NPC61	CPC
OT34	DC13	NOC43	NPC62	NPC
JPA4	DC20	NOC44	NPC67	
JPA10	DC26	NOC49	NPC68	
JPA11	DC32	NOC50	NPC73	
JPA17	SR7	NOC55	NPC74	
JPA23	SR14	NOC56		
JPA29	SR38	APC57		

Table 4.28

List of Unobserved Exogenous Variables

Unobserved Exogenous Variables				
e1	e35	Teacher	e53	e72
e2	e5	Collegiality	e54	e61
e8	e12	res1	e43	e62
e15	e18	res2	e44	e67
e21	e24	res3	e49	e68
e27	e30	res4	e50	e73
e33	e36	res5	e55	e74
e3	e6	res6	e56	Organizational
e9	e19	res7	e57	Commitment
e16	e25	e39	e58	Professional
e22	e31	e40	e63	Commitment
e28	e37	e45	e64	res8
e34	e13	e46	e69	res9
e4	e20	e51	e70	res10
e10	e26	e52	e59	res11
e11	e32	e41	e60	res12
e17	e7	e42	e65	res13
e23	e14	e47	e66	
e29	e38	e48	e71	

statistically different from zero. Based on a probability level of .05, the test statistic needs to be > ±1.96 before the hypothesis (that the estimate equals to zero) can be rejected. Whereas the Standard errors (S.E) reflect the precision with which a parameter has been estimated, with small values suggesting accurate estimation. However, its value should not be excessively large or small which is an indicator of poor model fit.

Reviewing the unstandardized estimates for the current CFA model, all estimates were found to be reasonable and statistically significant given C.R. values > 1.96. All C.R. values using a significance level of .05 were greater than 1.96, therefore, considered as significantly different from zero. The Standard errors (S.E) also appear to be in good order showing no problem with the parameter estimates.

Standardized regression weights or the factor loadings of each observed variable onto its first-order latent variable and first-order latent variable's loading onto its second-order factor are presented in Appendix E. The standardized regression weights tend to vary between +1 and -1. However, the size of the standardized loadings confirms that the indicators are strongly related to their associated constructs and are one indication of construct validity (Hair et al., 2006). Hair and his colleagues (2006) suggested that standardized loading estimates should be at least 0.5 and ideally 0.7 or higher. However, in order to follow the three-indicator rule which suggests at least three indicators/items per

scale, a more conservative approach was adopted according to which items with factor loadings less than 0.4 were the candidates for deletion.

In a review of the standardized estimates, there was one value that was greater than 1.0; this represents the path flowing from Organizational Commitment to *Normative Organizational Commitment* (NOC <--- Organizational_Commitment). A standardized regression coefficient greater than 1.0 demonstrates that a suppressor relationship exists between two variables but in this case as it exists between latent to latent variable, therefore, no change would be made.

On the other hand, two paths, one flowing from *Teaching Each Other* (TE) subscale to its Item 25 (TE25 <--- TE) and the other flowing from *Joint Planning and Assessment* (JPA) subscale to its Item 10 (JPA10 <--- JPA) indicated relatively smaller values that is < 0.4. Other than these two paths, two more paths both flowing from *Observing One Another Teaching* (OT) subscale to its Item 3 (OT3 <--- OT) and Item 34 (OT34 <--- OT) showed excessively low values. Therefore, following Steven's (1996) guideline, all of these four items (JPA10, TE25, OT3, and OT34) were removed from their respective subscales. All the remaining standardized estimates were found to be sound.

The scale reliability analysis results presented previously in this chapter also showed some problem for the items (JPA10 and TE25) with their respective

subscales and there removal was advisable in order to increase the scale reliability. Therefore, the deletion of these two items from the final analysis was strongly recommended.

Table 4.29

Covariances in CFA Model

			Estimate	**S.E.**	**C.R.**	***p***
Organizational_Commitment	<-->	Professional_Commitment	.221	.029	7.563	***
Teacher_Collegiality	<-->	Organizational_Commitment	.132	.020	6.649	***
Teacher_Collegiality	<-->	Professional_Commitment	.259	.034	7.705	***

Note. *** significant at $p < .001$.

Table 4.30

Correlations in CFA Model

			Estimate
Organizational_Commitment	<-->	Professional_Commitment	.814
Teacher_Collegiality	<-->	Organizational_Commitment	.800
Teacher_Collegiality	<-->	Professional_Commitment	.909

The covariances in the CFA model presented in Table 4.29 were all found to be statistically significant with critical ratio (C.R.) > ±1.96 using a significance level of .05. The standard errors were also appropriate. Whereas, the correlations between teacher collegiality, organizational commitment, and professional commitment are shown in Table 4.30 indicating the standardized parameter estimates which ranged from .80 to .91.

Variances in the CFA model showed that all except three variances were statistically significant with critical ratio (C.R.) > ±1.96 using a significance level of .001. The three variances which were non-significant are residual 10 (res10), residual 11 (res11), and residual 13 (res13). The estimate for residual 10 was found to be -.003 which was inappropriate to achieve, and therefore, showed an error in the variance. The parameter for res10 was therefore, fixed to zero. The estimates for variances in CFA model, along with its standard error (S.E) and critical ratio (C.R.) are presented in Appendix F. The CFA model with standardized estimates is shown in Figure 4.1.

4.9.3 Assessment of Measurement Model Fit

The chi-square χ^2 is a key model fit test which examines the extent that a perfect fit exists between observed and estimated covariance matrices. The overall model χ^2 was found to be 4513.38 with 2611 degrees of freedom. The *p*-value associated with this result was .000. The *p*-value was significant using a probability

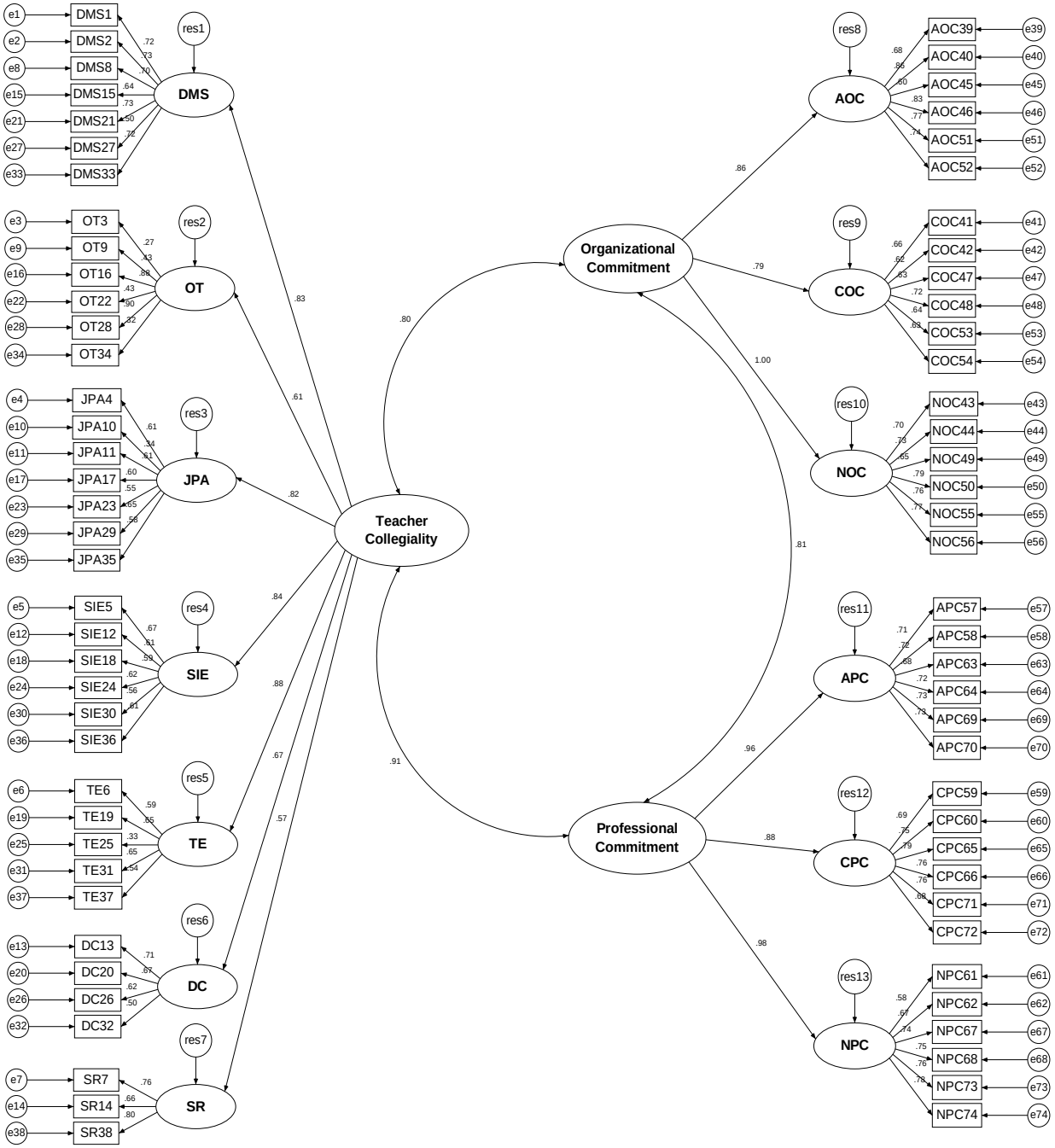

Figure 4.1. CFA model with standardized estimates.

level of .001. Thus the χ^2 goodness-of-fit statistic does not indicate that the observed covariance matrix matches the estimated covariance matrix within sampling variance.

However, given the problems associated with using this test alone, and the effective sample size of 364, the other fit indices were also closely examined. Most specifically, chi-square/degrees of freedom (χ^2/df) is recommended for data set having sample size more than 200 and its value is recommended to be < 2.0 to indicate a good model fit. For the current model, it turned out to be 1.729, which showed that the measurement model was a good fit. But the other measurement model fit indices did not fall within the acceptable ranges and therefore, certain modifications were made to get the acceptable model fit. Table 4.31 and Table 4.32 summarize some of the important model fit indices.

Hair and colleagues (2006) recommend the use of one absolute fit index, one incremental, and the chi-square result as measures for the overall fit of the measurement model. Absolute fit indices directly measure how well the specified model reproduces the observed data (Hair et al., 2006; Kenny & McCoach, 2003). The Root Mean Square Error of Approximation (RMSEA) test is an absolute fit index which considers values < .05 to demonstrate good fit but for studies having more complex models (more than 30 variables) and larger sample size (more than 250) are subject to less strict criteria for evaluation (Hair et al., 2006). Therefore, for the current study, RMSEA must be lower than .07 and RMR value must be .08

or less to indicate acceptable fit. The RMSEA for this model was found to be .045 and RMR value was .053 which were both considerably lower than their cutoff values, indicating good fit.

Table 4.31

GOF Statistics for Measurement Model

Chi-square (χ^2)
Chi-square = 4513.381 (p = .000)
Degrees of freedom = 2611
Absolute Fit Measures
Goodness-of-Fit Index (GFI) = .742
Root Mean Square Error of Approximation (RMSEA) = .045
Root Mean Square Residual (RMR) = .053
Normed Chi-square (χ^2/df) = 1.729
Incremental Fit Indices
Normed Fit Index (NFI) = .716
Tucker-Lewis Fit Index (TLI) = .843
Comparative Fit Index (CFI) = .856
Relative Fit Index (RFI) = .707
Parsimony Fit Indices
Adjusted Goodness-of-Fit Index (AGFI) = .725
Parsimony Normed Fit Index (PNFI) = .693

Table 4.32

Fit Indices for Measurement Model

	χ^2/df	NFI	CFI	TLI	RFI	RMR	RMSEA
Criteria for Good Fit	≤ 2.0	≥ *.90*	≥ *.90*	≥ *.90*	≥ *.90*	≤ *.08*	≤ *.07*
Fit Indices	1.729	.716	.856	.843	.707	.053	.045

Incremental fit indices differ from absolute fit indices in that they examine fit of a specified model relative to some alternative baseline model, commonly referred to as a null model. The Comparative Fit Index (CFI) and the Tucker-Lewis Fit Index (TLI) were employed in this study as they are widely accepted as incremental model fit indices which consider values greater than .90 associated with a model that fits well (Hair et al., 2006).

The CFI and the TLI obtained from the analysis of current measurement model were .856 and .843 respectively, which were both indicative of a less than adequate fit of the model to the data. Therefore, some of the modification in specification was needed in order to identify a model that better represented the sample data. However, in assessing the possible areas of misfit, modification indices and residual moments were examined.

4.9.4 Misspecification of Measurement Model

AMOS yields two types of information that can be helpful in detecting model misspecification - the standardized residuals and the modification indices.

Standardized residuals were examined initially to assess the areas of misfit in the measurement model as the inspection of the variables associated with large standardized residuals can often reveal clear patterns to guide model modification. Standardized residuals represent estimates of the number of standard deviations the observed residuals are from the zero residuals that would exist if model fit were perfect (Byrne, 2009). Standardized residual values greater than 2.58 are considered to be large (Joreskog & Sorbom, 1993).

When the current measurement model was examined, eleven large standardized covariance residuals greater than 2.58 were observed in the matrix. Four of these involved observed variable OT9 and three involved variable DMS27, indicating that these two variables (OT9 and DMS27) were associated with many other observed variables in the model, and were, therefore, candidates for deletion, as per Anderson and Gerbing's (1988) guidelines.

A more modern approach suggests that these large residuals indicate that the addition of direct paths may need to be added to the model. However, when there are a lot of observed variables and many large residuals are found, it can be quite

difficult to draw a clear picture as to possible modifications. Diamantopoulos and Siguaw (2000) suggest that under such circumstances, one must rely more on the modification indices.

Modification index (MI) values reveal cross-loadings and misspecified error covariances (where there is systematic error in item responses or item redundancy). These indices show the minimum decrease in the model chi-squared value if a previously fixed parameter is set free and the model re-estimated; thus the largest MIs indicate which parameters should be set free in order to improve fit maximally.

In the current model, the parameter with the highest MI value was *Demonstrating Mutual Support and Trust* (DMS), which cross-loaded onto the *Developing Curriculum Together* variable DC32. However, adding a new path from latent variable *Demonstrating Mutual Support and Trust* (DMS) to observed variable DC32 reduced the factor loading of DC32 from .51 to .38 onto its latent construct that is *Developing Curriculum Together* (DC) subscale. Therefore, this path was not added to the model. Other than this, five error covariances were suggested between res6 and res7, e18 and e23, e42 and e54, e66 and e73, and e64 and e59 all indicating high MIs. The presence of error covariances between four pairs of observed variables might be due to high degree of content overlap.

4.9.5 Respecification of Measurement Model

The analysis revealed that the previously hypothesized model was somewhat inconsistent with the sample data; therefore, analyses then entered an exploratory, rather than confirmatory mode. The aim of model respecification was to identify the source of misfit in the original model and to determine a model that better describes the sample data (Byrne, 2009), with the ultimate objective of finding a model that was substantively meaningful and statistically well-fitting (Abramson et al., 2005).

Models can be 'trimmed' or 'built' by removing or adding direct paths, and can also be modified by reconfiguring the relationships between variables. However, it is advisable to limit model changes due to the increased risk of making a Type I error (Byrne, 2009), and for clarity to make changes to the model one parameter at a time (Byrne, 2009; Ullman, 2001). It is also generally preferred to respecify models only when theoretically congruent to do so (Schreiber et al., 2006).

The following steps were taken to modify the measurement model.

- The two items, JPA10 from *Joint Planning and Assessment* (JPA) subscale and the other item TE25 from *Teaching Each Other* (TE) subscale, both showed problems with the scale reliability analysis and

their removal was advisable to increase the internal consistency of their respective subscales. These two observed variables (JPA10 and TE25) further showed very low standardized regression weights (less than 0.4) in the CFA. Therefore, both of these items were decided to be dropped from the final model.

