CHAPTER III

STATEMENT OF THE PROBLEM AND METHODOLOGY OF THE STUDY

The present study entitled “Leadership Behavior of Heads of the Departments and Organizational Commitment of Faculty Members in the University of Mashhad (Iran) in relation to their perception of Total Quality Management (TQM)” is a survey type study involving descriptive and correlative research. In this chapter an attempt has been made to explain the locale of the study, objectives and hypotheses of the study, design and methodology, variables of the study, tools used for the study, sample and statistical techniques employed for analysis of the data.

3.1. LOCALE OF THE STUDY

Ferdowsi University of Mashhad (FUM) is a state university named after the great epic poet and scholar Ferdowsi whose Shahnameh (The Book of Kings) is a well-known classical chef-d'oeuvre in Persian literature. Located in Mashhad, the university was established in 1949, making it the third oldest major state university in Iran. It is the largest university in northeast Iran, and has a large faculty. Encompassing currently, 2000 staff, 650 faculty members, and an official enrollment of 19,000 students, FUM is one of the most comprehensive universities in Iran and neighboring countries. The university offers 180 majors and admits over 3,500 students each year at the Bachelor's, Master's, and Ph.D. levels. Celebrating 59 years of academic excellence, Ferdowsi University of
Mashhad is a place to expand minds, foster new ideas, and perpetuate intellectual and personal growth.

At FUM, many departments are considered as Centers of Excellence in different specializations nationwide; namely, the Dept. of Mathematical Sciences and Statistics, the Dept. of Animal Sciences, the Dept. of Geology, the Dept. of Persian Language and Literature, the Dept. of Veterinary Medicine, and finally the Dept. of Agronomy. The university is regarded as a prominent institution in attracting international students of different nationalities. At present, FUM is a major university in recruiting international students from 17 nationalities, all of which add greatly to the educational and social experience available at the university. Furthermore, the university is ranked 3rd in Iran amongst other universities in recruiting foreign students.

3.2. STATEMENT OF THE PROBLEM

In this study, it is attempted to know what type of Leadership Behavior is exhibited by Heads of different departments and what type of organizational Commitment is seen among faculty members of FUM (Iran) and how are these two variables related to their perception about Total Quality Management (TQM) in higher education. It is also attempted to see whether Heads of the departments and Faculty members differ in their perception about TQM.
Thus, the study is entitled as:

“LEADERSHIP BEHAVIOR OF HEADS OF THE DEPARTMENTS AND ORGANIZATIONAL COMMITMENT OF FACULTY MEMBERS IN THE UNIVERSITY OF MASHHAD (IRAN) IN RELATION TO THEIR PERCEPTION OF TOTAL QUALITY MANAGEMENT (TQM)”

3.2.1 Objectives of the Study

In the light of the context, need and importance of the study the following objectives have been formulated:

XII. To study the perception of Heads of the Departments and Faculty Members of Ferdowsi University of Mashhad (Iran) about TQM in higher education.

2- To study the differences in the perception of the following categories of Heads of the Departments of Ferdowsi University of Mashhad (Iran) about TQM in higher education.
   a. Male and female Heads
   b. Heads of different age groups
   c. Heads with different length of experience
   d. Heads of different Faculties (Humanities, Arts, Science, and Engineering)

3- To study the differences in the perception of the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran) about TQM in higher education.
a. Male and female Faculty Members
b. Faculty Members of different age groups
c. Faculty Members with different length of experience
d. Faculty Members of different Faculties (Humanities, Arts, Science, and Engineering)

4- To study the differences in the perception about TQM in higher education between Heads of Departments and Faculty Members of Ferdowsi University of Mashhad (Iran).

5- To study Leadership Behavior of Heads of the different Departments of Ferdowsi University of Mashhad (Iran)

6- To study the differences in the Leadership Behavior of following categories of Heads of the different Departments of Ferdowsi University of Mashhad (Iran)
   a. Male and female Heads
   a. Heads of different age groups
   b. Heads with different length of experience
   c. Heads of different Faculties (Humanities, Arts, Science, and Engineering)

7- To study Organizational Commitment of Faculty Members of Ferdowsi University of Mashhad (Iran)

8- To study the differences in the Organizational Commitment of the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran)
a. Male and female Faculty Members
b. Faculty Members of different age groups
c. Faculty Members with different length of experience
d. Faculty Members of different Faculties (Humanities, Arts, Science, and Engineering)

9- To study relationship between the perception of Heads of the Departments about TQM in higher education and their Leadership Behavior.
10- To study relationship between the perception of Faculty Members about TQM in higher education and their Organizational Commitment.

3.2.2 Hypotheses of the study

Following null hypotheses are formulated relating to the objectives No.: 2, 3, 4, 6, 7 and 8:

1. There is no significant difference between / among the following categories of Heads of the Departments of Ferdowsi University of Mashhad (Iran) in the perception about TQM in higher education.
   a. Male and female Heads
   b. Heads of different age groups
   c. Heads with different length of experience
   d. Heads of different Faculties (Humanities, Arts, Science, and Engineering)

2. There is no significant difference between / among the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran) in the perception about TQM in higher education.
a. Male and female Faculty Members  
b. Faculty Members of different age groups  
c. Faculty Members with different length of experience  
d. Faculty Members of different Faculties (Humanities, Arts, Science, and Engineering).

