

## CHAPTER THREE

### RESEARCH METHODOLOGY AND INSTRUMENT CONSTRUCTION

#### 3.1 Introduction

The research design and procedures used in this study are explained in this chapter. This chapter has four main parts. The first part explains the research design and variables of the study, the second part explains the population and sampling procedure, the third part explains development of the instrument, validity and reliability of the instrument and the fourth part explains data collection procedures and data analysis.

This study was aimed at examining the extent of participatory management in female government high schools, to assess organizational commitment among female teachers in Mashhad city in Iran, and to analyze the correlation between the two variables concerned. The city has seven districts. In accordance with the purpose of the study, the following questions would be answered by study:

1. What is the extent of the practice of participatory management in female government high schools in Mashhad district in Iran?
2. What is the extent of organizational commitment of women teachers in female government high schools in Mashhad district?
3. What are the extents of relationships among the fifteen components of participatory management and the nine components of organizational commitment with regard to female government high school teachers in Mashhad districts?
4. What are the differences in participatory management and organizational commitment with regard to the different school districts, teachers' age-groups, and teaching experience of teachers of female government high schools?

5. What are the constraints in implementing participatory management in female government high schools in Mashhad?

### **3.2 Research Design**

This study used the survey method. Survey is an appropriate and useful tool for measuring opinions, attitudes, perceptions and behaviors of subjects. The overall nature of this research is descriptive, that is, it attempts to accurately describe or measure what actually exists in the environment with respect to variables (Borg & Gall, 1989).

This study investigated two variables consisting of participatory management (independent variable) which has fifteen components or sub-variables, and organizational commitment (dependent variable) of teachers which comprises nine components. The general theoretical correlation between the two variables and their components has been portrayed in Figure 1.1 before (page 12). There are at least 135 possible relationships that exist among the components of the two major variables.

### 3.3 Population and Sampling Procedure

Sampling is the key to survey research. In non-technical language, population means the number of people living in an area, and a sample is a part of the population from which it was drawn. But this is only one of many possible definitions of population and sample. The difference between the sample and actual population characteristics is the sampling error. By increasing the size, the sampling error of a statistic decreases, but increasing the size is not always suitable (Khoynezhad, 2001). The population of this study consists of Iranian female teachers who serve in government high schools in Mashhad city.

The researcher chose Mashhad because Mashhad city was the center and capital of the largest province of Iran and it was the second largest city in Iran too. In addition Mashhad's population was 2,387,734 people in 2006. Hence, Mashhad city had the second largest educational organization in Iran.

One of the reform policies initiated by the Ministry of Education is the decentralization policy. This policy was enforced in 2002, and it laid a suitable groundwork for performing school-based management. In September 2004 , Khorasan was divided to three provinces (South, North and Razavi Khorasan) and Mashhad is the center of Razavi Khorasan. This division provided good conditions for decentralization and reduced bureaucratic time-lag in the top-down structure and consequently this facilitated application of school based management in Mashhad.

Furthermore, the researcher chose female government high school because females had more participation than males in high school (Heidari, 1998) and most of the managers in female government high school used the consultative and participatory style (Fatahei, 1998). According to Momayen (1995), efficiency of the female high school was better than that of the male high school. In addition, managers in

government high school were more effective than those in private high school (Ashkavandei, 1995).

### 3.4 Sample Size

In this research to determine the sample size and maintain reliability, the researcher used the following formula in which:

$$(3.1) \quad n_o = \left( \frac{z}{r} \cdot \frac{S}{\bar{Y}_N} \right)^2$$

$$(3.2) \quad n = \frac{n_o}{1 + n_o/N}$$

$$n_o = \left( \frac{1.96}{0.01} \cdot \frac{2.95}{15.22} \right)^2 = 1447.18$$

$$n = \frac{1447.18}{1 + (1447.18/2378)} = 899.67 \cong 900$$

**Table 3.1**  
*The Characteristics of Seven Districts in Mashhad*

Districts in Mashhad	Population size	Coefficient of allocation	Sample size	Final sample
District I	412	0.17	155.9	156
District II	403	0.17	152.5	153
District III	163	0.07	61.7	62
District IV	405	0.17	153.3	154
District V	282	0.12	106.7	107
District VI	298	0.13	112.8	113
District VII	415	0.17	157.1	158
Total	2378	1.00	900.0	903

[Source. Organization of Education in Mashhad 2007-2008]

Table 3.1 shows the characteristics of seven districts in Mashhad. As observed, the population size is 2378 and with attention to coefficient of allocation, sample size was 900. To increase the accuracy, the sample size was rounded and increased from 900 to 903.