- Standardized regression weights for two observed variables (OT3 and OT34) were also estimated to be very low (less than 0.4) on *Observing One Another Teaching* (OT) subscale, therefore, these two items were also dropped from the final analysis.
- DMS27 was removed from *Demonstrating Mutual Support and Trust* (DMS) subscale as its removal could increase the Cronbach's alpha value of the subscale. DMS27 also showed high residual covariances (greater than 2.58) with three other observed variables (DC26, DC32, and OT3).
- Another item (OT9) from *Observing One Another Teaching* (OT) subscale showed very high residual covariances (greater than 2.58) with four other observed variables, therefore, OT9 was also removed from the final measurement model.
- Five error covariances were added to the respecified measurement model as suggested by the MIs. These covariances were created between two residual error terms (res6 <--> res7) of the latent variables and four pairs of error terms (e23 <--> e18), (e42 <--> e54), (e64 <--> e59), and (e66 <--> e73) of the observed variables. Items 23 and 18, Items 42 and 54, Items

64 and 59, and Items 66 and 73 suggested redundancy due to content overlap.

4.9.6 Assessment of Fit for Modified Measurement Model

After removing all the six observed variables (DMS27, OT3, OT9, OT34, JPA10, and TE25) which were either having very low standardized regression weights (< 0.4) or showing very high residual covariances (> than 2.58) with other observed variables, the new measurement model with a total of 32 items on Teacher Collegiality Scale, 18 items on Organizational Commitment Scale and 18 items on Professional Commitment Scale was checked for its model fit. Goodness-of-fit statistics related to this new model revealed a statistically significant improvement in model fit between this model and the initially hypothesized model (χ^2 (2194) = 3646.205; $\Delta\chi^2$ (417) = 867.176, and substantial differences in the CFI (.884 versus .856) and RMSEA (.043 versus .045) values.

For the addition of new paths to the model, it is suggested that only one parameter should be added at a time to the model as the MI values can change substantially from one tested parameterization to another (Byrne, 2009). Thus, in building new model, it seems most reasonable to proceed first in adding to the model the error covariance having the largest MI. For the current model, the highest MI was present between error terms (e42 <--> e54). Addition of this new path decreased the overall chi-square value to 3620.63 and a little change was

seen in RMSEA from .043 to .042, while the CFI value increased from .884 to .889.

Four new error covariances were then added to the model (res6 <--> res7), (e64 <--> e59), (e66 <--> e73), and (e23 <--> e18). The respecified model was again checked for substantial differences. GOF indices related to this final modified model showed a further statistically significant drop in the chi-square value from that of previous model (χ^2 (2190) = 3554.451; $\Delta\chi^2$ (4) = 91.754). Likewise, there was evident improvement with respect to both the RMSEA (.041 versus .043) and the CFI (.907 versus .889). The modified measurement model with standardized estimates is shown in Figure 4.2.

The model was initially checked for its identification. The modified measurement model contained 68 observed variables, therefore, there were 68(68+1)/2 = 2346 distinct sample moments in the sample variance-covariance matrix. The number of distinct parameters to be estimated was 156; therefore, the model was identified with 2190 degrees of freedom. Table 4.33 shows the results for the respecified model identification. Chi-square value obtained for the respecified measurement model was equal to 3554.45 with statistically significant *p*-value ($p < .001$) showing that the two (observed sample and SEM estimated covariance) matrices were statistically different. However, the chi-square/degrees of freedom (χ^2/df) was estimated to be 1.623 which indicated a good model fit as it was less than 2.0.

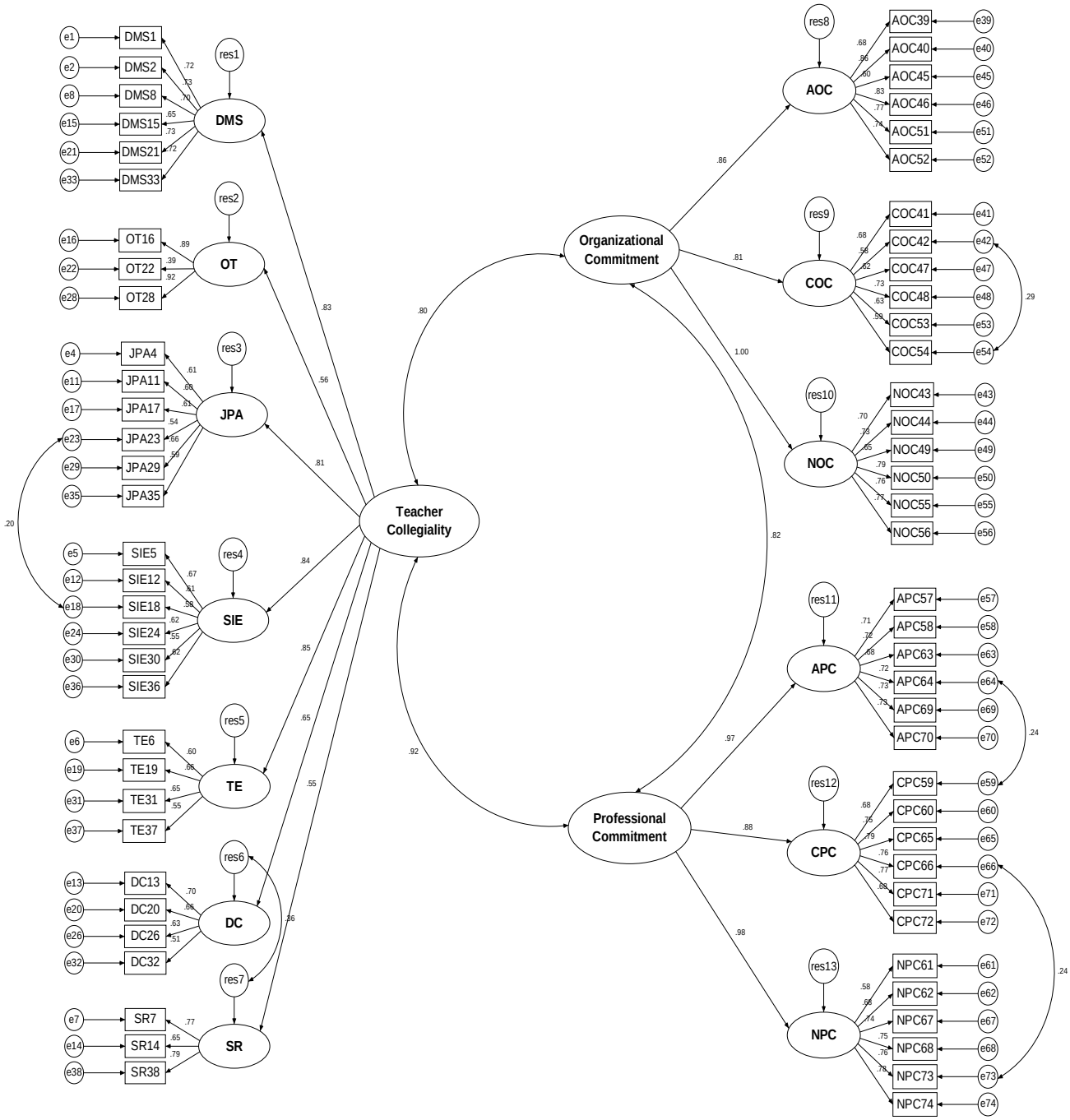

Figure 4.2. Modified measurement model with standardized estimates.

Table 4.33

Modified Measurement Model Summary

Computation of degrees of freedom	
Number of distinct sample moments:	2346
Number of distinct parameters to be estimated:	156
Degrees of freedom (2346 - 156):	2190

Minimum was achieved

Chi-square = 3554.451

Degrees of freedom = 2190

Probability level = .000

The new measurement model contained 68 observed and 97 unobserved variables. Observed variables were the items from the Teacher Collegiality Scale (32-items), Organizational Commitment Scale (18-items), and Professional Commitment Scale (18-items). The unobserved variables included 68 error terms associated with each observed variable, 13 first-order factors, 3 second-order factors, and 13 residual error terms. The exogenous variables consisted of 68 error terms, 3 second-order factors, and 13 residual error terms making a total of 84 variables while endogenous variables consisted of 68 observed variables and 13 first-order factors. Table 4.34 presents summary of the variable counts for modified measurement model.

Table 4.34

Variable Counts for Modified Measurement Model

Variable counts of CFA Model	
Number of variables in your model:	165
Number of observed variables:	68
Number of unobserved variables:	97
Number of exogenous variables:	84
Number of endogenous variables:	81

The model contained 254 parameters (as shown in Table 4.35) out of which 97 were fixed weights, while 65 were unlabeled weights (55 first-order and 10 second-order). Variances (unlabeled) included 68 error variances, 13 residual variances, and three second-order factor variances, making a total of 84 variances. There were eight covariances in the modified model.

Dropping three items (OT3, OT9, and OT34) from *Observing One Another Teaching* (OT) subscale, which previously contained six items in total, changed the Cronbach's alpha coefficient for this subscale. The coefficient alpha value for this modified 3-item scale decreased from .74 to .71. However, it still exceeded the cut-off value of 0.7, indicating that this modified subscale met the acceptable standard of reliability analysis (Hair et al., 2006). The rest of the subscales retained their Cronbach's alpha values as stated in the previous section.

Table 4.35

Parameter Summary for Modified Measurement Model

	Weights	**Covariances**	**Variances**	**Means**	**Intercepts**	**Total**
Fixed	97	0	1	0	0	98
Labeled	0	0	0	0	0	0
Unlabeled	65	8	83	0	0	156
Total	162	8	84	0	0	254

Goodness-of-fit (GOF) statistics for the modified model are shown in Table 4.36. It indicates that the overall goodness-of-fit was dramatically improved. All GOF statistics either exceed or were just near the criteria suggested by Hair and his colleagues (2006). Modified measurement model yielded an overall χ^2 value of 3554.45, $p < .001$ with CFI = .907, TLI = .903, and RMSEA = .041; the χ^2/df was 1.623. The values for NFI and RFI were slightly below the recommended upper limit of .90. However, NFI and RFI are the function of the model complexity meaning these values are depressed when many variables and items are included in the model (Cheung & Rensvold, 2002).

This analysis of the GOF measures provides strong support for the modified model. An examination of the path estimates linking constructs to indicators/observed variables and second-order latent variables to first-order latent variables showed statistical significance and were estimated to be higher than 0.5.

Similarly, the covariances in the specified measurement model were also significant ($p < .001$). The standardized residuals and modification indices also provides support for the modified model. Analysis of the standardized residuals revealed that none exceed the critical values of ±2.58. None of the MI values was found to be very high. In the absence of theoretical and/or methodological reasons for further modifications, the model was tentatively accepted.

Table 4.36

Fit Indices for Modified Measurement Model

	χ^2/df	NFI	CFI	TLI	RFI	RMR	RMSEA
Criteria for Good Fit	≤ 2.0	≥ *.90*	≥ *.90*	≥ *.90*	≥ *.90*	≤ *.08*	≤ *.07*
Fit Indices	1.623	.861	.907	.903	.851	.045	.041

4.9.7 Structural Model

The structural model defines relations among the unobserved/latent variables. Accordingly, it specifies the manner by which particular latent variables directly or indirectly influence or cause changes in the values of certain other latent variables in the model.

In order to specify a structural model, the correlational paths between the three latent variables (i.e., Teacher Collegiality, Organizational Commitment, and Professional Commitment) in the modified measurement model were removed. Instead two new paths were added to the model, one from Teacher Collegiality towards Organizational Commitment and the other from Teacher Collegiality towards Professional Commitment. Two new residual error terms (res14 and res15) were also added to the dependent variables. Figure 4.3 presents the structural model (with standardized estimates) that tests the relationships posited in the study.

The two main hypotheses to be tested in this study states:

Hypothesis 1: Teacher collegiality will have a positive impact on teacher organizational commitment.

Hypothesis 2: Teacher collegiality will have a positive impact on teacher professional commitment.

4.9.8 Assessment of Fit for Structural Model

GOF indices were applied to assess structural model validity. GOF indices indicated an acceptable fit between the data and the model. Table 4.37 presents all important GOF statistics for the structural model. Structural model yielded an overall χ^2 value of 3563.67, with degrees of freedom equals to 2191. The CFI value was equal to .906 and RMSEA was estimated to be .042; the χ^2/df was

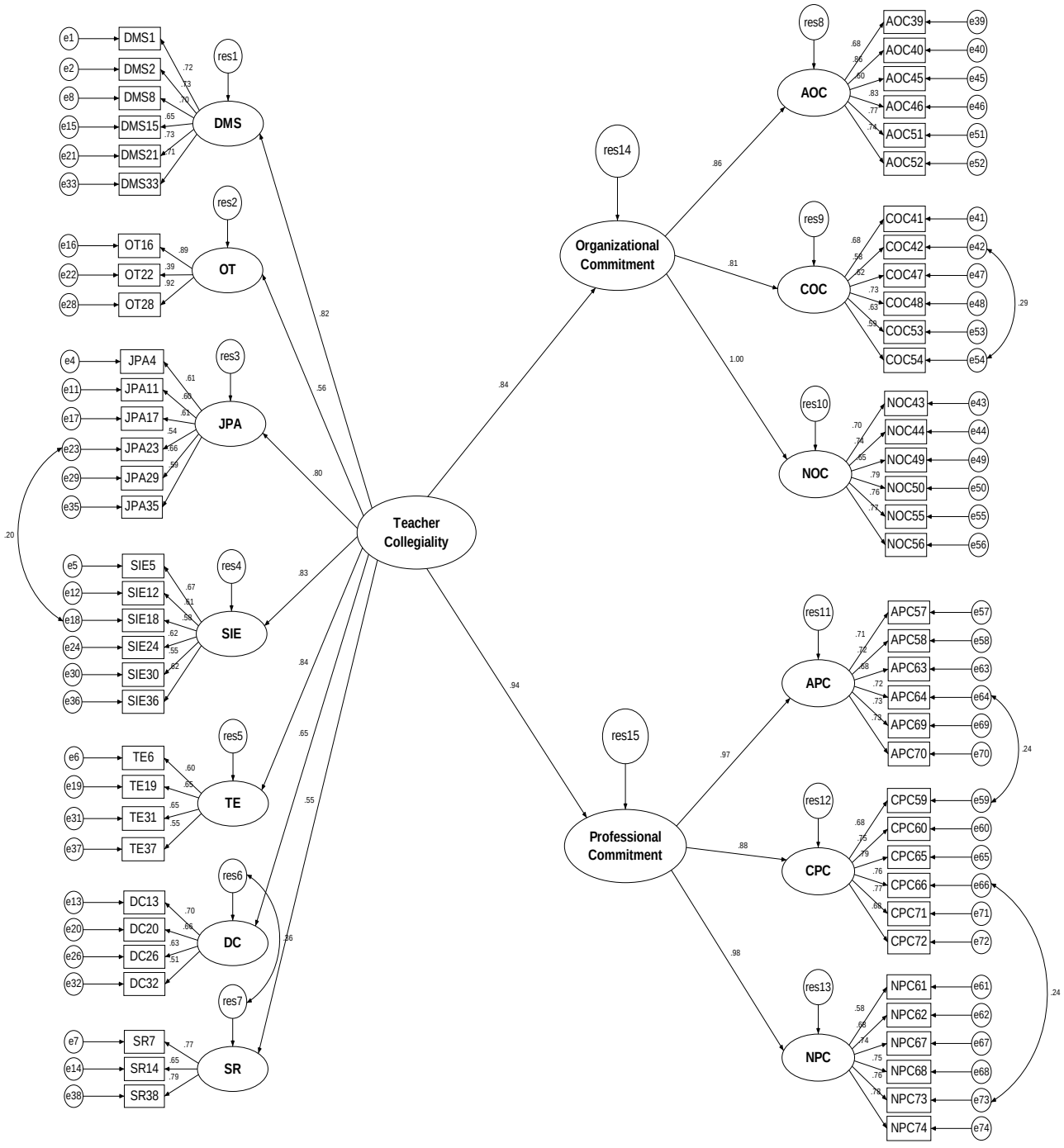

Figure 4.3. Structural model with standardized estimates.