3. There is no significant difference between the Heads of the Departments and Faculty Members of Ferdowsi University of Mashhad (Iran) in their perception of TQM in higher education.

4. There is no significant difference between / among the following categories of Heads of the Departments of Ferdowsi University of Mashhad (Iran) in their Leadership Behavior.
   a. Male and female Heads  
   b. Heads of different age groups  
   c. Heads with different length of experience  
   d. Heads of different Faculties (Humanities, Arts, Science, and Engineering)  

5. There is no significant difference between / among the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran) in their Organizational Commitment.
   a. Male and female Faculty Members  
   b. Faculty Members of different age groups  
   c. Faculty Members with different length of experience
d. Faculty Members of different Faculties (Humanities, Arts, Science, and Engineering.

Following research hypotheses are formulated relating to the objectives No. 9 and 10.

6. There is significant relationship between the perception of Heads of the Departments about TQM in higher education and their Leadership Behavior.

7. There is significant relationship between the perception of Faculty Members about TQM in higher education and their Organizational Commitment.

3.2.3 Variables Considered in the Study

The variables considered in this study are as given below:

A. Main Variables

1. Perception about Total Quality Management (TQM) in higher education
2. Leadership Behavior of Heads of Departments
3. Organizational Commitment of Faculty Members

B. Background Variables (of Heads and Faculty Members)

1. Gender (Male and Female)
2. Age Groups (26-35, 36-45, 46-55, 56-65, 66-75 years)
3. Length of Experience (6-10, 11-15, 16-20, 21-25, 26-30 years)
4. Different Faculties (Humanities, Arts, Science, and Engineering)
3.3 OPERATIONAL DEFFINITION OF KEY TERMS

a) Perception about Total Quality Management in higher Education

In the present study the perception about TQM in higher education is represented by Bonstingle’s conceptualization of Demming’s 14 points Total Quality Management (TQM) in Education (1992). The following is a summary of their application of Dr. Deming’s fourteen points to higher education.

1. Constancy of purpose - Higher education institutions should have a solid mission and long-range plans that have been established through research. Cornesky et al (1992) believed this to be critical so as to allow each individual to have guidance in their personal development. This is also critical to avoid a situation whereby a faculty member with a passion for research is not hired by a college that places very little emphasis on research.

Constancy of purpose can be further delineated into three areas:

a. Planning: Planning refers to constantly thinking of the future while solving the problems that occur each day. Changing needs must be addressed but these changing needs must always be in step with the long-range plan. Although the planning of leadership rests with the administration, faculty involvement in planning is criteria because any planning involving faculty that takes place without their input will be met with great resistance. Similarly, every department affected by the plan should be involved in the development of that portion of the plan. The main point is that action must follow planning and no actions should be taken unless it is a part of the plan.
b. **Research**: Sound, comprehensive institutional research, made available to everyone, is a critical part of planning. The reason that research is crucial to planning deals with the fact that planning is based on assumptions of trends in society and research can serve to validate any assumptions made. For example, the development of new programs must be based on sound data to show the need for such programs.

c. **Innovation**: Innovation is required for any plan to be executed properly. Innovation is required in order to keep the college or university alive and vigorous. Higher education leaders must reward innovation at every level but must also understand that innovation cannot take place without resources. The goal of innovation should be educational improvement. Innovation is also required to improve academic quality because academic quality is not static and innovation is needed for academic quality to improve. However, academic quality cannot improve unless the budget is centralized at the department level to allow for innovation.

2. **Adopt a new philosophy** - A new way of thinking must be developed regarding continuous improvements in both people and processes that infiltrate the entire organization. This means employers should not have to deal with graduates who are not able to think critically and communicate effectively, students should not have to tolerate instructors of poor quality, and instructors should not have to tolerate inadequate teaching facilities or an ineffective administration. In addition, staff should be given clear guidance by the administration.
3. **Cease dependency on inspection** - Although testing is a necessary part of education, the use of tests as a measure to improve quality is not ideal. The finished product, the graduate, will improve with quality selection of students, quality advising and monitoring of students.

4. **Long-term relationships** - Long-term relationships should be designed with the suppliers of college (i.e., high schools and community colleges) so that the educational backgrounds of entering students are known, especially regarding the teaching styles and the learning styles that work best for students. In addition, universities should work with a single supplier for each category of item purchased. Doing so will allow each supplier to know the specifications needed to allow for consistency and speed of product. The bidding process used by most universities creates inconsistency and normally results with the lowest bidder receiving the order even though this supplier may not necessarily be the best supplier for that college or university.

5. **Improve constantly** - To meet the continuously changing needs of society, colleges and universities must develop new programs, review existing programs on a 5-year basis, and use a departmental curriculum committee and external advisory group. All of this should take place with the support of top administration. In addition, both administration and faculty should strive to offer classes so that maximum use of classroom space is utilized. This includes offering classes in the early morning, late at night, and at weekends.