Considering there are seven districts in Mashhad; the stratified random sampling was used to select teachers in different district.

### **3.5 Research Instruments**

The instrument used in this study was a set of questionnaire because they permitted the collection of reliable and reasonably valid data from the sample and was cheap to administer (Anderson & Arsenault, 2002, p. 170). It was designed to collect data from a large number of respondents (Anderson & Arsenault, 2002; McBurney, 2001, p. 239).

The questionnaire was made by the researcher. For preparing the structured questionnaire the researcher considered characteristics of components participatory management (PM) and organizational commitment (OC) that had been expressed in Chapter Two. Additionally the questionnaire items were constructed and edited to match the variables of this study and to suit the female government high schools in Iran. The researcher considered at least 4 items for each component of PM and OC in the questionnaire.

### 3.6 Pilot study

Prior to the actual data collection, a pilot study was conducted to finalize the data collection instruments and data collection procedures. The main objective of conducting pilot study was to establish the validity of the data collection instruments and detect the design flaws in the questionnaire instrument or in data collection. The validity of the research was designed to measure what it supposed to measure (Bordens & Abbott, 1991, p. 71; Simon & Burstein, 1985, p. 210). Two professors who were specialists in educational management were contacted to verify the validity of the questionnaires. Then the questionnaire was translated into the Persian language by a specialist in English who was familiar with educational management. The translated version was checked by two professors who were experts in educational management in the Faculty of Education, Ferdowsi University of Mashhad. Based on the experts' comments and suggestions, some changes were made to the questionnaires. After the changes were made, the final version of questionnaires in Persian language was ready for distribution among female teachers in different schools in seven districts. The translated questionnaires in English as well as the original Persian version are found in Appendix A and Appendix B.

Regarding reliability, it was the ability of the research design to produce similar results when measurements are made under identical conditions (Bordens & Abbott, 1991, p. 86; Simon & Burstein, 1985, p. 209). In order to determine the reliability of questionnaires, the researcher used pilot study. Hence, about 30 teachers were randomly selected from female government high schools in different districts in Mashhad for the pilot study.

A test of statistical analysis on the reliability can be established by using Statistical Packages for the Social Sciences (SPSS) software to find the Cronbach alpha

for internal consistency of the instrument. Considerably the alpha of 0.50 or greater was the acceptable value. Hence, Cronbach's alpha was calculated to measure the internal consistency reliability of the fifteen components of participatory management and nine components of organizational commitment scores in two stages.

Table 3.2 shows that the internal consistency reliability in first stage, which was above 0.70 for all of components except for the share power component. In first stage the Cronbach alpha was 0.46 for the share power component. In order to increase the Cronbach alpha some items were deleted, and in this stage all components of PM and OC obtained acceptable reliability. More over before the teachers start answering the questionnaire the researcher explained the purpose of the study and how to answer the questionnaire properly.

One of the limitations of the questionnaire survey method may be due to inaccurate answers. In order to minimize these possibility respondents will be informed that the questionnaire will have no impact on their annual evaluation in high schools.

**Table 3.2***Cronbach Alpha Values of Reliability for Components of PM and OC*

Variable Name	Pilot Step One		Pilot Step Two	
	Cronbach's alpha	N of Items	Cronbach's alpha	N of Items
<b>Participatory Management</b>	<b>.982</b>	<b>106</b>	<b>.984</b>	<b>96</b>
Trust	.66	6	.85	5
Decision Making	.83	6	.83	5
Team Working	.90	8	.91	7
Share Power	.46	8	.68	7
Motivation	.85	8	.77	7
Communication	.83	8	.83	6
Involvement	.85	9	.92	9
Collaboration	.70	5	.92	5
Democracy	.83	7	.91	6
Transparency	.81	7	.90	7
Innovation	.84	6	.91	6
Respect	.72	7	.91	6
Problem Solving	.78	6	.86	5
Identify Common Goal	.89	8	.84	8
Equalitarian	.83	7	.84	7
<b>Organizational Commitment</b>	<b>.968</b>	<b>57</b>	<b>.967</b>	<b>46</b>
Willing to Exert Effort	.85	6	.81	5
Stabilizing	.64	6	.74	4
Loyalty and Allegiance	.65	6	.84	5
Maintain Membership Remained	.80	7	.88	5
Attachment	.91	7	.93	6
Feeling of Obligation to the Organization	.81	6	.85	6
Identification and Internalization Value	.84	6	.80	5
Identification and Acceptance Goal	.83	7	.85	5
Involvement	.76	6	.80	5