1.627. Here again, the values for NFI and RFI were slightly below the recommended upper limit of .90 might be due to the model complexity. All of the other important fit indices were within the acceptable ranges, suggesting that the proposed structural model offers a good fit to the data.

Table 4.37

Fit Indices for Structural Model

	χ^2/df	NFI	CFI	TLI	RFI	RMR	RMSEA
Criteria for Good Fit	≤ 2.0	≥ *.90*	≥ *.90*	≥ *.90*	≥ *.90*	≤ *.08*	≤ *.07*
Fit Indices	1.627	.859	.906	.901	.849	.046	.042

4.9.9 Hypotheses Testing for Structural Model

Both of the hypothesized relationships (Hypothesis 1 and Hypothesis 2) were strongly supported based on the structural modeling results. Teacher collegiality positively influenced organizational commitment and professional commitment among public secondary school teachers in Islamabad.

Figure 4.3 shows that the standardized path coefficients from teacher collegiality to organizational commitment was statistically significant ($p < .001$) with parameter estimate equals to .84, while the path from teacher collegiality to

professional commitment was significant ($p < .001$) with parameter estimate equals to .94 , both indicating the impact of teacher collegiality on organizational commitment and professional commitment. Although teacher collegiality is strongly associated with both the dependent variables, the impact of teacher collegiality on professional commitment is relatively higher as compared to organizational commitment.

This suggested that teachers who perceived collegiality to be high in their respective schools were more committed to their organizations as well as their profession. However, teachers who believed high collegiality in their workplace were found to be more professionally committed.

4.9.10 Multiple-group SEM Analysis

Once support for the main impact had been found, the next step was to include the suggested moderator variable into the model in order to gain further insights. Therefore, in order to determine if the impact of teacher collegiality on organizational commitment and professional commitment was equivalent across two groups (i.e., high-achieving school teachers and low-achieving school teachers) a multiple-group SEM analysis was conducted comparing two sub-samples.

However, as the overall model was very complicated and required large sample size, dividing the sample into two groups (i.e., high-achieving school teachers and low-achieving school teachers) made it difficult to conduct the multi-group SEM analysis. Therefore, the model was summarized by computing all the observed variables/indicators to their respective factors as the measurement model had already been validated by the CFA results. In this case, the new model was reduced from higher-order factor model to first-order factor model where the seven factors (DMS, OT, JPA, SIE, TE, DC, and SR) of Teacher Collegiality, three factors (AOC, COC, and NOC) of Organizational Commitment, and three factors (APC, CPC, and NPC) of Professional Commitment turned to be the observed variables/indicators while Teacher Collegiality, Organizational Commitment and Professional Commitment were the latent variables.

Both the groups were tested separately to check for the adequate model fit. Estimation revealed that the model fits the data well for both the groups (for high-achieving school teachers: χ^2 (64) = 221.494, $p < .001$; CFI = .916; TLI = .911; RMSEA = .112 and for low-achieving school teachers: χ^2 (64) = 125.365, $p < .001$; CFI = .949; TLI = .938; RMSEA = .067). The satisfactory results allowed for the multi-group analysis.

The initial step in testing for multi-group invariance requires that the same number of factors and the factor-loading pattern be the same across groups. No equality constraints were imposed initially on any of the parameters. Thus, the

same parameters that were estimated in the baseline model for each group separately were again estimated in this multi-group model where it incorporates the baseline models for high-achieving and low-achieving school teachers within the same file. This model is commonly termed as configural model or totally free multiple-group model (TF). This multi-group model not only allows for invariance tests to be conducted across the two groups simultaneously but the fit of this configural model also provides the baseline value against which all subsequently specified invariance models are compared.

4.9.11 Assessment of Fit for Configural Model

Multi-group configural model summary showed that the model contained 182 data points or pieces of information (91 for each group) and 54 distinct parameters to be estimated (27 for each group). The configural model was identified with 128 degrees of freedom. Table 4.38 shows the results for the configural model identification. The result of the configural model showed that the minimum was achieved with chi-square value equal to 346.86 with 128 degrees of freedom and *p*-value was statistically significant ($p < .001$).

GOF indices were applied to assess configural model validity. GOF indices indicated an acceptable fit between the data and the model. Table 4.39 presents GOF statistics for the multi-group configural model. Configural model yielded an

adequate model fit with χ^2 (128) = 346.83, $p < .001$; CFI = .927; TLI = .911; RMSEA = .069, suggesting that the configural model offers a good fit to the data.

Table 4.38

Multi-group Configural Model Summary

Computation of degrees of freedom	
Number of distinct sample moments:	182
Number of distinct parameters to be estimated:	54
Degrees of freedom (182 - 54):	128

Minimum was achieved

Chi-square = 346.830

Degrees of freedom = 128

Probability level = .000

Table 4.39

GOF Statistics for Multi-group Configural Model

	χ^2/df	**NFI**	**CFI**	**TLI**	**RFI**	**RMR**	**RMSEA**
Criteria for Good Fit	≤ 2.0	≥ *.90*	≥ *.90*	≥ *.90*	≥ *.90*	≤ *.08*	≤ *.07*
Fit Indices	2.71	.890	.927	.911	.866	.026	.069

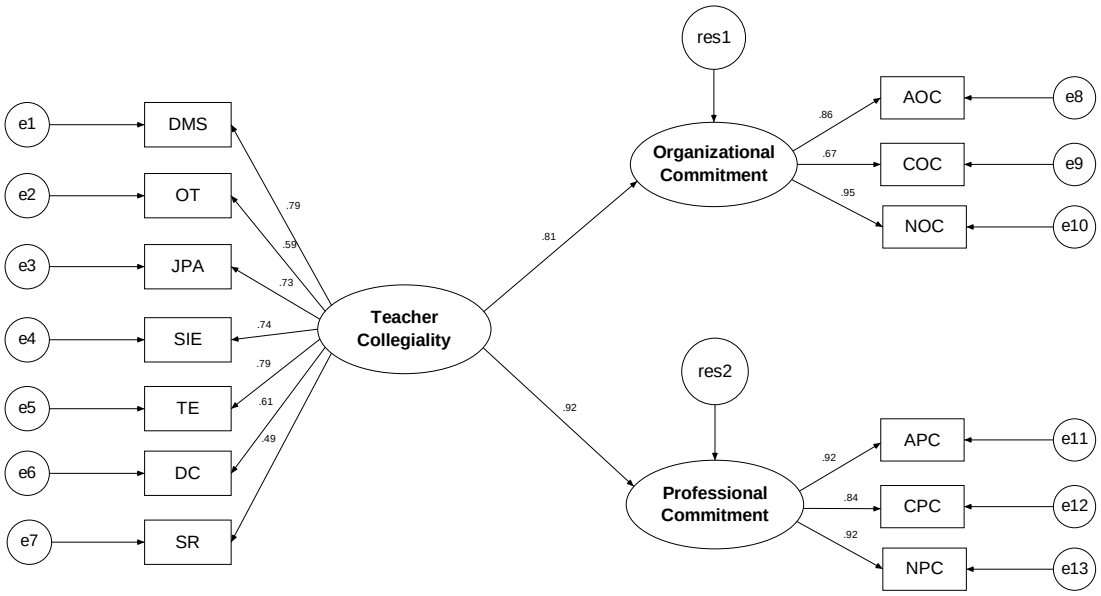

Figure 4.4. Structural model with standardized estimates for high-achieving school teachers.

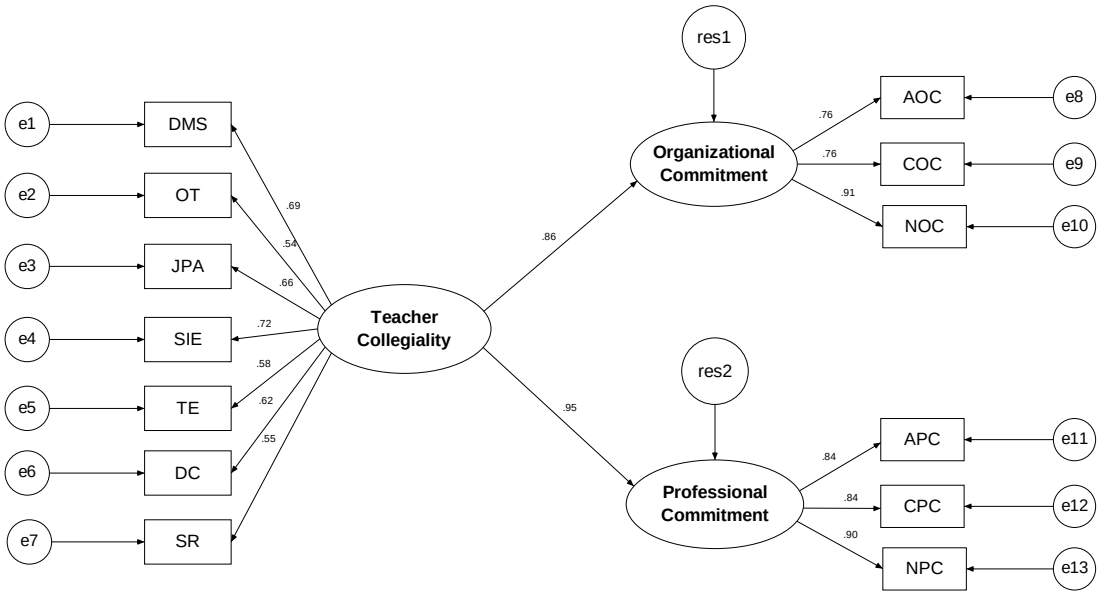

Figure 4.5. Structural model with standardized estimates for low-achieving school teachers.

The unstandardized estimates for both the groups were statistically significant given C.R. values > 1.96. The Standard errors (S.E) appeared to be appropriate. None of the standardized residual covariances were found to be greater than 2.58 in either group.

Figure 4.4 and Figure 4.5 presents the standardized measurement weights and structural weights for high- and low-achieving school teachers respectively. The two figures show that most of the measurement weights are consistent across the two groups except for the *Teaching Each Other* (TE) subscale.

4.9.12 Testing for Measurement Invariance/Equivalence across Groups

The measurement invariance/equivalence is to be upheld before testing structural invariance. Measurement invariance/equivalence assures if the measurement models conducted under different conditions yield equivalent representations of the same construct. The measurement invariance is tested between the unconstrained model for both groups combined (i.e., configural model), and a model where certain parameters (measurement weights/factor loadings) are constrained to be equal across the groups. If the chi-square difference $\Delta\chi^2$ statistic does not reveal a significant difference between the original and the constrained-equal models, then the constraints could be accepted and it is concluded that the model has measurement invariance across groups.

For the current multi-group SEM analysis, the measurement weights were constrained to determine if the measurement model is invariant across the two groups. However, the new model with measurement weights constrained revealed χ^2 value of 375.724 with degrees of freedom equal to 137. GOF results from the test of invariant measurement weights provided evidence of a well-fitting model (χ^2 (137) = 375.724, $p < .001$; CFI = .920; TLI = .909; RMSEA = .069). Although the difference in χ^2 from the configural model was statistically significant ($\Delta\chi^2$ (9) = 28.894), the difference between the CFI values contended that the measurement model was invariant as the value (ΔCFI = .007) was less than the recommended cutoff criterion of .01 as proposed by Cheung and Rensvold (2002).

Hair and his colleagues suggest that full invariance is difficult to achieve as model becomes complex. Therefore, partial invariance was performed keeping at least two parameters per construct. However, the difference in χ^2 for partial measurement model was again found to be statistically significant ($\Delta\chi^2$ (7) = 23.112), but the ΔCFI was reduced from .007 to .004. It was, therefore, concluded that the regression weights operated similarly across high-achieving and low-achieving school teachers.

4.9.13 Testing for Structural Invariance/Equivalence across Groups

Once the partial measurement invariance was achieved, the structural invariance was tested. The chi-square value for the structural model was χ^2 (137)

= 373.237 and the $\Delta\chi^2$ (9) = 26.407. The $\Delta\chi^2$ statistics revealed a significant difference between the two models, but the difference between the CFI values (ΔCFI = .006) which was less than the recommended cutoff value of .01 revealed

Table 4.40

Invariance Tests for High-Achieving Versus Low-Achieving School Teachers

Model Tested	**Model Fit Measures**				**Model Differences**			
	χ^2	df	*p*	CFI	$\Delta\chi^2$	Δdf	*p*	ΔCFI
Separate Groups								
High-Achieving School Teachers	221.494	64	.000	.912				
Low-Achieving School Teachers	125.365	64	.000	.949				
Configural Invariance	346.830	128	.000	.927				
Measurement Invariance	375.724	137	.000	.920	28.894	9	.0006	.007
Partial Measurement Invariance	369.942	135	.000	.922	23.112	7	.0016	.004
Structural Invariance	373.237	137	.000	.921	26.407	9	.0017	.006

invariance between the two models. The non-significant difference between the two models based on the ΔCFI did not support the hypothesis of differences in the path estimates.

Therefore, the unconstrained (configural) model in which the impact of teacher collegiality on organizational commitment and professional commitment was freely estimated in both the groups was not supported. This result suggests that the school type based on achievement does not moderate the impact of teachers' collegiality on their organizational and professional commitment among public secondary school teachers in Islamabad. The analysis shows that the impact of teachers' collegiality on both types of commitment was not statistically significant between high-achieving and low-achieving schools. Table 4.40 presents the results for measurement invariance, partial measurement invariance, and structural invariance tests for high-achieving versus low-achieving school teachers.

4.10 Differences in Teacher Collegiality, Organizational Commitment, and Professional Commitment between High-Achieving and Low-Achieving Public Secondary School Teachers in Islamabad – (Answering Research Question 3)

Research question three asked what differences are there between high-achieving and low-achieving public secondary school teachers in Islamabad

regarding their collegiality, organizational commitment and professional commitment. The hypotheses to be tested states:

Hypothesis 3: Teacher collegiality will be higher in high-achieving schools than in low-achieving schools.

Hypothesis 4: Teacher organizational commitment will be higher in high-achieving schools than in low-achieving schools.

Hypothesis 5: Teacher professional commitment will be higher in high-achieving schools than in low-achieving schools.

In order to determine the differences in the latent variables (i.e., teacher collegiality, organizational commitment, and professional commitment) between two groups of school teachers, one from high-achieving schools and the other from low-achieving schools, Latent Mean Structure Analysis was conducted. Analysis of Latent Mean Structure tests for latent mean differences across groups. Usually the SEM analyses are based on covariance structures where all observed variable means are equal to zero. However, in testing for the invariance of latent mean structures, models involve the analysis of both covariance and mean structures. Therefore, it provides a more comprehensive model test than does the normal type of SEM analysis.

It is essential to initially test both the groups separately to check for the adequate fit. Estimation revealed that the model fits the data well for both the groups (for high-achieving school teachers: χ^2 (62) = 216.117, $p < .001$; CFI =

.914; TLI = .906; RMSEA = .113 and for low-achieving school teachers: χ^2 (62) = 120.821, $p < .001$; CFI = .951; TLI = .938; RMSEA = .071). The satisfactory results for both the groups allowed for the further analysis.