6. **Institute on the job training** - Departments within colleges and universities tend to isolate themselves from each other. The deans may understand
the academic departments within their college but are often not aware of departments outside their area such as maintenance or security. Furthermore, faculty members often concern themselves with their particular area and a few other related areas such as advising and community services. In addition, most departmental budget requests are based on the maximum amount that can be obtained rather than the exact amount needed for each member of the department. A system of regular training for all university employees should be established for everything from the recruitment of students to the awarding of degrees. An example is the format in which the computerization of college campuses is done without much input from those who will be utilizing the new hardware and software, thus resulting in a great deal of resistance from the end user.

7. **Adopt and institute leadership** - Higher education institutions must make a firm commitment for each administrator to be a leader. This means the administrators should be involved in all of the various faculty functions such as research, community service and teaching. Doing so will allow administrators to have a better understanding of the various faculty functions. Successful colleges and universities have administrators and faculty who are able to communicate with one another to achieve the desired goals. Successful administrative leadership depends on having administrator’s understanding that care for students is imperative, continuous innovation and research are paramount, and employees committed to a common goal is necessary.

8. **Drive out fear** - Academic institutions should create a system of open communication in order to disperse information to all faculty and staff in an
effort to drive out fear. Administrators should attempt to eliminate fear by establishing trust. Administrators establish trust by being consistent in their actions, gain the respect of others through their service to others, and relate a desirable mission through constant communication throughout the university.

9. **Break down barriers between departments** - All employees must feel as though they are an important part of the success of the university. One fundamental way to break down barriers between departments is through fund raising. Fund raising will cause departments to work together toward a common goal.

10. **Eliminate slogans** - Slogans tend to show that management is not fully aware of the hurdles to workmanship. Although the short-term result of slogans increased productivity, without the proper administrative leadership, this new productivity and further quality improvements will fade away.

11. **Eliminate quotas** - Administration should not establish quotas even though public colleges and universities are required to provide higher education to as many students as possible. Decisions should not be made based on cost per student per credit hour. Importance should be placed on having satisfied students, parents and graduates.

12. **Abolish annual ratings** - Barriers to the pride of workmanship should be eliminated and a system for allowing good performance should be established. Establishing such a system can be done by preparing an annual Professional Work Plan Agreement in which each faculty member indicates the
courses to be taught, research activities to be performed, and services that will assist in enhancing the institution’s quality.

13. Education and self-improvement - Continuous improvement also applies to the area of educating one’s self. Deming stated that organizations not only need good people, but also require individuals that improve themselves with continuous education. Administration cannot delegate the responsibility of continuous education because they must demonstrate leadership by initiating a program of education for employees. Professional development committees may still be established but they should be used to follow up on the educational plan established by the administration. In addition, having a “Director for Human Potential Development” who reports directly to the president will prove to be very beneficial. Continuous education increases the individual’s worth to the university because those who stop learning will become stagnant.

14. Involve everyone in the transformation - The administration needs to explain the way in which the transformation will involve every member of the university community in every aspect of the university. Administration should also be careful to ensure that the new system is implemented in a prompt manner. In addition, everyone must be involved in the process of continuous improvement. Which is never ending, but continuous?

(b) Leadership Behavior

In this study Leadership Behavior is presented by the total scores obtained on Multifactor Leadership Behavior Questionnaire, constructed by Bass and Avolio (1995). This Leadership Behavior represents three different forms:
Transformational Leadership, Transactional Leadership and Laissez-faire Leadership.

*Transformational Leadership* refers to the process focused on developing subordinates' personal and professional growth. Transformational leaders seek to inspire, challenge, and motive subordinates through activities designed to develop natural and acquired skills and capabilities.

*Transactional Leadership* refers to the process focused on gaining compliance from subordinates through "work-for-reward" contracts with leaders. These contractual relations may be explicit or implicit. Leaders promising rewards in exchange for subordinates achieving performance goals define the transactional leadership.

*Laissez-faire leadership* is thought of as avoidance leadership. When leaders avoid taking responsibility, they fail to follow up on requests for assistance, and tend to be absent when required and resist expressing opinions on important issues.

(c) Organizational Commitment

In this study Organizational commitment is considered as defined by Allen & Meyer (1990). They have developed a three-component conceptualization of organizational commitment that has been labeled affective, continuance, and normative commitment. Affective, Continuance, and normative commitment are not considered to be separate types of commitment distributed among employees (Meyer & Allen, 1997). Organizational Commitment refers to "(a) strong belief in and acceptance of the organization's goals and values (b) a
willingness to exert considerable effort on behalf of the organization, and (c) a strong desire to maintain membership in the organization” (Mowday et al., 1982).

**Affective Commitment** refers to an employee’s emotional attachment to, identification with, and involvement in an organization. Employees with strong affective commitment expand their energy on the organization, because they want to do so.

**Continuance Commitment** is viewed as a tendency to engage in the organizational activities based on the individual's perceived costs or profit associated with continued participation or losses associated with leaving.

**Normative Commitment** refers to the belief that one is obligated to the organization after joining. Employees with strong normative commitment expand their energy on behalf of the organization, because they feel they should do so (Allen and Meyer; 1990).