Participatory management consisted 96 items. The items had the 5-point Likert-type scale. Refer to Appendix A and Appendix B for the details of the questionnaire. There were 15 components of participatory management investigated in this study which were as follows:

Participatory management (PM0), survey items 1 until item 96

Trust (PM1), survey items 1 until item 5

Decision making (PM2), survey item 6 until item 10

Team working (PM3), survey item 11 until item 17

Share power (PM4), survey item 18 until item 24

Motivation (PM5), survey item 25 until item 31

Communication (PM6), survey item 32 until item 37

Involvement (PM7), survey item 38 until item 46

Collaboration (PM8), survey item 47 until item 51

Democracy (PM9), survey item 52 until item 57

Transparency (PM10), survey item 58 until item 64

Innovation (PM11), survey item 65 until item 70

Respect (PM12), survey item 71 until item 76

Problem solving (PM13), survey item 77 until item 81

Identifying common goal (PM14), survey item 82 until item 89

Equalitarian (PM15), survey item 90 until item 96

#### 1. Trust

These components consisted of items (1-5). An example of the items in this component was “The school head delegates’ duties and responsibility to teachers/staff.”

## 2. Decision making

These components consisted of items (6-10). An example of the items in this component was “Decisions are made by collective agreement in this school through meetings at various committee levels.”

## 3. Team work

These components consisted of items (11-17). An example of the items in this component was “Teamwork is encouraged and practiced in this school in sports, cultural activities, and co-curricular activities.”

## 4. Share power

These components consisted of items (18-24). An example of the items in this component was “The school head delegates’ responsibility to teachers/staff to act as a representative in meetings that are arranged outside school.”

## 5. Motivation

These components consisted of items (25-31). An example of the items in this component was “The school head believes that if she gives autonomy to teachers/staff they will perform their responsibility in a best way.”

## 6. Communication

These components consisted of items (32-37). An example of the items in this component was “The school head establishes impression of free communication to express idea and suggestion by teacher.”

## 7. Involvement

These components consisted of items (38-46). An example of the items in this component was “Teachers/staff have many opportunities to express their ideas in appropriate forms in this school.”

#### 8. Collaboration

These components consisted of items (47-51). An example of the items in this component was “The school head encourages teachers/staff to collaborate with government agencies in educating in designing educational curriculum and programs for students.”

#### 9. Democracy

These components consisted of items (52-57). An example of the items in this component was “The school head believes that democracy is important for a peaceful environment in this school.”

#### 10. Transparency

These components consisted of items (58-64). An example of the items in this component was “In this school teachers/staff share all the information with colleagues that are needed to do their job effectively?”

#### 11. Innovation

These components consisted of items (65-70). An example of the items in this component was “The school head encourages teachers/staff to initiate new changes/innovations in the curriculum.”

#### 12. Respect

These components consisted of items (71-76). An example of the items in this component was “After completion of a job, the school head shows his appreciation towards teachers/staff.”

#### 13. Problem solving

These components consisted of items (77-81). An example of the items of this component was “Meetings are being used for teachers/staff for solving school problems and issues”.

#### 14. Identifying common goal

These components consisted of items (82-89). An example of the items in this component was “The school head believes teachers/staff should help to identify school/organization’s goal and to accept it”

#### 15. Equalitarian

These components consisted of items (90-96). An example of the items in this component was “The school head believes as long as teachers/staff work in school or under her supervision, she must protect all of them.”

Organizational commitment consisted of 46 items of questionnaire. There were 9 components of organizational commitment investigated in this study which were as follows :

Organizational commitment (OC0), survey items 97 until item 142

Willing to exert effort (OC1), survey items 97 until item 101

Stabilizing (OC2), survey items 102 until item 105

Loyalty and allegiance (OC3), survey items 106 until item 110

Maintaining membership (OC4), survey items 111 until item 115

Attachment (OC5), survey items 116 until item 121

Feeling of obligation to the organization (OC6), survey items 122 until item 127

Identification and internalization value (OC7), survey items 128 until item 132

Identification and acceptance goal (OC8), survey items 133 until item 137

Involvement (OC9), survey items 138 until item 142

##### 1. Willing to exert effort

These components consisted of items (97-101). An example of the items in this component was “Right now, performing my duties as a member of the organization board is a matter of necessity as much as I desire another organization which may not match the overall benefits that I have here.”

## 2. Stabilizing

These components consisted of items (102-105). An example of the items in this component was “I believe another organization may not match the overall benefits that I have here.”