4.10.1 Testing for Configural Invariance

Tests for invariance begin with the configural model for which interest focuses on the extent to which the same number of factors best represents the data for both groups (Byrne, 2009). As such, no equality constraints are imposed and judgment is based only on the adequacy of the GOF statistics.

Table 4.41

GOF Statistics for Configural Model

	χ^2/df	NFI	CFI	TLI	RFI	RMR	RMSEA
Criteria for Good Fit	≤ 2.0	≥ *.90*	≥ *.90*	≥ *.90*	≥ *.90*	≤ *.08*	≤ *.07*
Fit Indices	2.72	.893	.929	.911	.866	.027	.069

The configural model for current analysis was found to be well-fitting in its representation of the multi-group teacher data (χ^2 (124) = 336.909, $p < .001$; CFI = .929; TLI = .911; RMSEA = .069). GOF statistics for the configural model are presented in Table 4.41.

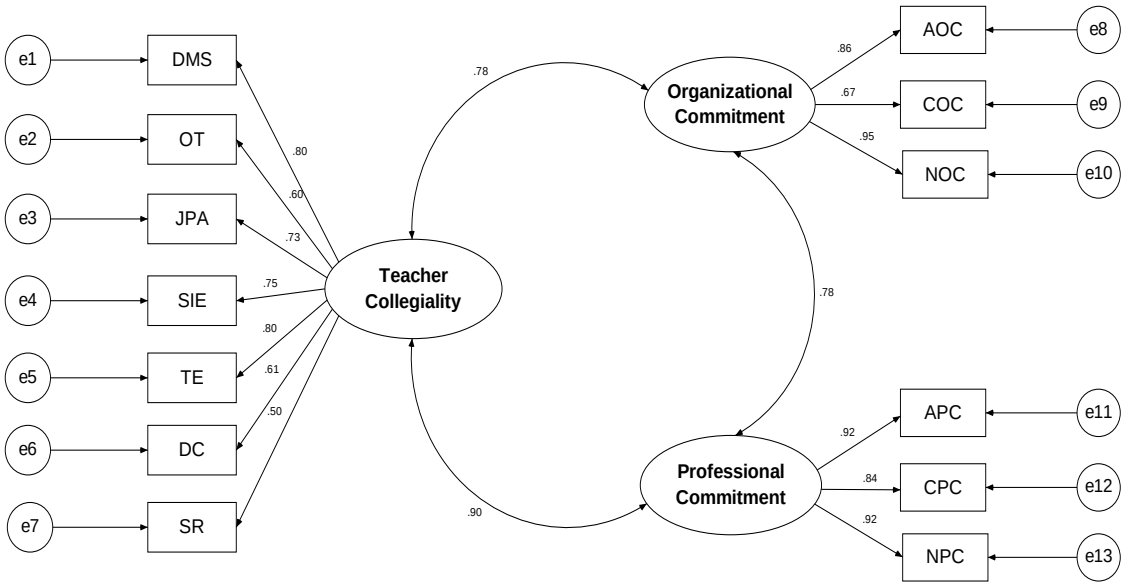

Figure 4.6. Standardized estimates for high-achieving school teachers.

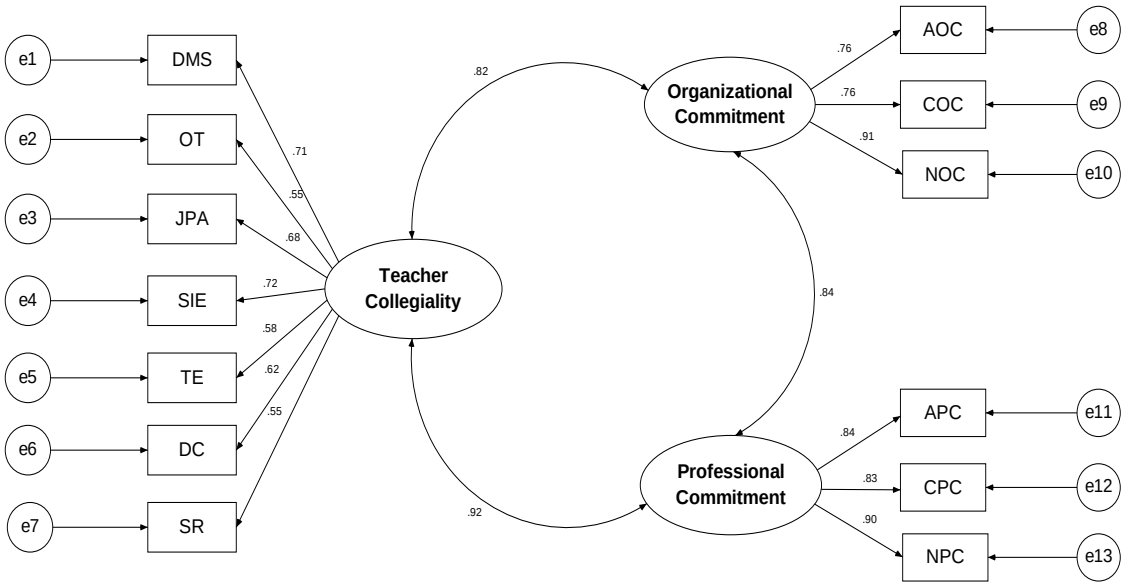

Figure 4.7. Standardized estimates for low-achieving school teachers.

Figure 4.6 and Figure 4.7 presents the standardized measurement weights and correlations for high-achieving and low-achieving secondary school teachers respectively.

4.10.2 Testing for Measurement Invariance across Groups

In testing for differences in latent factor means, the measurement model invariance must be achieved to ensure that the model is operating in exactly the same way for both high-achieving and low-achieving secondary school teachers. Measurement invariance is tested between the configural model and a model where certain parameters (measurement weights) are constrained to be equal across the groups.

GOF results from the test of measurement invariance provided evidence of a well-fitting model (χ^2 (134) = 364.175; CFI = .923; TLI = .911; RMSEA = .068). However, the difference in χ^2 from the configural model was statistically significant ($\Delta\chi^2$ (10) = 27.266). The review of tests for each construct separately and then further tests for individual measurement weights revealed that the COC measuring Organizational Commitment showed the evidence of non-invariance across the groups; therefore, it was freely estimated in order to achieve partial measurement invariance.

The partial measurement invariance with $\Delta\chi^2$ (9) = 13.842 was non-significant showing the factor loadings to be operating similarly across the two groups. The difference between the CFI values also met the recommended cutoff criterion of .01 (ΔCFI = .002).

4.10.3 Testing for Latent Mean Differences

In order to test for differences in latent factor means, it is necessary to constrain both the regression weights and the observed variable intercepts equal across the groups. GOF statistics then refer to fit of covariance and mean structure. The latent mean structure analysis requires that the latent means for one group be fixed to zero for the purpose of achieving over-identification. The group whose means are constrained to a value of zero serves as the reference group when interpreting the path coefficients. That is, the estimated mean of one group will be compared to zero, representing the other group. In the present analysis, the group of the low-achieving school teachers acted as the reference group (i.e., the latent means were fixed to a value of 0.0).

In the analysis of structured means models, two kind of information are of interest: (a) the goodness-of-fit between the hypothesized model and the multi-group data and (b) the latent mean estimates. Both of these are illustrated as follows.

4.10.3.1 Structured Means Model Identification and Assessment of Fit

Structured means model summary showed that the model contained 208 sample moments (104 for each group) and 62 distinct parameters to be estimated. The model was identified with 146 degrees of freedom. Table 4.42 shows the results for the structured means model identification. The minimum was achieved with statistically significant ($p < .001$) χ^2 value equal to 403.433. In the analysis of means structures, the sample moments include 26 means (13 for each group) along with 182 covariances (91 for each group). GOF indices indicated the structured means model validity with an acceptable fit between the data and the model (χ^2 (146) = 403.433, $p < .001$; CFI = .914; TLI = .903).

Table 4.42

Structured Means Model Summary

Computation of degrees of freedom	
Number of distinct sample moments:	208
Number of distinct parameters to be estimated:	62
Degrees of freedom (208 - 62):	146

Minimum was achieved

Chi-square = 403.433

Degrees of freedom = 146

Probability level = .000

Table 4.43

Invariance Tests for Configural, Measurement, and Structured Means Models

Model Tested	**Model Fit Measures**				**Model Differences**			
	χ^2	df	*p*	CFI	$\Delta\chi^2$	Δdf	*p*	ΔCFI
Separate Groups								
High-Achieving School Teachers	216.12	62	.000	.914				
Low-Achieving School Teachers	120.82	62	.000	.951				
Configural Invariance	336.91	124	.000	.929				
Measurement Invariance	364.17	134	.000	.923	27.266	10	.0024	.006
Partial Measurement Invariance	350.75	133	.000	.927	13.842	9	NS	.002
Structured Means Model Invariance	403.43	146	.000	.914	66.524	22	.0000	.015
Partial Structured Means Model Invariance	372.86	142	.000	.923	35.948	18	.0072	.006

Table 4.43 presents the invariance tests for configural, measurement, and structured means model. The fit statistics for all the cases indicated well-fitting models. The comparison of partial measurement model with the unconstrained (configural) model showed non-significance based on both $\Delta\chi^2$ and the ΔCFI tests. However, the comparison of structured means model with the configural model resulted in $\Delta\chi^2$ (22) = 66.524 that was highly statistically significant, therefore, partial structured means model invariance was achieved by freely estimating SIE and DC measuring Teacher Collegiality, COC measuring Organizational Commitment, and APC measuring Professional Commitment which were indicating non-invariance across the two groups.

The partial structured means invariance with $\Delta\chi^2$ (18) = 35.948 was again statistically significant. However, the ΔCFI statistics revealed non-significance as its value was less than the recommended cutoff criterion of .01 (ΔCFI = .006). Using the CFI difference test as the criterion upon which to determine evidence of invariance, it was concluded that the factor intercepts operated similarly across the two groups indicating that the estimates associated with the current analysis could be interpreted confidently.

4.10.3.2 Latent Mean Estimates for High-Achieving School Teachers

An overview of the unstandardized estimates for high-achieving and low-achieving school teachers reveals that all were statistically significant with critical

ratio (C.R.) > ±1.96 using a significance level of .05. The latent mean estimates reported for high-achieving school teachers provided the key to the question of whether the latent factor means for this group were significantly different from those for low-achieving school teachers. Given that the low-achieving school teachers group was designated as the reference group and thus their factor means were fixed to zero, the values reported in this analysis represent latent mean differences between the two groups.

Table 4.44 presents the latent mean estimates for the high-achieving school teachers. Review of these values indicates that the latent factor means related to the organizational commitment were statistically significant (as indicated by the critical ratio (C. R.) values > 1.96 at significant level $p < .001$), whereas the differences for teacher collegiality (C.R. = 1.568, $p = .117$) and professional commitment (C.R. = 2.786, $p = .005$) were found to be statistically non-significant.

The latent mean parameters represent positive values, which indicates that high-achieving school teachers appeared to have higher perceptions of collegiality and commitment to their organization and profession as compared to low-achieving school teachers. However, teacher collegiality and professional commitment did not show statistically significant difference between the two groups of teachers, therefore, Hypothesis 3 and Hypothesis 5 could not be supported. The present data provided the support for accepting Hypothesis 4,

according to which organizational commitment among high-achieving school staff members was significantly higher than the low-achieving school teachers.

Table 4.44

Latent Mean Estimates for Structured Means Model: (High-Achieving School Teachers)

	Estimate	**S.E.**	**C.R.**	***p***	**Label**
Teacher_Collegiality	.074	.047	1.568	.117	mn_tc
Organizational_Commitment	.251	.072	3.463	***	mn_oc
Professional_Commitment	.171	.061	2.786	.005	mn_pc

Note. *** significant at $p < .001$.

4.11 Effects of Demographic Variables on Teacher Collegiality, Organizational Commitment, and Professional Commitment among Public Secondary School Teachers in Islamabad – (Answering Research Question 4)

Research question four asked about the effects of demographic variables (i.e., gender, educational qualification, and length of professional experience) on teacher collegiality, organizational commitment, and professional commitment among public secondary school teachers in Islamabad. The hypotheses to be tested states:

Hypothesis 6: Female teachers will be more collegial than male teachers.

Hypothesis 7: Teachers with more educational attainment will be more collegial than teachers with less educational attainment.

Hypothesis 8: Teachers with more professional experience will be more collegial than teachers with less professional experience.

Hypothesis 9: Male teachers will be more committed to their organizations than female teachers.

Hypothesis 10: Teachers with more educational attainment will be less committed to their organizations than teachers with less educational attainment.

Hypothesis 11: Teachers with more professional experience will be more committed to their organizations than teachers with less professional experience.

Hypothesis 12: Male teachers will be more committed to their profession than female teachers.

Hypothesis 13: Teachers with more educational attainment will be more committed to their profession than teachers with less educational attainment.

Hypothesis 14: Teachers with more professional experience will be more committed to their profession than teachers with less professional experience.

In order to investigate the effects of respondents' demographic characteristics on their collegiality, organizational commitment, and professional commitment, multivariate analysis of variance (MANOVA) was performed. MANOVA is able to take into account multiple independent and multiple dependent variables within the same model, permitting greater complexity. It solves the Type I error rate

problem by providing a single overall test of group differences at a specific alpha level. MANOVA deals with multiple dependent variables by combining them in a linear manner to produce a combination which best separates the independent variable groups. Instead of using the *F* value as the indicator of significance, a number of multivariate measures (Wilks' lambda, Pillai's trace, Hotelling-Lawley trace, and Roy's largest root) are used in MANOVA.

The difference between these four measures is the way they combine the dependent variables in order to examine the amount of variance in the data. Wilk's lambda is the most frequently used measure which demonstrates the amount of variance accounted for in the dependent variable by the independent variable, the smaller the value, the larger the difference between the groups being analyzed. Hotelling's trace is mostly used when there are two groups formed by the independent variables. Pillai's trace is considered to be the most robust of the four tests. In most situations the results are same across all four measures but in some unique instances the result could differ between measures.

For the current analysis, the effects of each independent variable (i.e., gender, educational attainment, and professional experience) on each of the dependent variables (i.e., teacher collegiality, organizational commitment, and professional commitment) were analyzed separately. The current section is divided into three main parts. The first part will illustrate the results of MANOVA when groups were divided based on gender. The effects of gender on teacher collegiality,

organizational commitment, and professional commitment will be initially evaluated. Then the effects of educational attainment on three main variables will be investigated followed by the effects of professional experience. For the educational attainment, three groups were formed (bachelor degree holders, masters degree holders, and MPhil/PhD degree holders) while effects of professional experience were analyzed forming five groups (< 5 years, 5-10 years, 10-15 years, 15-20 years, and > 20 years). The three independent variables (i.e., gender, educational attainment, and professional experience) were not included in the same analysis due to limited sample size.

4.11.1 Effects of Gender on Teacher Collegiality

Table 4.45 provides a summary of the group profiles on each of the teacher collegiality subscale across the two groups (male versus female). The review of descriptive analysis reveals that for most of the subscales, the difference in the mean values for male and female teachers seems to be low. Male teachers have the highest mean scores for DMS, JPA, and SIE while female teachers have highest mean scores for OT, TE, DC, and SR. Greater differences were observed for DC and SR.

MANOVA was conducted to assess the extent to which these differences were statistically significant across the two groups, both individually and collectively.