**d) Higher Education in Iran**

It refers to education after 12 years of education at school level for qualifications such as Diploma in Higher Education, High Diploma degree (two years), and bachelor’s degrees (four years), Master's degree (two years) and PhD degree (five years) in different faculties like Science, Humanities, Education, and Engineering.
(e) **Heads of the departments**

It refers to the faculty members heading different departments like Mathematics, Biology, Education, etc., under each faculty - Humanities, Arts, Science, and Engineering - in the Ferdowsi University of Mashhad (Iran). The list of the departments is existence under each faculty is presented via Table No. 8.

(f) **Faculty Members**

It refers to the represent full-time permanent teachers in the university in different departments under each faculty - Science, Humanities, Education, and Engineering in the Ferdowsi University of Mashhad (Iran).

(g) **Length of Experience of Heads in the Departments**

In this present study length of experience of Heads means total number of years for which he/she worked as a head in the present organization.

(h) **Length of Experience of Faculty Members**

In this present study length of experience of faculty members means total number of years for which he/she worked as a faculty in the present organization.

3.4 **TOOLS USED FOR DATA COLLECTION**

Different tools used for data collection on different variables of the study are listed in table 1. The details of these tools are presented below.
Table 1: Tools used for data collection on different variables

<table>
<thead>
<tr>
<th>Variables Considered</th>
<th>Tools Used</th>
<th>Constructed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception about Total Quality Management (TQM) in higher education</td>
<td>Survey Instrument to measure Total Quality Management in Education (1992) (with 70 items) Appendix - III</td>
<td>Bonstingle based on his conceptualization of Demming’s 14 points of Total Quality Management(TQM) in Education</td>
</tr>
<tr>
<td>Organizational Commitment (OC)</td>
<td>Organizational Commitment Scale with (24 items) Appendix - V</td>
<td>(John P. Meyer &amp; Natalie J. Allen (1990); Persian version by the investigator (2008)</td>
</tr>
<tr>
<td>Demographic Factors(Gender, age, length of experience, different faculties)</td>
<td>Personal Data Sheet</td>
<td>Prepared in English and translated to Persian By the investigator</td>
</tr>
</tbody>
</table>
3.4.1 **Survey Instrument to measure Total Quality Management (TQM) in Education**

A survey instrument to measure Total Quality Management in Education revised by Bonstingle in 1992 is used in the present study to measure the perception about Total Quality Management in higher Education among Heads of the Departments and Faculty Members in the Ferdowsi University of Mashhad (Iran). This tool involves Bonstingle's conceptualization of Deming’s 14 of points Total Quality Management (TQM) in Education are consisted of totally 70 items with a spread of 5 items for each of these 14 components:

- Create a constancy of purpose for improvement of university/college and education,
- Adopt the new philosophy,
- Cease dependence of testing,
- End the practice of doing business on price tag alone,
- Improve constantly and forever the university/college system and education,
- Institute education and training,
- Institute leadership,
- Drive out fear,
- Break down barriers among staff areas and departments,
- Eliminate slogans, exhortations, and targets for the workforce,
- Eliminate numerical quotas,
- Remove barriers to pride and joy in all areas of university/college workmanship,
- Institute a vigorous program of education and retraining,
- Take action to accomplish the transformation in university/college.

Out of 70 items, 51 items are related and 19 are reversed.

- **Scoring of Survey Instrument to measure Total Quality Management (TQM) in Education**

Responses to each of the 70 items are rated using a four-point Likert scale with anchors labeled 3= (High applicable), 2= (Medium applicable), 1=
(Low applicable) 0= (Not applicable). Each item alternative is assigned a weightage ranging from 3= High applicable to 0= Not applicable in case of the related items, from 3= Not applicable to 0= High applicable in case of the reversed items. The total score on Total Quality Management instrument would be the sum total of possible range of scores, on all the items under all the fourteen components (maximum 210 points and minimum 0 point).

The details of the No. of items and possible ranges of scores for whole instrument and for each component of Total Quality Management in Education for rated items as well as reversed items are presented in the Table 2.
Table 2: Details of the items and possible range of the score on TQM in Education Instrument