## 3. Loyalty and allegiance

These components consisted of items (106-110). An example of the items in this component was “I believe that a person must always be loyal to his or her organization.”

## 4. Maintain membership

These components consisted of items (111-115). An example of the items in this component was “If I got another offer for a better job elsewhere I feel it was wrong to leave my organization.”

## 5. Attachment

These components consisted of items (116-121). An example of the items in this component was “Even if it were to my advantage, I do not feel it would be right to leave my organization now.”

## 6. Feeling of obligation to the organization

These components consisted of items (122-127). An example of the item in this component was “I believe this organization has the potential to be really good hence I feel obliged to this organization.”

## 7. Identification and internalization value

These components consisted of items (128-132). An example of the items in this component was “The value of this organization has a great deal of personal meaning for me.”

### 8. Identification and acceptance goal

These components consisted of items (133-137). An example of the items in this component was “I feel obliged to the force that binds an individual to courses of action relevant to the organizational goals.”

### 9. Involvement

These components consisted of items (138-142). An example of the items in this component was “I like to express my ideas for enhancing the quality of classes, library and laboratory “

Additionally questionnaire had thirteen items (143-155) for obtaining information related to constraints in implementing participatory management and five items to obtain information related to the teachers’ demographics in female government high schools in the Mashhad city.

## 3.7 Scaling of the Research Variables

The researcher decided to equalize the range of the scores of all variables between 0 to 100 by using the following formula:

$$(3.3) \quad Y_i = \frac{25}{n_i} \left( \sum_{j=1}^{n_i} X_j - n_i \right)$$

In which  $n_i$  is the number of the questions of the  $i^{th}$  variable,  $X_j$  is the scale selected in the  $j^{th}$  question.  $\sum_{j=1}^{n_i} X_j$  will be exactly the score obtained from Likert view-measuring scale for the  $i^{th}$  variable and finally  $Y_i$  is the score of the  $i^{th}$  variable which is in the range 0-100.

One of the advantages of applying this formula (3.3) is its insensitivity to the questions not answered, so that the relation can calculate a score in the range of 0-100

for each person according to the number of questions answered from all questions of a variable. It will remain unanswered only when the respondent has responded to none of the questions and the researcher can replace a score for all the unanswered questions in each variable according to the mid limit of options (3) or mean or mode of the responses of the same question by other respondents. Additionally, this formula facilitates the comparison between different variables to determine if they have any effect on results.

### 3.7.1 An Example of the Procedure

An example is provided to show how the formula (3.3) works. Consider the answers provided by participant number 441 to the questions pertaining to variable “Democracy”. The score of this teacher’s view in relation to this according to the selection of the options of these questions can be calculated . As displayed in Table 3.3, the component of Democracy is the ninth dimension of the participatory management which is measured by the questions 52 to 57 in the questionnaire.

**Table 3.3**  
*The Items of Democracy in Questionnaire*

Number	Subject	Totally not Prominent	Fairly not Prominent	Fairly Prominent	Prominent	Very Prominent
52	Head allows teachers to feel free				*	
53	Students express ideas			*		
54	Teachers express ideas about school					*
55	Head practices democracy in decision making				*	
56	Teachers sharing their opinions					
57	Head believes that democracy is important				*	

Therefore, it is observed that the respondent had a good and desirable view of the Democracy state so that he has selected all of his responses with options from medium to high but has refused to respond to question 56.

Likert view-measuring scale can be used to quantify this teacher's view or to give a score as his evaluation of the state of variable Democracy; but first it is necessary to consider a score for the unanswered question 56. Investigation of the frequency distribution table shows that the option Prominent with about 40% is selected as the frequent option or the data mode. The mean in this question is also equal to the mode and belongs to the option Prominent. So it suggests the selection of the option "Prominent" as the replacement of the lost data of the question 56. By using the Likert view measure, we will have:

$$\begin{aligned} \text{Democracy} &= \sum_{j=1}^{n_i} X_j \\ &= \sum_{j=1}^6 X_j = 4 + 3 + 5 + 4 + \mathbf{4} + 4 = 24 \end{aligned}$$

This shows that the respondent gives the state of Democracy a score of 24 out of 30. The variable Involvement which is measured by questions 38 to 46 has received a score of 38 out of 45. Now this question will rise whether the state of variable Democracy is more desirable in the person's view than the state of variable Involvement, or this person selects which one of both variables as the desirable variable? It is clear that we cannot do this comparison easily and rapidly unless the score range of both variables is the same. The source change and scale change stated in relation (3.3) to move the respondent's scale to the range 0-100 for variable Democracy: (since this respondent has not answered question 56, the number of the questions in the above equation will be decreased from 6 to 5 and  $n_i$  will be considered 5 in this equation).