Table 4.45

Descriptive Statistics of Teacher Collegiality Scale for Male and Female Teachers

Subscales	**Gender**	**Mean**	***SD***	***N***
DMS	Male	5.371	.598	179
	Female	5.256	.627	185
OT	Male	4.046	.672	179
	Female	4.061	.722	185
JPA	Male	4.712	.594	179
	Female	4.673	.629	185
SIE	Male	5.206	.518	179
	Female	5.102	.507	185
TE	Male	5.030	.618	179
	Female	5.041	.536	185
DC	Male	4.445	.774	179
	Female	4.883	.693	185
SR	Male	4.640	.695	179
	Female	4.994	.772	185

4.11.1.1 Assumptions in MANOVA

Before conducting analyses to test the hypothesis, assumptions relating to MANOVA must be met. Normality and the presence of outliers have already been

assessed in the previous analyses, therefore, only the homogeneity of the variance-covariance matrices among the two groups was examined. In MANOVA, it is important to examine whether subgroups within the overall sample have similar covariance matrices (i.e., the subgroups can be pooled to form a total sample). Box's *M* statistic (multivariate test of homogeneity) is used to test for homogeneity of covariance matrices for the variate while Levene's test (univariate test of homogeneity) assesses the equality of error variances for the individual dependent variables.

The null hypothesis of Box's test is that the observed covariance matrices of the dependent variables are equal across groups. The results of multivariate analysis (shown in Table 4.46) revealed significant differences ($p = .000$) across the groups and suggested unequal variances for the dependent variables collectively while univariate tests of homoscedasticity (Table 4.47) showed non-significant differences (i.e., $p > .05$) for all the dependent variables. Thus, the assumption of homoscedasticity was met for each individual variable separately but not for the seven variables collectively.

Hair and his colleagues (2006) suggest that a violation of this assumption has a minimal impact if the groups are of approximately equal size (i.e., largest group size / smallest group size < 1.5). In this case, the largest group size was 185 and the smallest group size was 179, and 185 / 179 = 1.03 which was less than 1.5.

Table 4.46

Multivariate Test of Homoscedasticity for Gender on Teacher Collegiality

Box's Test of Equality of Covariance Matrices	
Box's M	63.590
F	2.225
df1	28
df2	455600.402
Sig.	.000

Table 4.47

Univariate Test of Homoscedasticity for Gender on Teacher Collegiality

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
DMS	.796	1	362	.373
OT	1.656	1	362	.199
JPA	2.915	1	362	.089
SIE	.252	1	362	.616
TE	2.714	1	362	.100
DC	2.410	1	362	.121
SR	1.379	1	362	.241

Therefore, the significant results for this analysis would have less impact on the MANOVA statistics.

4.11.1.2 Results of MANOVA and One-way ANOVA

MANOVA was then conducted to test whether teacher collegiality differs between the two groups. Table 4.48 contains the four most commonly used multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root). Each of the four measures indicates that teacher collegiality has a highly significant difference ($p = .000$) between male and female teachers. The power for the statistical tests was 1.0, indicating the sample sizes and the effect sizes were sufficient to ensure that the significant differences would be detected if they existed beyond the differences due to sampling error. The partial eta-squared was .207 for all of the four analyses.

The null hypothesis was rejected which states that gender has no effect on teacher collegiality. Teacher collegiality differed significantly across the two groups (Pillai's Trace = .000, F (7, 356) = 13.285, $p < .05$). Gender does play an important role in predicting level of collegiality among secondary school teachers in Islamabad. However, in order to accept the alternative hypothesis (Hypothesis 6) according to which female teachers are more collegial than male teachers needed further analysis.

Table 4.48

Multivariate Tests for Gender Differences in Teacher Collegiality Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.207	13.285[a]	7	356	.000	.207	1.000
Wilks' Lambda	.793	13.285[a]	7	356	.000	.207	1.000
Hotelling's Trace	.261	13.285[a]	7	356	.000	.207	1.000
Roy's Largest Root	.261	13.285[a]	7	356	.000	.207	1.000

a. Exact statistic

b. Computed using alpha = .05

Univariate tests (between-subject effects) determine which of the individual subscale of teacher collegiality differs across the two groups. Two variables (DC and SR) showed statistical significant difference (p = .000) between male and female teachers while all the other five variables showed non-significant differences might be due to low partial eta-squared values and less observed power (Table 4.49). The mean values for DC (male = 4.445 and female = 4.883) and SR (male = 4.640 and female = 4.994) suggested that teacher collegiality among female teachers was higher than that for the male teachers. Therefore, Hypothesis 6 suggesting that teacher collegiality among female teachers will be higher than for their male counterparts was supported.

Table 4.49

Univariate Tests for Gender Differences in Teacher Collegiality Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
DMS	1.198[a]	1	1.198	3.184	.075	.009	.429
OT	.020[c]	1	.020	.040	.841	.000	.055
JPA	.134[d]	1	.134	.358	.550	.001	.092
SIE	.984[e]	1	.984	3.740	.054	.010	.488
TE	.011[f]	1	.011	.034	.854	.000	.054
DC	17.473[g]	1	17.473	32.411	.000	.082	1.000
SR	11.401[h]	1	11.401	21.082	.000	.055	.996

a. R Squared = .009 (Adjusted R Squared = .006)

b. Computed using alpha = .05

c. R Squared = .000 (Adjusted R Squared = -.003)

d. R Squared = .001 (Adjusted R Squared = -.002)

e. R Squared = .010 (Adjusted R Squared = .007)

f. R Squared = .000 (Adjusted R Squared = -.003)

g. R Squared = .082 (Adjusted R Squared = .080)

h. R Squared = .055 (Adjusted R Squared = .052)

4.11.2 Effects of Gender on Organizational Commitment

To determine the effects of gender on organizational commitment, the descriptive statistics (as shown in Table 4.50) were initially reviewed. The three subscales of organizational commitment showed differences. All three subscales showed higher mean values for female teachers than male teachers. Greater differences were observed in AOC (male = 4.605 and female = 4.939) and NOC (male = 4.568 and female = 4.819). To assess the extent to which these differences were statistically significant across male and female teachers, MANOVA was performed.

Table 4.50

Descriptive Statistics of Organizational Commitment Scale for Male and Female Teachers

Subscales	**Gender**	**Mean**	***SD***	***N***
AOC	Male	4.605	.753	179
	Female	4.939	.789	185
COC	Male	4.824	.539	179
	Female	4.980	.650	185
NOC	Male	4.568	.647	179
	Female	4.819	.731	185

4.11.2.1 Tests of Homoscedasticity

Multivariate and univariate tests of homoscedasticity were conducted. Homogeneity of the variance-covariance matrices among the two groups was examined. In MANOVA, it is necessary to test whether subgroups within the overall sample have similar covariance matrices. Box's *M* statistic is used for multivariate test of homogeneity and Levene's test was conducted to assess univariate test of homogeneity.

Table 4.51

Multivariate Test of Homoscedasticity for Gender on Organizational Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	16.331
F	2.697
df1	6
df2	946662.488
Sig.	.013

Table 4.51 presents the results of multivariate analysis which revealed statistical significant difference ($p = .013$) across the two groups and suggested unequal variances. The null hypothesis of Box's test was rejected according to

which the observed covariance matrices of the dependent variables were equal across groups. The results of univariate tests of homoscedasticity (Table 4.52) showed non-significant differences only for AOC while COC and NOC showed significant differences. Thus, the assumption of homoscedasticity was not met for each individual variable separately (except for AOC) as well as for the three variables collectively. But as the sample size for both groups was appropriate, therefore, not meeting this assumption would not have greater impact on MANOVA results.

Table 4.52

Univariate Tests of Homoscedasticity for Gender on Organizational Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
AOC	.046	1	362	.830
COC	9.304	1	362	.002
NOC	4.242	1	362	.040

4.11.2.2 Results of MANOVA and One-way ANOVA

MANOVA was performed to assess if organizational commitment differs significantly between male and female teachers. Table 4.53 shows significant

difference (p = .001) between the two groups for all four multivariate tests. The observed power for the statistical tests was .948, indicating that the sample sizes and effect sizes were sufficient to ensure that the significant differences would be detected if they existed. The partial eta value was .046.

Table 4.53

Multivariate Tests for Gender Differences in Organizational Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.046	5.729[a]	3	360	.001	.046	.948
Wilks' Lambda	.954	5.729[a]	3	360	.001	.046	.948
Hotelling's Trace	.048	5.729[a]	3	360	.001	.046	.948
Roy's Largest Root	.048	5.729[a]	3	360	.001	.046	.948

a. Exact statistic

b. Computed using alpha = .05

The null hypothesis was rejected according to which organizational commitment does not differ significantly across male and female teachers. It was therefore, concluded that gender affects organizational commitment among secondary school teachers (Pillai's Trace = .001, F (3, 360) = 5.729, $p < .05$).

Univariate tests (between-subject effects) determine which of the individual subscale causes the significant difference across groups. Table 4.54 revealed that all three dependent variables (AOC, COC, and NOC) showed statistical significant difference between the two groups. The mean values for females for all three subscales was higher indicating that female teachers were more committed to their organization than male teachers. Hypothesis 9 suggesting that male teachers will be more organizationally committed than female teachers could not be supported for the current data set.

Table 4.54

Univariate Tests for Gender Differences in Organizational Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
AOC	10.175[a]	1	10.175	17.078	.000	.045	.985
COC	2.218[c]	1	2.218	6.198	.013	.017	.699
NOC	5.770[d]	1	5.770	12.073	.001	.032	.934

a. R Squared = .045 (Adjusted R Squared = .042)

b. Computed using alpha = .05

c. R Squared = .017 (Adjusted R Squared = .014)

d. R Squared = .032 (Adjusted R Squared = .030)

4.11.3 Effects of Gender on Professional Commitment

Table 4.55 presents the descriptive statistics of Professional Commitment Scale for male and female teachers. A quick review indicates very less differences in the mean values for all three subscales (APC, CPC, and NPC). Female teachers showed a little higher mean values for APC and NPC subscales.

Table 4.55

Descriptive Statistics of Professional Commitment Scale for Male and Female Teachers

Subscales	**Gender**	**Mean**	***SD***	***N***
APC	Male	5.407	.579	179
	Female	5.488	.635	185
CPC	Male	5.152	.586	179
	Female	5.139	.850	185
NPC	Male	5.153	.630	179
	Female	5.181	.765	185

4.11.3.1 Tests of Homoscedasticity

Multivariate tests of homoscedasticity are presented in Table 4.56 which indicated highly significant differences (p = .000) in the variance-covariance

Table 4.56

Multivariate Tests of Homoscedasticity for Gender on Professional Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	31.611
F	5.221
df1	6
df2	946662.488
Sig.	.000

Table 4.57

Univariate Tests of Homoscedasticity for Gender on Professional Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
APC	1.407	1	362	.236
CPC	19.357	1	362	.000
NPC	6.911	1	362	.009

matrices among the two groups. Results of Levene's test (Table 4.57) showed non-significant result only for APC while CPC and NPC indicated significant differences suggesting that the homogeneity of variances is met for APC but not for CPC and NPC subscales.

4.11.3.2 Results of MANOVA and One-way ANOVA

MANOVA was performed to assess if professional commitment is affected by gender among public secondary school teachers in Islamabad. Table 4.58 indicates non-significant differences (p = .217) between the two groups for all four multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and

Table 4.58

Multivariate Tests for Gender Differences in Professional Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.012	1.489[a]	3	360	.217	.012	.393
Wilks' Lambda	.988	1.489[a]	3	360	.217	.012	.393
Hotelling's Trace	.012	1.489[a]	3	360	.217	.012	.393
Roy's Largest Root	.012	1.489[a]	3	360	.217	.012	.393

a. Exact statistic

b. Computed using alpha = .05

Roy's Largest Root). However, the observed power for the statistical tests was lower than the recommended value and partial eta value was .012.

The null hypothesis suggesting that professional commitment does not differ significantly across male and female teachers was supported. It was concluded that gender does not impact professional commitment among public secondary school teachers in Islamabad (Pillai's Trace = .217, F (3, 360) = 1.489, $p < .05$).

Table 4.59

Univariate Tests for Gender Differences in Professional Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
APC	.589[a]	1	.589	1.590	.208	.004	.242
CPC	.016[c]	1	.016	.029	.865	.000	.053
NPC	.069[d]	1	.069	.139	.710	.000	.066

a. R Squared = .004 (Adjusted R Squared = .002)

b. Computed using alpha = .05

c. R Squared = .000 (Adjusted R Squared = -.003)

d. R Squared = .000 (Adjusted R Squared = -.002)

One-way ANOVA results (Table 4.59) indicated that none of the three dependent variables (APC, CPC, and NPC) was statistically significantly different across the two groups of teachers. Therefore, Hypothesis 12 suggesting that male teachers will be more professionally committed than female teachers could not be supported for the current data.

4.11.4 Effects of Educational Qualification on Teacher Collegiality

Effects of educational qualifications on teacher collegiality were determined initially by reviewing the mean scores for groups of teachers having bachelor, masters, and MPhil/PhD degrees as the highest degree attained. Most of the subscales (DMS, JPA, SIE, TE, and SR) showed gradual increase in the mean scores as the teachers' educational level increased (Table 4.60). However, to assess the differences in the mean scores of teacher collegiality to be significant for teachers with different educational levels, MANOVA was conducted. Before conducting the analysis, assumptions in MANOVA were checked.

4.11.4.1 Tests of Homoscedasticity

Homogeneity of the variance-covariance matrices among the groups was examined using Box's *M* test. The results (as shown in Table 4.61) revealed that the subgroups within the overall sample have similar covariance matrices as non-significant differences were found across the groups.

Table 4.60

Descriptive Statistics of Teacher Collegiality Scale for Teachers with Different Educational Level

Subscales	**Educational Qualification**	**Mean**	***SD***	***N***
DMS	Bachelor	5.011	.617	112
	Masters	5.358	.551	199
	MPhil/PhD	5.779	.497	53
OT	Bachelor	3.824	.674	112
	Masters	4.191	.667	199
	MPhil/PhD	4.052	.736	53
JPA	Bachelor	4.407	.565	112
	Masters	4.788	.580	199
	MPhil/PhD	4.937	.617	53
SIE	Bachelor	4.956	.503	112
	Masters	5.117	.474	199
	MPhil/PhD	5.481	.508	53
TE	Bachelor	4.803	.590	112
	Masters	5.079	.529	199
	MPhil/PhD	5.367	.531	53
DC	Bachelor	4.372	.713	112
	Masters	4.816	.740	199
	MPhil/PhD	4.735	.797	53

Subscales	Educational Qualification	Mean	*SD*	*N*
SR	Bachelor	4.547	.718	112
	Masters	4.909	.754	199
	MPhil/PhD	5.062	.682	53

Table 4.61

Multivariate Tests of Homoscedasticity for Educational Qualification on Teacher Collegiality

Box's Test of Equality of Covariance Matrices	
Box's M	54.032
F	.928
df1	56
df2	82579.417
Sig.	.628

To verify the homogeneity of variance among dependent variables, Levene's test of equality of error variances was analyzed. The results are presented in Table 4.62 which showed that significance values in each dependent variable are higher than .05. In other words, the error variance of the dependent variables is equal

across groups. Thus, the assumption of homogeneity was met for each individual variable separately and the seven variables collectively.

Table 4.62

Univariate Tests of Homoscedasticity for Educational Qualification on Teacher Collegiality

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
DMS	.710	2	361	.492
OT	.402	2	361	.669
JPA	.181	2	361	.834
SIE	.490	2	361	.613
TE	.643	2	361	.527
DC	.229	2	361	.795
SR	.143	2	361	.867

4.11.4.2 Results of MANOVA and One-way ANOVA

MANOVA was performed to verify the mean differences in teacher collegiality among the three groups of teachers. All four multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) indicate that educational attainment has a highly significant (p = .000) impact on teacher

collegiality among public secondary school teachers in Islamabad (Table 4.63). The observed power for the statistical tests was 1.0 and the partial eta-squared ranged from .131 to .192.