<table>
<thead>
<tr>
<th>Components of TQM in Education Instrument</th>
<th>No. of Items</th>
<th>Related items Numbers</th>
<th>Reversed Items</th>
<th>Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Quality Management</td>
<td>70</td>
<td>51</td>
<td>19</td>
<td>0-210</td>
</tr>
<tr>
<td>1- Constancy of purpose</td>
<td>5</td>
<td>1,16,33,48,69</td>
<td>-</td>
<td>0-15</td>
</tr>
<tr>
<td>2- Adopt a new philosophy</td>
<td>5</td>
<td>7,67,18,29,59</td>
<td>-</td>
<td>0-15</td>
</tr>
<tr>
<td>3- Cease dependency on inspection</td>
<td>5</td>
<td>3,36,62</td>
<td>21,47</td>
<td>0-15</td>
</tr>
<tr>
<td>4- Long-term relationships</td>
<td>5</td>
<td>2,14,45</td>
<td>60,68</td>
<td>0-15</td>
</tr>
<tr>
<td>5- Improve constantly</td>
<td>5</td>
<td>8,23,31,51,61</td>
<td>-</td>
<td>0-15</td>
</tr>
<tr>
<td>6- Institute on the job training</td>
<td>5</td>
<td>37,41,58,64</td>
<td>22</td>
<td>0-15</td>
</tr>
<tr>
<td>7- Institute leadership</td>
<td>5</td>
<td>12,19,30,43</td>
<td>70</td>
<td>0-15</td>
</tr>
<tr>
<td>8- Drive out fear</td>
<td>5</td>
<td>9,35</td>
<td>15,53,65</td>
<td>0-15</td>
</tr>
<tr>
<td>9- Break down barriers between departments</td>
<td>5</td>
<td>24,40</td>
<td>5,28,54</td>
<td>0-15</td>
</tr>
<tr>
<td>10- Eliminate slogans</td>
<td>5</td>
<td>57</td>
<td>11,17,32,44</td>
<td>0-15</td>
</tr>
<tr>
<td>11- Eliminate quotas</td>
<td>5</td>
<td>10,39,42,50</td>
<td>63</td>
<td>0-15</td>
</tr>
<tr>
<td>12- Abolish annual ratings</td>
<td>5</td>
<td>4,25,38,45,55</td>
<td>-</td>
<td>0-15</td>
</tr>
<tr>
<td>13- Education and self-improvement</td>
<td>5</td>
<td>6,26,49,56</td>
<td>27</td>
<td>0-15</td>
</tr>
<tr>
<td>14- Involve everyone in the transformation</td>
<td>5</td>
<td>13,34,52,66</td>
<td>20</td>
<td>0-15</td>
</tr>
</tbody>
</table>

• Persian Version of Total Quality Management in Education Instrument

The Total Quality Management Instrument originally in English (Appendix III) was translated by the investigator to the Persian Language
(Appendix IX). This translated version was reviewed by the other experts, who knew both the languages English and Persian, to check the validity of the scale after translation. Then this version was tested with a sample of 70 faculty members from Ferdowsi University of Mashhad (Iran), who are not considered for the sample of the study in order to establish conceptual/linguistic/functional equivalence which ensured the validity of the scale.

The reliability of the scale for both English and Persian versions was established with cronbach alpha coefficient method and is found to be 0.74 and 0.72 respectively. Table 3.3 shows the reliability coefficient for each version of TQM instrument in this study.

Table 3: Reliability Coefficient for different versions of TQM Instrument

<table>
<thead>
<tr>
<th>Instrument</th>
<th>English Version</th>
<th>Persian Version</th>
<th>Original Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Quality Management in Education</td>
<td>0.74</td>
<td>0.72</td>
<td>0.78</td>
</tr>
</tbody>
</table>

3.4.2 **Multifactor Leadership Behavior Questionnaire- Form (MLQ5X)**

Reliable and valid instrument ‘Multifactor Leadership Behavior Questionnaire’ (MLQ) constructed by Bass and Avolio in 1995 is used to measure the Leadership Behavior of Heads of the Departments in Ferdowsi University of Mashhad (Iran). The Multifactor Leadership Behavior theory developed by Bass encompasses 3 types of leadership behavior Transactional Leadership Behavior, Transformational Leadership Behavior, and Laissez-faire Leadership Behavior.
Bass (1990) referred to ‘Transactional Leadership’ as an exchange relationship between leader and follower, ‘Transformational Leadership’ as the leader moving the follower beyond immediate self-interest for the sake of the organization of team. Bass describes the ‘laissez faire leader’ as an extremely passive leader who is reluctant to influence subordinates, make decisions or give direction. This scale consisted of totally 45 items spread over three components- 12 items under Transformational component, 12 items under Transactional component and 13 items under laissez faire component.

The MLQ5X was developed in response to substantive criticisms of MLQ5R survey constructed by Bass in 1985. MLQ5X items were pooled from several sources:

- Bass (1990) completed a series of factors analyses with the MLQ5R, which provided a base for selecting items that exhibited the best convergent and discriminate validities.

- Made use of Howell and Avolio’s (1993) preliminary results with an earlier version of MLQ5X using Partial Least Squares (PLS) analysis, to select items for inclusion in MLQ5X.

- Six scholars in the field of leadership reviewed earlier version of the MLQ5X and made recommendations for modifying and /or eliminating items based on the conceptual model of the range of leadership (Avolio & Bass, 1991). They judged whether items referred to behavior or impact, guided by the full range of Leadership Behaviors and styles. These recommendations were included in the final developed phase of the MLQ5X.
Scoring of Multifactor Leadership Behavior Questionnaire

Responses to each of the 45 items are rated using a four-point Likert scale with anchors labeled 0= (Not at all), 1= (Once in a while), 2= (Sometimes), 3= (Fairly Often), 4= (Frequently, if not Always). Each item alternative is assigned a weightage ranging from 0= (Not at all) to 4= (Frequently, if not Always). The total score on Leadership Behavior questionnaire would be the sum total of possible scores on all the three components (Maximum 180 points and minimum 0 point).