$$\begin{aligned}
Y_i &= \frac{25}{n_i} \left( \sum_{j=1}^{n_i} X_j - n_i \right) \\
&= \frac{25}{5} \left( \sum_{j=1}^5 X_j - 5 \right) = \frac{25}{5} (4 + 3 + 5 + 4 + 4 - 5) = \frac{25 \times 15}{5} = 75
\end{aligned}$$

It shows that this teacher considers the score of 75 out of 100 for the state of Democracy and believes that democracy has proper conditions. Therefore, it can be seen that changing the range of scores facilitates the interpretation of the variable under study. An additional advantage of moving scores to the range 0-100 is the comparison between different variables. For example, if move the score 38 to the range 0-100 for the variable “Involvement”, the result will be the score of 83.3 and through comparing it with the score of 75 (for Democracy) find that the respondent has more favorable view of “Involvement” than “Democracy”.

### 3.8 Data Collection Procedure

A letter requesting permission to conduct the study was obtained from the researcher’s supervisor and submitted to Ministry of Education in Mashhad. Once permission was obtained from the Ministry of Education, it was then sent to the department of education in seven districts in Mashhad. This letter was then distributed to all the female government high schools in Mashhad to obtain permission to distribute the questionnaires.

The researcher went to government high schools in different districts in Mashhad to distribute the questionnaires. Any item that was unclear would be explained, and the nature of the study and its significance was explained, too. The researcher collected the completed questionnaires. The anonymity of the respondents

was carefully guarded. The questionnaires were solely used for the analysis and interpretation of data; therefore all surveys were treated confidentially, and any reports based on questionnaire results were reported in statistical form only.

### **3.9 Data Analysis Procedure**

This research investigates participatory management and its relationship with organizational commitment in female government high school in Mashhad, Iran. The data were analyzed using the SPSS (Statistical Packages for the Social Sciences) program, Version 13. The method of analysis contains two parts:

1. *Descriptive statistics*: In this part the researcher uses frequency, percentage, mean, standard deviation, bar chart box plot for the data on participatory management and organizational commitment.

2. *Inferential statistics*: In this part, *t-test*, Pearson correlation, regression, analysis of variance (ANOVA) and multiple analysis of variance (MANOVA) were used to derive the findings of this study.

### **3.10 Overall Summary**

In this study stratify random sampling procedure was used to choose 903 teachers from female government high schools in seven districts of Mashhad, Iran. A set of questionnaire was made by the researcher. Two professors who were specialists in educational management were contacted to verify the validity of the questionnaires. In order to determine the reliability of questionnaires, the researcher used pilot study. The data were analyzed using the SPSS programs, Version 13.

**Table 3.4**  
*Data Analysis Procedure*

Research Question 1	What is the extent of the practice of participatory management in female government high schools in Mashhad district in Iran?
Statistics Model	In this part researcher used descriptive statistics such as frequency, mean, Standard Deviation. In addition in this part researcher used inferential statistics ( <i>t test</i> ).
Research Question 2	What is the extent of organizational commitment of women teachers in female government high schools in Mashhad district?
Statistics Model	In this part the researcher used descriptive statistics such as frequency, mean, and Standard Deviation. In addition in this part researcher used inferential statistic ( <i>t test</i> ).
Research Question 3	What are the extents of relationships among the fifteen components of participatory management and the nine components of organizational commitment with regard to female government high school teachers in Mashhad districts?
Statistics Model	Pearson's correlation was used to determine that correlation ships between participatory management and organizational commitment and whole of components related in these two variables. In addition regression is used too.
Research Question 4	What are the differences in participatory management and organizational commitment with regard to the different school districts, teachers' age-groups, teaching experience of teachers of female government high schools?
Statistics Model	Analysis of Variance (ANOVA) was used to determine the significant difference between Participatory Management and Organizational Commitment with teachers' demography in general and separately in seven Districts in Mashhad. Multivariate analysis of variance (MANOVA) was conducted to determine if there was significance difference in groups and which group effects are found in the PM and OC.
Research Question 5	What are the constraints in implementing participatory management in female government high schools in Mashhad districts?
Statistics Model	In this part the researcher used descriptive statistics such as frequency, mean, and Standard Deviation. In addition in this part the researcher used inferential statistic ( <i>t test</i> ).