Table 4.63

Multivariate Tests for Educational Level Differences in Teacher Collegiality Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.261	7.648	14	712	.000	.131	1.000
Wilks' Lambda	.752	7.773[a]	14	710	.000	.133	1.000
Hotelling's Trace	.312	7.898	14	708	.000	.135	1.000
Roy's Largest Root	.238	12.105[c]	7	356	.000	.192	1.000

a. Exact statistic

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Teacher collegiality differed significantly across the three groups of teachers with different educational levels (Pillai's Trace = .000, F (14, 712) = 7.648, $p <$ .05). To determine the effects of individual subscales of teacher collegiality, further (univariate) analysis was assessed. All variables showed statistical

significant difference (p = .000) among teachers with different educational qualifications (Table 4.64).

Table 4.64

Univariate Tests for Educational Level Differences in Teacher Collegiality Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
DMS	22.117[a]	2	11.059	34.627	.000	.161	1.000
OT	9.681[c]	2	4.840	10.468	.000	.055	.988
JPA	14.072[d]	2	7.036	20.822	.000	.103	1.000
SIE	10.136[e]	2	5.068	21.253	.000	.105	1.000
TE	12.260[f]	2	6.130	20.336	.000	.101	1.000
DC	14.399[g]	2	7.200	13.111	.000	.068	.997
SR	13.032[h]	2	6.516	12.117	.000	.063	.995

a. R Squared = .161 (Adjusted R Squared = .156)

b. Computed using alpha = .05

c. R Squared = .055 (Adjusted R Squared = .050)

d. R Squared = .103 (Adjusted R Squared = .098)

e. R Squared = .105 (Adjusted R Squared = .100)

f. R Squared = .101 (Adjusted R Squared = .096)

g. R Squared = .068 (Adjusted R Squared = .063)

h. R Squared = .063 (Adjusted R Squared = .058)

4.11.4.3 Results of Post Hoc Analysis

A significant effect does not guarantee that every one of the group differences is also significant; therefore, post hoc comparison procedures (Tukey HSD, Scheffe, and LSD) were applied to all seven subscales of teacher collegiality across the three groups. Table 4.65 presents the results for the group comparisons.

Four subscales of teacher collegiality (DMS, SIE, TE, and DC) showed significant (.000) difference for all three groups. OT indicated significant differences only between bachelor and master degree holders but no differences were found between bachelor and MPhil/PhD or master and MPhil/PhD degree holders. Three subscales (JPA, DC, and SR) showed significant difference between bachelors and masters or bachelors and MPhil/PhDs but teachers with master's degree and teachers with MPhil/PhD degree showed non-significant difference.

The analysis shows an increase in mean values for most of the variables as the educational level gets higher especially between two groups (bachelor versus master and bachelor versus MPhil/PhD). This increase was not evident for master versus MPhil/PhDs for four variables (OT, JPA, DC, and SR). However, the Hypothesis 7 suggesting that teachers with more educational attainment will be more collegial than teachers with less educational attainment was supported for the current study.

Table 4.65

Post Hoc Comparisons for Teacher Collegiality Scale across Groups with Different Educational Levels

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
DMS	Bachelor	Master	-.3466*	.06676	.000	.000	.000
	Bachelor	MPhil/PhD	-.7680*	.09422	.000	.000	.000
	Master	MPhil/PhD	-.4214*	.08735	.000	.000	.000
OT	Bachelor	Master	-.3666*	.08032	.000	.000	.000
	Bachelor	MPhil/PhD	-.2008*	.11337	.181	.210	.077
	Master	MPhil/PhD	.1658*	.10511	.257	.289	.116
JPA	Bachelor	Master	-.3804*	.06867	.000	.000	.000
	Bachelor	MPhil/PhD	-.5294*	.09692	.000	.000	.000
	Master	MPhil/PhD	-.1490*	.08985	.223	.254	.098
SIE	Bachelor	Master	-.2207*	.05768	.000	.001	.000
	Bachelor	MPhil/PhD	-.5243*	.08141	.000	.000	.000
	Master	MPhil/PhD	-.3036*	.07548	.000	.000	.000
TE	Bachelor	Master	-.2756*	.06486	.000	.000	.000
	Bachelor	MPhil/PhD	-.5644*	.09154	.000	.000	.000
	Master	MPhil/PhD	-.2888*	.08487	.002	.003	.001

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
DC	Bachelor	Master	-.4438*	.08753	.000	.000	.000
	Bachelor	MPhil/PhD	-.3631*	.12355	.010	.014	.004
	Master	MPhil/PhD	.0807*	.11454	.761	.780	.481
SR	Bachelor	Master	-.3619*	.08662	.000	.000	.000
	Bachelor	MPhil/PhD	-.5153*	.12226	.000	.000	.000
	Master	MPhil/PhD	-.1533*	.11335	.367	.401	.177

Note. Based on observed means.

The error term is Mean Square (Error) = .538.

*. The mean difference is significant at the .05 level.

4.11.5 Effects of Educational Qualification on Organizational Commitment

Table 4.66 presents the mean values for three subscales of Organizational Commitment Scale. All three subscales (AOC, COC, and NOC) show gradual increase in the mean values as the educational level of teachers increases. Master's degree holders showed higher means for all three dimensions of organizational commitment as compared to bachelor degree holders and mean values for MPhil/Doctoral degree holders appeared to be higher than master's

degree holders. However, to determine if these differences were significant among three groups, MANOVA was employed.

Table 4.66

Descriptive Statistics of Organizational Commitment Scale for Teachers with Different Educational Level

Subscales	**Educational Qualification**	**Mean**	***SD***	***N***
AOC	Bachelor	4.416	.758	112
	Masters	4.867	.786	199
	MPhil/PhD	5.185	.530	53
COC	Bachelor	4.669	.637	112
	Masters	4.994	.551	199
	MPhil/PhD	5.056	.580	53
NOC	Bachelor	4.315	.664	112
	Masters	4.815	.673	199
	MPhil/PhD	5.050	.521	53

4.11.5.1 Tests of Homoscedasticity

Results of Box's *M* test revealed that the observed covariance matrices of the dependent variables are equal across groups as the non-significant differences

Table 4.67

Multivariate Tests of Homoscedasticity for Educational Qualification on Organizational Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	18.641
F	1.528
df1	12
df2	119267.812
Sig.	.106

Table 4.68

Univariate Tests of Homoscedasticity for Educational Qualification on Organizational Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
AOC	4.882	2	361	.008
COC	1.943	2	361	.145
NOC	3.427	2	361	.034

were found (Table 4.67). However, Levene's test of equality of error variances showed significant differences for AOC and NOC subscale. Only COC showed non-significant differences. Therefore, the assumption of homoscedasticity was met for multivariate analysis but not for univariate tests (Table 4.68).

4.11.5.2 Results of MANOVA and One-way ANOVA

MANOVA assessed the differences in organizational commitment to be statistically significant among groups of teachers with different levels of educational attainment. All four multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) showed highly significant difference (p = .000) among the three groups. Table 4.69 indicated that the observed power for the statistical tests was 1.0 which was ideal and the partial eta value ranged from .077 to .147.

The null hypothesis was therefore, rejected and it was concluded that educational level does impact organizational commitment among secondary school teachers in Islamabad (Pillai's Trace = .000, F (6, 720) = 10.078, p < .05).

One-way ANOVA results (Table 4.70) revealed that all three dependent variables showed significant difference (p = .000) among the three groups. It confirmed the descriptive analysis results which showed higher mean values for

master's degree holders when compared to bachelor's degree holders and higher means for MPhil/PhD degree holders as compared to master's degree holders.

Table 4.69

Multivariate Tests for Educational Level Differences in Organizational Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.155	10.078	6	720	.000	.077	1.000
Wilks' Lambda	.846	10.420[a]	6	718	.000	.080	1.000
Hotelling's Trace	.180	10.760	6	716	.000	.083	1.000
Roy's Largest Root	.172	20.676[c]	3	360	.000	.147	1.000

a. Exact statistic

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Table 4.70

Univariate Tests for Educational Level Differences in Organizational Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
AOC	25.023[a]	2	12.511	22.490	.000	.111	1.000
COC	9.002[c]	2	4.501	13.233	.000	.068	.998
NOC	25.724[d]	2	12.862	30.333	.000	.144	1.000

a. R Squared = .111 (Adjusted R Squared = .106)

b. Computed using alpha = .05

c. R Squared = .068 (Adjusted R Squared = .063)

d. R Squared = .144 (Adjusted R Squared = .139)

4.11.5.3 Results of Post Hoc Analysis

To further probe into the analysis to identify which groups indicated significant differences, post hoc comparison procedures (Tukey HSD, Scheffe, and LSD) were carried out to all three subscales of organizational commitment.

AOC indicated significant differences between all three groups (bachelor versus master, bachelor versus MPhil/PhD, and master versus MPhil/PhD) and in every case the means were higher for the group having higher degree. Whereas

COC and NOC showed statistical significant differences for bachelor versus master and/or bachelor versus MPhil/PhD group but not for master versus MPhil/PhD degree holders (Table 4.71).

Table 4.71

Post Hoc Comparisons for Organizational Commitment Scale across Groups with Different Educational Levels

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
AOC	Bachelor	Master	-.4510*	.08811	.000	.000	.000
	Bachelor	Mphil/PhD	-.7689*	.12435	.000	.000	.000
	Master	Mphil/PhD	-.3179*	.11529	.017	.023	.006
COC	Bachelor	Master	-.3245*	.06889	.000	.000	.000
	Bachelor	Mphil/PhD	-.3870*	.09724	.000	.000	.000
	Master	Mphil/PhD	-.0625*	.09015	.768	.787	.489
NOC	Bachelor	Master	-.5003*	.07692	.000	.000	.000
	Bachelor	Mphil/PhD	-.7348*	.10857	.000	.000	.000
	Master	Mphil/PhD	-.2346*	.10065	.053	.068	.020

Note. Based on observed means.

The error term is Mean Square (Error) = .424.

*. The mean difference is significant at the .05 level.

The mean differences between bachelor's degree holders and master's degree holders were statistically significant and the mean values showed increment as the qualification of teachers is increased. Therefore, the Hypothesis 10 suggesting that teachers with more educational attainment will be less committed to their organizations than teachers with less educational attainment was not supported for this data set.

4.11.6 Effects of Educational Qualification on Professional Commitment

The descriptive statistics of Professional Commitment Scale for teachers with different educational levels (as shown in Table 4.72) indicate gradual increase in the mean values for all three subscales (APC, CPC, and NPC). Teachers with master's degree as the highest degree attained showed higher means for all three dimensions of professional commitment when compared with teachers having bachelor's degree. Similarly, mean values for MPhil/PhD degree holders were found to be higher than master degree holders.

However, to identify whether these differences were statistically significant, MANOVA and ANOVA were performed followed by the post hoc analysis which indicates the groups that were creating significance.

Table 4.72

Descriptive Statistics of Professional Commitment Scale for Teachers with Different Educational Level

Subscales	**Educational Qualification**	**Mean**	***SD***	***N***
APC	Bachelor	5.120	.575	112
	Masters	5.496	.548	199
	MPhil/PhD	5.962	.475	53
CPC	Bachelor	4.745	.806	112
	Masters	5.250	.625	199
	MPhil/PhD	5.600	.507	53
NPC	Bachelor	4.744	.684	112
	Masters	5.293	.639	199
	MPhil/PhD	5.591	.501	53

4.11.6.1 Tests of Homoscedasticity

Multivariate test of homogeneity (Table 4.73) showed significant results (p = .005) suggesting that the observed covariance matrices of the dependent variables are not equal across groups. On the other hand, results of the univariate Levene's tests (Table 4.74) revealed non-significant differences for APC and NPC and significant differences (p = .000) for CPC across the groups.

Table 4.73

Multivariate Tests of Homoscedasticity for Educational Qualification on Professional Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	28.614
F	2.345
df1	12
df2	119267.812
Sig.	.005

Table 4.74

Univariate Tests of Homoscedasticity for Educational Qualification on Professional Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
APC	.624	2	361	.536
CPC	8.861	2	361	.000
NPC	2.561	2	361	.079

4.11.6.2 Results of MANOVA and One-way ANOVA

Results of MANOVA suggested that professional commitment differ significantly across groups of teachers with different educational levels among public secondary schools in Islamabad (Pillai's Trace = .000, F (6, 720) = 17.239, $p < .05$). Table 4.75 showed highly significant differences ($p = .000$) across the groups for all four analyses. The observed power for these statistical tests was ideal (i.e., 1.0) and partial eta value ranged from .126 to .210.

Table 4.75

Multivariate Tests for Educational Level Differences in Professional Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.251	17.239	6	720	.000	.126	1.000
Wilks' Lambda	.757	17.834[a]	6	718	.000	.130	1.000
Hotelling's Trace	.309	18.428	6	716	.000	.134	1.000
Roy's Largest Root	.266	31.912[c]	3	360	.000	.210	1.000

a. Exact statistic

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Similar to the multivariate tests, univariate tests of between-subject effects (Table 4.76) also revealed statistical significant differences (p = .000) across the groups of teachers with different levels of educational attainment for all three dependent variables (APC, CPC, and NPC).

Table 4.76

Univariate Tests for Educational Level Differences in Professional Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
APC	26.498[a]	2	13.249	44.199	.000	.197	1.000
CPC	31.086[c]	2	15.543	34.386	.000	.160	1.000
NPC	32.738[d]	2	16.369	40.479	.000	.183	1.000

a. R Squared = .197 (Adjusted R Squared = .192)

b. Computed using alpha = .05

c. R Squared = .160 (Adjusted R Squared = .155)

d. R Squared = .183 (Adjusted R Squared = .179)

4.11.6.3 Results of Post Hoc Analysis

To further probe into the analysis to identify the groups showing statistical significant effects of educational qualification on professional commitment, post

hoc analyses were carried out to all three subscales of professional commitment. Results for all three post hoc comparison tests (Tukey HSD, Scheffe, and LSD) showed significant effects for all three groups of teachers (bachelor versus master,

Table 4.77

Post Hoc Comparisons for Professional Commitment Scale across Groups with Different Educational Levels

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
APC	Bachelor	Master	-.3761*	.06467	.000	.000	.000
	Bachelor	Mphil/PhD	-.8417*	.09128	.000	.000	.000
	Master	Mphil/PhD	-.4656*	.08463	.000	.000	.000
CPC	Bachelor	Master	-.5049*	.07942	.000	.000	.000
	Bachelor	Mphil/PhD	-.8551*	.11209	.000	.000	.000
	Master	Mphil/PhD	-.3502*	.10392	.002	.004	.001
NPC	Bachelor	Master	-.5491*	.07512	.000	.000	.000
	Bachelor	Mphil/PhD	-.8471*	.10602	.000	.000	.000
	Master	Mphil/PhD	-.2981*	.09830	.007	.011	.003

Note. Based on observed means.

The error term is Mean Square (Error) = .404.

*. The mean difference is significant at the .05 level.

bachelor versus MPhil/PhD, and master versus MPhil/PhD) as shown in Table 4.77. The means were increased for groups with higher educational degrees; therefore, Hypothesis 13 suggesting that teachers with more educational attainment will be more committed to their profession than teachers with less educational attainment was highly supported.