The details of the no. of items and possible range of scores for each component of Leadership Behavior and for total questionnaire are presented in the Table 4.

Table 4: Details of the items and possible range of the score on Multifactor Leadership Behavior Questionnaire (MLQ5X)

<table>
<thead>
<tr>
<th>Components of Leadership Behavior</th>
<th>Number of Items</th>
<th>Item Numbers</th>
<th>Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational Leadership Behavior</td>
<td>20</td>
<td>2,6,8,9,10,13,14,15,18,19,21,23,25,26,29,30,31,32,34,36</td>
<td>0-80</td>
</tr>
<tr>
<td>Transactional Leadership Behavior</td>
<td>12</td>
<td>1,3,4,11,12,16,17,20,22,24,27,35</td>
<td>0-48</td>
</tr>
<tr>
<td>Laissez faire Leadership Behavior</td>
<td>13</td>
<td>5,7,28,33,37,38,39,40,41,42,43,44,45</td>
<td>0-52</td>
</tr>
<tr>
<td>Total Multifactor Leadership Behavior</td>
<td>45</td>
<td>All the items in the Questionnaire</td>
<td>0-180</td>
</tr>
</tbody>
</table>
• **Persian Version of Multifactor Leadership Behavior Questionnaire**

The Leadership Behavior Questionnaire originally is English (Appendix IV), was translated by the investigator to the Persian Language (Appendix X) for Iranian sample. This translated version was reviewed by other experts, who knew English and Persian Languages to check for the validity of the scale after translation. Then this version was tested with a sample of 30 Heads of departments from Ferdowsi University of Mashhad (FUM), who are not considered for the sample of the study in order to establish conceptual/linguistic/functional equivalence which ensured the validity of the scale. The reliability of the questionnaire for both was established with cronbach alpha coefficient method that is 0.75 for Persian version. Table 5 shows reliability coefficients for each component and Total Leadership Behavior Questionnaire.

Table 5: Reliability Coefficient for different Versions of Multifactor Leadership Behavior Questionnaire

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>English Version</th>
<th>Persian Version</th>
<th>Original Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Behavior Questionnaire</td>
<td>0.78</td>
<td>0.75</td>
<td>0.74 to 0.94</td>
</tr>
</tbody>
</table>

34.3. **Organizational Commitment Scale (OCS)**

Organizational Commitment Scale revised by Meyer and Allen in 1990 is used in the present study to measure the Organizational Commitment of faculty members in Ferdowsi University of Mashhad (Iran). Meyer and Allen (1984) originally constructed this questionnaire proposing distinctions between only two types of commitment: Affective Commitment and Continuance. Affective Commitment denoted a sense of belongingness and emotional attachment to the
organization, whereas, Continuance Commitment emphasized the perceived costs of leaving the organization. Subsequently Allen and Meyer in 1990 introduced a third component of commitment i.e. Normative Commitment, which reflected the perceived obligation to remain with the organization. Later, Meyer, Allen and Smith in 1993 revised the Normative Commitment scale to clarify the distinction between Affective Commitment and Normative Commitment.

Organizational Commitment scale by Meyer and Allen 1990 revision consisted of totally 24 items with a spread of 8 items on each of these components- Affective Commitment, Continuance Commitment and Normative Commitment, constituting three respective sub-scales. Out of 24 items, 17 items are related and 7 are reversed. The main purpose of the study is to study the multidimensional aspects of an individual’s commitment to an organization.

- **Scoring of Organizational Commitment Scale**

  Responses to each of the 24 items are rated using a four-point Likert scale with anchors labeled 1= (Strongly Disagree), 2= (Disagree), 3= (Neither Disagree nor Agree), 4= (Agree), 5= (Strongly Agree). Each items alternative is assigned a weightage ranging from 5= (Strongly Agree) to 1= (Strongly Disagree) in case of the related items, from 1= (Strongly Agree) to 5= (Strongly Disagree) in case of the reversed items. The total score on Organizational Commitment would be the sum total of possible scores on all the three components (Maximum 120 points and minimum 24 points).
The details of the no. of items and possible range of scores for the total scale and for each component of Organizational Commitment scale are presented in the Table 6.

Table 6: Details of the items and possible range of the score on Organizational Commitment Scale (OCS)

<table>
<thead>
<tr>
<th>Components of Organizational Commitment</th>
<th>No. of Items</th>
<th>Related items numbers</th>
<th>Reversed Items No.</th>
<th>Range of Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective Commitment</td>
<td>8</td>
<td>1,2,3,7, (4)</td>
<td>4,5,6,8 (4)</td>
<td>8-40</td>
</tr>
<tr>
<td>Continuance Commitment</td>
<td>8</td>
<td>9,10,11,13,14,15,16, (7)</td>
<td>12, (1)</td>
<td>8-40</td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>8</td>
<td>17,20,21,22,23, (5)</td>
<td>18,19,24 (3)</td>
<td>8-40</td>
</tr>
<tr>
<td>Total Organization Commitment</td>
<td>24</td>
<td>1,2,3,7,9,10,11,13, 14,15,16, 17,20,21,22,23, (16)</td>
<td>4,5,6,8,12, 18,19,24 (8)</td>
<td>24-120</td>
</tr>
</tbody>
</table>