4.11.7 Effects of Professional Experience on Teacher Collegiality

The effects of professional experience on teacher collegiality were initially investigated by reviewing the descriptive analysis. Table 4.78 shows the mean

Table 4.78

Descriptive Statistics of Teacher Collegiality Scale for Teachers with Different Levels of Professional Experience

Subscales	**Professional Experience**	**Mean**	***SD***	***N***
DMS	< 5 years	4.906	.633	80
	5-10 years	5.182	.571	113
	10-15 years	5.486	.488	95
	15-20 years	5.590	.461	46
	> 20 years	5.916	.400	30

Subscales	Professional Experience	Mean	*SD*	*N*
OT	< 5 years	3.812	.703	80
	5-10 years	4.000	.715	113
	10-15 years	4.133	.642	95
	15-20 years	4.137	.602	46
	> 20 years	4.522	.659	30
JPA	< 5 years	4.402	.604	80
	5-10 years	4.595	.623	113
	10-15 years	4.835	.416	95
	15-20 years	4.829	.622	46
	> 20 years	5.172	.655	30
SIE	< 5 years	4.893	.512	80
	5-10 years	5.088	.463	113
	10-15 years	5.249	.453	95
	15-20 years	5.340	.519	46
	> 20 years	5.505	.520	30
TE	< 5 years	4.793	.557	80
	5-10 years	4.947	.585	113
	10-15 years	5.155	.529	95
	15-20 years	5.152	.469	46
	> 20 years	5.466	.544	30

Subscales	Professional Experience	Mean	*SD*	*N*
DC	< 5 years	4.321	.727	80
	5-10 years	4.694	.753	113
	10-15 years	4.826	.622	95
	15-20 years	4.706	.757	46
	> 20 years	4.933	1.031	30
SR	< 5 years	4.495	.821	80
	5-10 years	4.746	.747	113
	10-15 years	4.968	.672	95
	15-20 years	5.043	.594	46
	> 20 years	5.155	.746	30

scores for groups of teachers having different levels of professional experience (less than 5 years, 5-10 years, 10-15 years, 15-20 years, and more than 20 years). Most of the subscales (DMS, OT, SIE, and SR) show gradual increase in the mean scores as the teachers' professional experience is increased. However, to assess if the differences in the mean scores of teacher collegiality subscales are significant for teachers with different levels of professional experience, MANOVA was performed.

4.11.7.1 Tests of Homoscedasticity

Multivariate test of homogeneity (Table 4.79) showed significant results (p = .004) suggesting that the observed covariance matrices of the dependent variables are unequal across groups. On the other hand, results of univariate Levene's tests (Table 4.80) revealed non-significant differences for most of the variables (DMS, OT, SIE, TE, and SR) and significant differences ($p < .05$) for two variables (JPA and DC) across the groups.

Table 4.79

Multivariate Tests of Homoscedasticity for Professional Experience on Teacher Collegiality

Box's Test of Equality of Covariance Matrices	
Box's M	164.017
F	1.384
df1	112
df2	64750.473
Sig.	.004

Thus, the assumption of homoscedasticity was met for most of the individual variables separately but not for the seven variables collectively. The violation of this assumption has a minimal impact if the groups are of approximately equal

size (Hair et al., 2006). However in the current situation, the difference in the largest and smallest group size (113 / 30 = 3.76) was also greater than the minimal requirement (i.e., < 1.5).

Table 4.80

Univariate Tests of Homoscedasticity for Professional Experience on Teacher Collegiality

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
DMS	1.549	4	359	.188
OT	.959	4	359	.430
JPA	3.590	4	359	.007
SIE	.592	4	359	.669
TE	.536	4	359	.710
DC	2.679	4	359	.032
SR	2.027	4	359	.090

4.11.7.2 Results of MANOVA and One-way ANOVA

The results of MANOVA suggested that professional experience has a highly significant impact (p = .000) on teacher collegiality among public secondary school teachers in Islamabad (Table 4.81). This confirms the results of the

descriptive analysis (as shown in Table 4.78) where group differences were observed for the mean scores of most of the teacher collegiality subscales. The power for the statistical tests was 1.0, indicating the sample sizes and the effect sizes to be sufficient enough to ensure that the significant differences would be detected if they existed beyond the differences due to sampling error. The partial eta-squared ranged from .074 to .259.

Table 4.81

Multivariate Tests for Experience Level Differences in Teacher Collegiality Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.296	4.064	28	1424	.000	.074	1.000
Wilks' Lambda	.714	4.460	28	1274	.000	.081	1.000
Hotelling's Trace	.387	4.862	28	1406	.000	.088	1.000
Roy's Largest Root	.350	17.791[c]	7	356	.000	.259	1.000

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

The null hypothesis which suggests that professional experience has no effect on teacher collegiality was, therefore, rejected. Teacher collegiality differed significantly across the five groups (Pillai's Trace = .000, *F* (28, 1424) = 4.064,

$p < .05$). The analysis revealed that the length of professional experience does impact teacher's perceptions about collegiality in their schools.

Table 4.82

Univariate Tests for Experience Level Differences in Teacher Collegiality Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
DMS	32.467[a]	4	8.117	27.768	.000	.236	1.000
OT	12.492[c]	4	3.123	6.832	.000	.071	.994
JPA	17.504[d]	4	4.376	13.251	.000	.129	1.000
SIE	12.072[e]	4	3.018	12.876	.000	.125	1.000
TE	13.128[f]	4	3.282	10.915	.000	.108	1.000
DC	14.226[g]	4	3.557	6.435	.000	.067	.990
SR	16.788[h]	4	4.197	7.915	.000	.081	.998

a. R Squared = .236 (Adjusted R Squared = .228)

b. Computed using alpha = .05

c. R Squared = .071 (Adjusted R Squared = .060)

d. R Squared = .129 (Adjusted R Squared = .119)

e. R Squared = .125 (Adjusted R Squared = .116)

f. R Squared = .108 (Adjusted R Squared = .098)

g. R Squared = .067 (Adjusted R Squared = .057)

h. R Squared = .081 (Adjusted R Squared = .071)

However, in order to accept the alternative hypothesis (Hypothesis 8) according to which more experienced teachers are more collegial than less experienced teachers, further analyses (one-way ANOVA and post hoc comparisons) were required.

One-way ANOVA (between-subject effects) determine which of the individual subscales of teacher collegiality cause the significant difference across groups. The analysis revealed that for all of the seven dependent variables, the differences were statistically significant (p = .000) across the groups (Table 4.82). However, to further analyze which of the groups caused these differences to be significant, post hoc comparisons were made.

4.11.7.3 Results of Post Hoc Analysis

As the significant effect does not guarantee that every one of the group differences would be significant; therefore, post hoc comparison procedures (Tukey HSD, Scheffe, and LSD) were applied to all seven subscales of teacher collegiality across the five groups of teachers having different levels of professional experience. Table 4.83 presents the results for the group comparisons. For DMS subscale, all the group comparisons showed significant (< .05) differences except for two group comparisons (10-15 years versus 15-20 years) and (15-20 years versus > 20 years).

Table 4.83

Post Hoc Comparisons for Teacher Collegiality Scale across Groups with Different Levels of Professional Experience

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
DMS	< 5 y	5-10 y	-.277*	.079	.005	.017	.001
	< 5 y	10-15 y	-.580*	.082	.000	.000	.000
	< 5 y	15-20 y	-.684*	.100	.000	.000	.000
	< 5 y	> 20 y	-1.01*	.116	.000	.000	.000
	5-10 y	10-15 y	-.303*	.075	.001	.003	.000
	5-10 y	15-20 y	-.408*	.095	.000	.001	.000
	5-10 y	> 20 y	-.734*	.111	.000	.000	.000
	10-15 y	15-20 y	-.105*	.097	.818	.884	.282
	10-15 y	> 20 y	-.431*	.113	.002	.007	.000
	15-20 y	> 20 y	-.326*	.127	.078	.161	.011
OT	< 5 y	5-10 y	-.187*	.099	.320	.464	.059
	< 5 y	10-15 y	-.321*	.103	.016	.046	.002
	< 5 y	15-20 y	-.325*	.125	.073	.152	.010
	< 5 y	> 20 y	-.710*	.145	.000	.000	.000
	5-10 y	10-15 y	-.133*	.094	.617	.734	.157
	5-10 y	15-20 y	-.138*	.118	.772	.852	.245

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
	5-10 y	> 20 y	-.522*	.139	.002	.008	.000
	10-15 y	15-20 y	-.004*	.121	1.00	1.00	.971
	10-15 y	> 20 y	-.389*	.142	.049	.112	.006
	15-20 y	> 20 y	-.384*	.159	.111	.211	.016
JPA	< 5 y	5-10 y	-.194*	.084	.145	.258	.022
	< 5 y	10-15 y	-.433*	.087	.000	.000	.000
	< 5 y	15-20 y	-.428*	.106	.001	.003	.000
	< 5 y	> 20 y	-.770*	.123	.000	.000	.000
	5-10 y	10-15 y	-.239*	.080	.025	.065	.003
	5-10 y	15-20 y	-.234*	.100	.139	.250	.021
	5-10 y	> 20 y	-.576*	.118	.000	.000	.000
	10-15 y	15-20 y	.005*	.103	1.00	1.00	.958
	10-15 y	> 20 y	-.337*	.120	.042	.100	.005
	15-20 y	> 20 y	-.342*	.135	.084	.170	.012
SIE	< 5 y	5-10 y	-.195*	.071	.048	.111	.006
	< 5 y	10-15 y	-.355*	.073	.000	.000	.000
	< 5 y	15-20 y	-.447*	.090	.000	.000	.000
	< 5 y	> 20 y	-.612*	.104	.000	.000	.000
	5-10 y	10-15 y	-.161*	.068	.122	.227	.018

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
	5-10 y	15-20 y	-.252*	.085	.026	.067	.003
	5-10 y	> 20 y	-.417*	.099	.000	.002	.000
	10-15 y	15-20 y	-.091*	.087	.831	.893	.294
	10-15 y	> 20 y	-.256*	.101	.087	.174	.012
	15-20 y	> 20 y	-.165*	.114	.594	.716	.147
TE	< 5 y	5-10 y	-.153*	.080	.313	.456	.057
	< 5 y	10-15 y	-.361*	.083	.000	.001	.000
	< 5 y	15-20 y	-.358*	.101	.004	.015	.000
	< 5 y	> 20 y	-.673*	.117	.000	.000	.000
	5-10 y	10-15 y	-.208*	.076	.052	.116	.007
	5-10 y	15-20 y	-.205*	.096	.205	.335	.033
	5-10 y	> 20 y	-.520*	.113	.000	.000	.000
	10-15 y	15-20 y	.003*	.098	1.00	1.00	.975
	10-15 y	> 20 y	-.311*	.115	.054	.121	.007
	15-20 y	> 20 y	-.314*	.129	.106	.204	.015
DC	< 5 y	5-10 y	-.373*	.109	.006	.020	.001
	< 5 y	10-15 y	-.504*	.113	.000	.001	.000
	< 5 y	15-20 y	-.385*	.138	.043	.101	.005
	< 5 y	> 20 y	-.611*	.159	.001	.006	.000

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
	5-10 y	10-15 y	-.132*	.103	.709	.805	.204
	5-10 y	15-20 y	-.012*	.130	1.00	1.00	.928
	5-10 y	> 20 y	-.239*	.153	.522	.655	.119
	10-15 y	15-20 y	.120*	.133	.898	.938	.370
	10-15 y	> 20 y	-.107*	.156	.959	.976	.492
	15-20 y	> 20 y	-.227*	.174	.691	.792	.194
SR	< 5 y	5-10 y	-.250*	.106	.131	.238	.019
	< 5 y	10-15 y	-.473*	.110	.000	.001	.000
	< 5 y	15-20 y	-.548*	.135	.001	.003	.000
	< 5 y	> 20 y	-.660*	.156	.000	.002	.000
	5-10 y	10-15 y	-.222*	.101	.185	.310	.029
	5-10 y	15-20 y	-.297*	.127	.137	.247	.020
	5-10 y	> 20 y	-.409*	.150	.051	.115	.007
	10-15 y	15-20 y	-.075*	.131	.979	.988	.566
	10-15 y	> 20 y	-.187*	.152	.736	.825	.221
	15-20 y	> 20 y	-.112*	.171	.965	.980	.512

Note. Based on observed means.

The error term is Mean Square (Error) = .530.

*. The mean difference is significant at the .05 level.

OT indicated significant differences only between three groups (< 5 years versus 10-15 years, < 5 years versus > 20 years, and 5-10 years versus > 20 years). The rest of the group comparisons showed non-significant differences. JPA subscale showed significant differences among all group comparisons except for four groups (< 5 years versus 5-10 years, 5-10 years versus 15-20 years, 10-15 years versus 15-20 years, and 15-20 years versus > 20 years).

SIE subscale indicated significant results for most of the group comparisons. Four comparisons (5-10 years versus 10-15 years, 10-15 years versus 15-20 years, 10-15 years versus > 20 years, and 15-20 years versus > 20 years) revealed non-significant differences. For TE subscale, six out of ten group comparisons were found to be non-significant (< 5 years versus 5-10 years, 5-10 years versus 10-15 years, 5-10 years versus 15-20 years 10-15 years versus 15-20 years, 10-15 years versus > 20 years, and 15-20 years versus > 20 years).

DC subscale showed non-significant differences for all group comparisons except for the comparison of group of teachers with less than 5 years of teaching experience with any of the other group (5-10 years, 10-15 years, 15-20 years, and > 20 years). Similarly, SR subscale also showed non-significant results for all group comparisons except for group comparisons for group having less than 5 years of teaching experience. The group of teachers with < 5 years of experience showed significant differences with three groups of teachers having different levels of professional experience (10-15 years, 15-20 years, and > 20 years).

The analysis shows an increase in mean values for most of the variables as the experience level gets higher. Only some of the group comparisons did not show any significant difference for most of the variables. For example teachers with less than 5 years of teaching experience showed non-significant differences on OT, JPA, TE, and SR subscale when compared with teachers having 5-10 years of experience. Teachers with 5-10 years of professional experience when compared with group of teachers having 10-15 years of teaching experience showed non-significant differences on OT, SIE, TE, DC, and SR subscale.

Comparison between groups of teachers having 10-15 years of experience and 15-20 years of experience indicated non-significant differences for DMS, OT, JPA, SIE, and TE subscale. Similarly, teachers having 15-20 years of experience showed non-significant differences on DMS, OT, JPA, SIE, and TE subscale when compared with teachers having more than 20 years of teaching experience. Most of the groups showed significant difference and in every group teachers with more experience had higher means for collegiality; therefore, the Hypothesis 8 suggesting that teachers with more professional experience will be more collegial than teachers with less professional experience was supported.

4.11.8 Effects of Professional Experience on Organizational Commitment

To determine the effects of professional experience on organizational commitment, the mean scores for five groups of teachers having different levels

Table 4.84

Descriptive Statistics of Organizational Commitment Scale for Teachers with Different Level of Professional Experience

Subscales	**Educational Qualification**	**Mean**	***SD***	***N***
AOC	< 5 years	4.318	.796	80
	5-10 years	4.632	.750	113
	10-15 years	4.991	.669	95
	15-20 years	5.123	.740	46
	> 20 years	5.311	.531	30
COC	< 5 years	4.625	.633	80
	5-10 years	4.908	.555	113
	10-15 years	4.998	.602	95
	15-20 years	4.967	.561	46
	> 20 years	5.227	.484	30
NOC	< 5 years	4.229	.680	80
	5-10 years	4.606	.645	113
	10-15 years	4.903	.593	95
	15-20 years	4.938	.678	46
	> 20 years	5.250	.500	30

of professional experience (less than 5 years, 5-10 years, 10-15 years, 15-20 years, and more than 20 years) were reviewed. Two subscales (AOC and NOC) showed gradual increase in the mean scores as the teachers' professional experience is increased (Table 4.84). On the other hand, COC did not show much difference in the mean values for the three groups (i.e., 5-10 years, 10-15 years, and 15-20 years). To assess the differences in the mean scores of organizational commitment to be statistically significant for teachers with different experience levels, MANOVA and one-way ANOVA were conducted. Before performing the analyses, assumptions in MANOVA and ANOVA were initially checked.

4.11.8.1 Tests of Homoscedasticity

Homogeneity of the variance-covariance matrices among the groups was examined using Box's *M* test. The non-significant differences ($p = .586$) showed that the subgroups within the overall sample do not have similar covariance matrices (Table 4.85) and therefore, the null hypothesis was accepted.

Levene's test of equality of error variances was performed to verify the homogeneity of variance among dependent variables. The results presented in Table 4.86 revealed non-significant differences indicating that the error variance of the dependent variables is also equal across groups. The assumption of homogeneity was therefore, met for the current analysis both individually and collectively.

Table 4.85

Multivariate Tests of Homoscedasticity for Professional Experience on Organizational Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	22.414
F	.912
df1	24
df2	86442.501
Sig.	.586

Table 4.86

Univariate Tests of Homoscedasticity for Professional Experience on Organizational Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
AOC	2.343	4	359	.054
COC	.728	4	359	.573
NOC	1.083	4	359	.364

4.11.8.2 Results of MANOVA and One-way ANOVA

MANOVA was performed to assess whether professional experience impact secondary school teachers' commitment to their schools. Table 4.87 indicates highly significant difference (p = .000) among the groups for all four multivariate tests (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root).

Table 4.87

Multivariate Tests for Experience Level Differences in Organizational Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.222	7.184	12	1077	.000	.074	1.000
Wilks' Lambda	.781	7.694	12	944.82	.000	.079	1.000
Hotelling's Trace	.275	8.152	12	1067	.000	.084	1.000
Roy's Largest Root	.257	23.025[c]	4	359	.000	.204	1.000

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

The null hypothesis suggesting that organizational commitment does not differ significantly across groups of teachers having different levels of

professional experience was therefore, rejected and it was concluded that professional experience does impact organizational commitment among public secondary school teachers in Islamabad (Pillai's Trace = .000, F (12, 1077) = 7.184, $p < .05$). The observed power for the statistical tests was 1.0 and partial eta value ranged from .074 to .204.

Table 4.88

Univariate Tests for Experience Level Differences in Organizational Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
AOC	37.581[a]	4	9.395	17.915	.000	.166	1.000
COC	10.403[c]	4	2.601	7.691	.000	.079	.997
NOC	34.347[d]	4	8.587	21.340	.000	.192	1.000

a. R Squared = .166 (Adjusted R Squared = .157)

b. Computed using alpha = .05

c. R Squared = .079 (Adjusted R Squared = .069)

d. R Squared = .192 (Adjusted R Squared = .183)

To determine which of the individual subscales showed significant difference across the groups, one-way ANOVA results were reviewed. Table 4.88 suggests

that all three dependent variables (AOC, COC, and NOC) were significantly different across the groups. To further analyze which of the groups cause this significance, post hoc comparison procedures (Tukey HSD, Scheffe, and LSD) were performed on all three subscales of organizational commitment.

4.11.8.3 Results of Post Hoc Analysis

Table 4.89 presents the results for the group comparisons using post hoc comparison procedures (Tukey HSD, Scheffe, and LSD) for all three organizational commitment subscales. For two subscales (AOC and NOC), significant differences were observed for all three post hoc methods when groups of teachers having less than five years of professional experience and/or teachers with 5-10 years of professional experience were compared with any of the other groups. Teachers having 10-15 years of experience did not show significant difference when compared with group having 15-20 years of experience and/or more than 20 years of experience. Similarly, teachers with 15-20 years of professional experience also did not show significant difference with teachers' group having more than 20 years of experience.

COC subscale, on the other hand, indicated that only the group with less than five years of teaching experience was statistically significantly different from all other groups (5-10 years, 10-15 years, 15-20 years, and > 20 years). The rest of the groups showed non-significant differences for the COC subscale.

Table 4.89

Post Hoc Comparisons for Organizational Commitment Scale across Groups with Different Levels of Professional Experience

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
AOC	< 5 y	5-10 y	-.314*	.106	.026	.068	.003
	< 5 y	10-15 y	-.672*	.110	.000	.000	.000
	< 5 y	15-20 y	-.804*	.134	.000	.000	.000
	< 5 y	> 20 y	-.992*	.155	.000	.000	.000
	5-10 y	10-15 y	-.358*	.101	.004	.014	.000
	5-10 y	15-20 y	-.490*	.127	.001	.005	.000
	5-10 y	> 20 y	-.678*	.149	.000	.000	.000
	10-15 y	15-20 y	-.132*	.130	.849	.905	.311
	10-15 y	> 20 y	-.320*	.152	.218	.350	.036
	15-20 y	> 20 y	-.188*	.170	.803	.874	.270
COC	< 5 y	5-10 y	-.284*	.085	.008	.027	.001
	< 5 y	10-15 y	-.373*	.088	.000	.002	.000
	< 5 y	15-20 y	-.342*	.108	.014	.040	.002
	< 5 y	> 20 y	-.603*	.125	.000	.000	.000
	5-10 y	10-15 y	-.090*	.081	.802	.873	.269
	5-10 y	15-20 y	-.059*	.102	.978	.987	.563

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
	5-10 y	> 20 y	-.319*	.119	.060	.131	.008
	10-15 y	15-20 y	.031*	.104	.998	.999	.768
	10-15 y	> 20 y	-.229*	.122	.327	.471	.060
	15-20 y	> 20 y	-.260*	.136	.315	.458	.057
NOC	< 5 y	5-10 y	-.377*	.093	.001	.003	.000
	< 5 y	10-15 y	-.674*	.096	.000	.000	.000
	< 5 y	15-20 y	-.709*	.117	.000	.000	.000
	< 5 y	> 20 y	-1.021*	.136	.000	.000	.000
	5-10 y	10-15 y	-.297*	.088	.007	.024	.001
	5-10 y	15-20 y	-.332*	.111	.024	.064	.003
	5-10 y	> 20 y	-.644*	.130	.000	.000	.000
	10-15 y	15-20 y	-.035*	.114	.998	.999	.760
	10-15 y	> 20 y	-.346*	.133	.071	.149	.009
	15-20 y	> 20 y	-.312*	.149	.225	.359	.037

Note. Based on observed means.

The error term is Mean Square (Error) = .402.

*. The mean difference is significant at the .05 level.

The analysis shows that the impact of professional experience was present for groups having less than 5 years of experience and/or 5-10 years of professional experience. The difference becomes non-significant for the more experienced groups (for e.g. 10-15 years versus 15-20 years, 10-15 years versus > 20 years, and 15-20 years versus > 20 years). For the groups showing significant difference, it was observed that the mean values for the teachers having more experience was always higher than the teachers group having less experience.

The current analyses, therefore, indicate that Hypothesis 11 according to which teachers with more professional experience will be more committed to their organizations than teachers with less professional experience held true for the current data set.

4.11.9 Effects of Professional Experience on Professional Commitment

Table 4.90 provides a summary of the group profiles on each of the professional commitment subscale across the five groups of teachers with different levels of teaching experience (< 5 years, 5-10 years, 10-15 years, 15-20 years, and > 20 years). The review of descriptive analysis reveals that for the two subscales (APC and NPC), there is a subsequent increase in the mean values as the experience level increases. Teachers with less than five years of experience showed the least mean values while the highest means were observed for teachers having more than 20 years of professional experience. MANOVA was conducted

to assess if the differences were statistically significant across the groups followed by one-way ANOVA and post hoc analysis.

Table 4.90

Descriptive Statistics of Professional Commitment Scale for Teachers with Different Levels of Professional Experience

Subscales	**Educational Qualification**	**Mean**	***SD***	***N***
APC	< 5 years	5.125	.572	80
	5-10 years	5.309	.579	113
	10-15 years	5.615	.545	95
	15-20 years	5.695	.546	46
	> 20 years	5.927	.488	30
CPC	< 5 years	4.666	.773	80
	5-10 years	4.963	.772	113
	10-15 years	5.477	.412	95
	15-20 years	5.452	.547	46
	> 20 years	5.594	.520	30
NPC	< 5 years	4.768	.736	80
	5-10 years	5.036	.694	113
	10-15 years	5.391	.545	95
	15-20 years	5.409	.567	46
	> 20 years	5.644	.601	30

4.11.9.1 Tests of Homoscedasticity

The results of Box's *M* test (Table 4.91) revealed that the subgroups within the overall sample have significantly different covariance matrices while Levene's test (Table 4.92) showed significant differences ($p < .05$) for two variables (CPC and NPC). On the other hand, APC indicated equal variances across the groups. Thus, the assumption of homoscedasticity could not be met for the current analysis except for APC subscale.

Table 4.91

Multivariate Tests of Homoscedasticity for Professional Experience on Professional Commitment

Box's Test of Equality of Covariance Matrices	
Box's M	79.508
F	3.235
df1	24
df2	86442.501
Sig.	.000

Table 4.92

Univariate Tests of Homoscedasticity for Professional Experience on Professional Commitment

Levene's Test of Equality of Error Variances				
Dependent Variable	***F***	***df1***	***df2***	**Sig.**
APC	.204	4	359	.936
CPC	9.575	4	359	.000
NPC	2.486	4	359	.043

4.11.9.2 Results of MANOVA and One-way ANOVA

MANOVA and one-way ANOVA were performed to assess if secondary school teachers' professional commitment differ significantly across groups having different levels of professional experience. Table 4.93 shows highly significant difference ($p = .000$) among the groups for all four multivariate tests, indicating that professional experience does impact teachers professional commitment among public secondary school teachers in Islamabad (Pillai's Trace = .000, F (12, 1077) = 8.198, $p < .05$).

Table 4.93

Multivariate Tests for Experience Level Differences in Professional Commitment Scale

Statistical Test	Value	*F*	Hypothesis *df*	Error *df*	Sig.	Partial η^2	Observed Power[b]
Pillai's Trace	.251	8.198	12	1077	.000	.084	1.000
Wilks' Lambda	.754	8.858	12	944.82	.000	.090	1.000
Hotelling's Trace	.319	9.450	12	1067	.000	.096	1.000
Roy's Largest Root	.295	26.501[c]	4	359	.000	.228	1.000

b. Computed using alpha = .05

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

One-way ANOVA results (as shown in Table 4.94) also indicated highly significant difference (p = .000) for all three subscales (APC, CPC, and NPC) across the groups. However, to further analyze which of the groups showed statistical significant difference, post hoc comparisons were conducted.

Table 4.94

Univariate Tests for Experience Level Differences in Professional Commitment Scale

Dependent Variable	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial η^2	Observed Power[b]
APC	22.908[a]	4	5.727	18.390	.000	.170	1.000
CPC	42.946[c]	4	10.736	25.472	.000	.221	1.000
NPC	28.920[d]	4	7.230	17.327	.000	.162	1.000

a. R Squared = .170 (Adjusted R Squared = .161)

b. Computed using alpha = .05

c. R Squared = .221 (Adjusted R Squared = .212)

d. R Squared = .162 (Adjusted R Squared = .152)

4.11.9.3 Results of Post Hoc Analysis

The post hoc analysis results for all three professional commitment subscales are presented in Table 4.95. According to the results, the differences in the mean scores of teachers' professional commitment were statistically significant for less experienced groups and non-significant for more experienced teachers. All three subscales indicated significant differences for teachers with less than 5 years or 5-10 years of experience with teachers having 10-15 years, 15-20 years and/or more than 20 years of professional experience.

Table 4.95

Post Hoc Comparisons for Professional Commitment Scale across Groups with Different Levels of Professional Experience

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
APC	< 5 y	5-10 y	-.185*	.081	.159	.276	.024
	< 5 y	10-15 y	-.491*	.085	.000	.000	.000
	< 5 y	15-20 y	-.571*	.103	.000	.000	.000
	< 5 y	> 20 y	-.803*	.119	.000	.000	.000
	5-10 y	10-15 y	-.306*	.078	.001	.004	.000
	5-10 y	15-20 y	-.386*	.098	.001	.004	.000
	5-10 y	> 20 y	-.618*	.115	.000	.000	.000
	10-15 y	15-20 y	-.080*	.100	.931	.959	.426
	10-15 y	> 20 y	-.312*	.117	.061	.132	.008
	15-20 y	> 20 y	-.232*	.131	.391	.535	.077
CPC	< 5 y	5-10 y	-.296*	.095	.016	.047	.002
	< 5 y	10-15 y	-.810*	.098	.000	.000	.000
	< 5 y	15-20 y	-.786*	.120	.000	.000	.000
	< 5 y	> 20 y	-.928*	.139	.000	.000	.000
	5-10 y	10-15 y	-.514*	.090	.000	.000	.000
	5-10 y	15-20 y	-.490*	.113	.000	.001	.000
	5-10 y	> 20 y	-.631*	.133	.000	.000	.000

	Groups to be Compared		*Mean Difference Between Groups (I-J)*		*Statistical Significance of Post Hoc Comparison*		
Dependent Variable	**Group I**	**Group J**	**Mean Difference**	**Std Error**	**Tukey HSD**	**Scheffe**	**LSD**
	10-15 y	15-20 y	.024*	.117	1.00	1.00	.835
	10-15 y	> 20 y	-.117*	.136	.910	.946	.389
	15-20 y	> 20 y	-.141*	.152	.886	.930	.353
NPC	< 5 y	5-10 y	-.268*	.094	.038	.091	.005
	< 5 y	10-15 y	-.622*	.098	.000	.000	.000
	< 5 y	15-20 y	-.641*	.119	.000	.000	.000
	< 5 y	> 20 y	-.876*	.138	.000	.000	.000
	5-10 y	10-15 y	-.354*	.090	.001	.004	.000
	5-10 y	15-20 y	-.372*	.113	.009	.030	.001
	5-10 y	> 20 y	-.608*	.133	.000	.000	.000
	10-15 y	15-20 y	-.018*	.116	1.00	1.00	.876
	10-15 y	> 20 y	-.253*	.135	.335	.478	.062
	15-20 y	> 20 y	-.235*	.152	.530	.662	.122

Note. Based on observed means

The error term is Mean Square (Error) = .417.

*. The mean difference is significant at the .05 level.

The differences were non-significant for groups having more experience (10-15 years versus 15-20 years, 10-15 years versus > 20 years, and 15-20 years

versus > 20 years) but the differences were significant for less experienced teachers indicating that professional experience does impact teachers' professional commitment.

The overall analysis indicates that the impact of professional experience on secondary school teachers' professional commitment was present for groups having less experience. Therefore, Hypothesis 14 which suggests that teachers with more professional experience would be more committed to their profession than teachers with less professional experience was supported for the current data set.

4.12 Summary

The main study was conducted at 17 public secondary schools in Islamabad where 364 teachers responded to the survey questionnaire. The preliminary analysis was performed initially which was followed by the descriptive statistics. The impact of teacher collegiality on teacher organizational and professional commitment was determined by using SEM. The analysis suggests that teachers who perceive their relationships with their peers as cooperative and collegial tend to be more organizationally as well as professionally committed. Multiple-group SEM analysis was performed to identify if school type based on achievement functioned as a moderator for this causal relationship. The result suggests that the

impact of teacher collegiality on teacher organizational and professional commitment was similar across high-achieving and low-achieving schools.

The mean differences in teacher collegiality, organizational commitment, and professional commitment between high-achieving and low-achieving school teachers was determined using latent mean structure analysis. The analyses confirmed that the differences in teacher collegiality and professional commitment were found to be non-significant between the two school-types. However, organizational commitment was found to be significantly higher in high-achieving schools as compared to low-achieving schools.

The effects of demographic variables on study main variables were analyzed using MANOVA. The findings revealed that female teachers in Pakistan are more collegial and more organizationally committed as compared to their male counterparts. Gender was not correlated with teacher professional commitment. Teachers with higher educational levels and more experience perceived collegiality to be higher in their respective schools. Similarly, an increase in educational level and professional experience heightens teachers' commitment towards their organization and profession.