* Persian Version of Organizational Commitment Scale *

The Organizational Commitment Scale originally in English (Appendix V) was translated by the investigator to the Persian language (Appendix XI) for Iranian sample. This translated version was reviewed by other experts, who know both English and Persian languages to check the validity of the scale after translation. Then this version was tested with a sample of 70 faculty members from Ferdowsi University of Mashhad (FUM), who are not considered for the sample of the study in order to establish conceptual/linguistic/functional
equivalence which ensured the validity of the scale. The coefficient of reliabilities for original Affective Commitment, Continuance Commitment, Normative Commitment, and Total Organizational Commitment Scales, were found to be are 0.85, 0.79, 0.73 and 0.82 respectively (Allen & Meyer, 1996).

The reliability of the scale was established with cronbach alpha coefficient method and it was 0.82 for Persian version of Organizational Commitment Scale. Table 7 shows the reliability coefficient for each version of Organizational Commitment Scale, respectively in this study.

Table 7: Reliability Coefficient for different Versions of Organizational Commitment Scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>English Version</th>
<th>Persian Version</th>
<th>Original Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Commitment</td>
<td>0.77</td>
<td>0.82</td>
<td>0.73 to 0.85</td>
</tr>
<tr>
<td>Commitment Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.4.4. Data Sheet

For collecting the background data of heads of the departments and faculty members personal data sheet was constructed by the investigator. This data sheet included some details like, age, gender, length of experience, and different faculties in Ferdowsi University of Mashhad.

3.5 SAMPLE OF THE STUDY

The sample of the study was drawn by two stage-sampling:

A. Selection of Heads of the Departments

B. Selection of Faculty Members
A. Selection of Heads of the Departments

The locale of the study is Ferdowsi University of Mashhad in (Iran) and is consisted of totally 49 Departments under four faculties – Humanities, Arts, Science, Engineering- Heads (male and female) of all the 49 departments are considered as sample for the study. As the investigator could get back the filled in research tools from of 33 Heads, the total sample of the study finally consisted only 33 Heads from respective departments under Humanities, Arts, Science, and Engineering faculties. The details are given via Table No.8.

B. Selection of Faculty Members

All the Faculty Members available in all the departments selected for the study are considered for the sample of the study. This consisted of 650 Faculty Members from 49 departments under four faculties – Humanities, Arts, Science, and Engineering in the Ferdowsi University of Mashhad (Iran). The investigator could receive all the three research tools from 305 faculty members only and after rejecting a few research tools due to incompleteness and multiple responses which were not required, the total sample for the study turned out to be 305 Faculty Members from 33 departments in four faculties- Humanities, Arts, Science, and Engineering. The details of distribution of the sample are given below in Table 8.
Table 8: Description of sample of Heads of Departments and Faculty Members selected for the study in Ferdowsi University of Mashhad (Iran).

<table>
<thead>
<tr>
<th>Name of University and Departments</th>
<th>Heads of the Departments</th>
<th>Faculty Members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Ferdowsi University of Mashhad</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Humanities (1-Persian Language, 2-English Language, 3- French Language, 4- Arabic Language, 5- History, 6- Geography, 7- Social Work, 8- Linguistic, 9- Educational Management, 10- Psychology, 11- Education, 12- Library Science)</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Arts ((1) Economics, 2- Political Science, 3- Commerce, 4- Low, 5- Industrial Management, 6- Business Management)</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Science ((1) Mathematics, 2- Chemistry, 3- Physics, 4- Geology, 5- Biology, 6- Statistics, 7- Environmental Science)</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Engineering (1- Computer Engineering, 2- Electronic Engineering, 3- Chemical Engineering, 4- Civil Engineering, 5- Gardening Engineering, 6- Food Science, 7- Animal Husbandry, and 8- Mechanical Engineering)</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

3.6 DESIGN AND PROCEDURE

The present study involves descriptive research with a survey method.

The data was collected from the sample described above using the tools considered for the study. The investigator contacted both the Heads and Faculty
Members of the departments in Ferdowsi University of Mashhad, explained the purpose of the study and instructed as how to respond to the tools survey instrument to measure Total Quality Management in Education (TQM), Multifactor Leadership Behavior Questionnaire (MLQ), and Organizational Commitment Scale (OC). Further clarifications were offered on the questions raised by them. After collection of the data, incomplete and not required questionnaires were rejected and all the remaining questionnaires (duely filled in) were scored as per respective scoring keys and the data was subjected to statistical analysis using appropriate statistical techniques.

3.7 STATISTICAL TECHNIQUES EMPLOYED FOR ANALYSIS OF THE DATA

The details of the statistical techniques employed for analyzing the data collected in the present study are given below in the Table 9.

The data collected was analyzed using the following statistical techniques:

1. Descriptive statistics like mean and standard deviation to analyze the data for the descriptive part of the study.

2. Analysis of Variance (ANOVA) One way, Independent –sample t-test, and Scheffe’s HSD (Honesty significant difference) test and Pearson correlation coefficient were used to test the hypotheses of the study.
Table 9: Details of the Statistical techniques employed for analysis of the data

<table>
<thead>
<tr>
<th>Data analyzed</th>
<th>Statistics used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Descriptive Statistics</td>
<td></td>
</tr>
<tr>
<td>Perception about Total Quality Management in Education, type of Leadership Behavior and type of Organizational Commitment</td>
<td>Means and S.D</td>
</tr>
<tr>
<td>2. Hypotheses testing</td>
<td></td>
</tr>
<tr>
<td><strong>H1:</strong> There is no significant difference between / among the following categories of Heads of the Departments of Ferdowsi University of Mashhad (Iran) in the perception about TQM in higher education.</td>
<td></td>
</tr>
<tr>
<td>H1a- Male and female Heads</td>
<td>t-test</td>
</tr>
<tr>
<td>H1b- Heads of different age groups</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td>H1c- Heads with different length of experience</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td>H1d- Heads of different Faculties (Humanities, Arts, Science, Engineering)</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td><strong>H2:</strong> There is no significant difference between / among the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran) in the perception about TQM in higher education.</td>
<td></td>
</tr>
<tr>
<td>H2a- Male and female Faculty Members</td>
<td>t-test</td>
</tr>
<tr>
<td>H2b- Faculty Members of different age groups</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td>H2c- Faculty Members with different length of experience</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td>H2d- Faculty Members of different Faculties (Humanities, Arts, Science, Engineering)</td>
<td>ANOVA- One way</td>
</tr>
<tr>
<td><strong>H3:</strong> There is no significant difference between the Heads of the Departments and Faculty Members of Ferdowsi University of Mashhad (Iran) in their perception of TQM in higher education</td>
<td>t-test</td>
</tr>
</tbody>
</table>
**H4:** There is no significant difference between / among the following categories of Heads of the Departments of Ferdowsi University of Mashhad (Iran) in their Leadership Behavior

- **H4a:** Male and female Heads
- **H4b:** Heads of different age groups
- **H4c:** Heads with length of experience
- **H4d:** Heads of different Faculties (Humanities, Arts, Science, Engineering)

**H5:** There is no significant difference between / among the following categories of Faculty Members of Ferdowsi University of Mashhad (Iran) in their Organizational Commitment

- **H5a:** Male and female Faculty Members
- **H5b:** Faculty Members of different age groups
- **H5c:** Faculty Members with different length of experience
- **H5d:** Faculty Members of different Faculties (Humanities, Arts, Science, Engineering)

**H6:** There is significant relationship between the perception of Heads of the Departments about TQM in higher education and their Leadership Behavior

**H7:** There is significant relationship between the perception of Faculty Members about TQM in higher education and their Organizational Commitment.

Brief descriptions of the above statistical techniques are given below:
3.7.1 **Independent sample t-test**

The independent samples t-test is employed to compare the means of the two groups, to which the subjects are assigned randomly and find out whether the difference found between the means (groups) is significant or not. The model underlying a t-test assumes that the data have been derived from normal distribution with equal variance. Computer simulations, however, have shown that even with moderate violations of these assumptions, one may still safely proceed with a t-test, provided the samples are not too small, do not contain outliers and are of equal (or nearly equal) size.

As such, in the present investigation t-test was applied to find out the difference between the means of two groups categorized on the basis of Heads of the Departments and Faculty members, gender (female and male) in different variables selected for the study i.e. Total Quality Management in higher education, Leadership Behavior and Organizational Commitment.

3.7.2 **ANOVA-One Way**

The ANOVA-one way procedure implies a one-way analysis of variance for a quantitative dependent variable by a single independents variable. Analysis of variance is used to test the hypothesis that several means are equal; to compare more than two means (three or more) at a time. This technique is an extension of the independent sample t-test. In addition to determining whether the differences among the means are significant or not; it is also enable one to know which the means that differ are. In the present study, ANOVA (one way) was employed to find out the differences among different groups of Heads of the Departments or
Faculty Members with different age groups, different length of experience and different faculties (Humanities, Arts, Science, and Engineering) in different variables selected for the study i.e. Total Quality Management in education, Leadership Behavior and Organizational Commitment, which demanded the comparison of more than two means.

3.7.3 **Scheffe’s HSD (Honestly significant difference) test**

Once it is determined that differences exist among the means, post hoc range tests can determined which means differ. Range tests identify homogeneous subsets of means that are not different from each other. Scheffe’s Multiple Range Test is one of the widely used post hoc tests for different means whenever ‘F’ value is significant. This test is also employed in the present study whenever F value is found to be significant.

3.7.4 **Pearson Correlation Coefficient**

Pearson correlation coefficient indicates the relationship between any two variables; the coefficient can be calculated using different methods. To find out relationship between Total Quality Management in higher education and Leadership Behavior of Heads of the departments, and also Total Quality Management in higher education and Organizational Commitment of Faculty Members Pearson Correlation Coefficient was used in the present study. The details of the analyses and findings of the study are presented in the next chapter.