CHAPTER 4

CONSTRUCTION AND STANDARDIZATION OF TOOLS

4.0 INTRODUCTION

The present chapter provides details about the construction and standardization of tools used for the present research investigation. Tools play a vital role in any research endeavor without which research work would be incomplete. Tool is the only important factor required for proper data collection which leads to appropriate measuring technique and thus help in arriving at perfect conclusion.

In the present research study, the investigator has used two tools for gathering data from secondary school teachers serving in grant in aid schools:

1. Tool to measure Professional Commitment
2. Tool to measure Job Satisfaction

Both the above tools were constructed and standardized by the investigator for the purpose of the research study.

4.1 TOOL TO MEASURE PROFESSIONAL COMMITMENT

The tool to measure professional commitment of teachers was constructed and standardized by the investigator. Professional commitment is a psychological concept where an individual has a psychological link with the profession. Its manifestation cannot be judged by direct questioning but can be judged only through observation. These feelings related to commitment to a profession cannot be expressed or evaluated directly as these are mixed feelings and cannot be understood immediately. In such cases, introspection is necessary for evaluating these feelings which may be positive or negative. Such introspective methods of evaluation demand more objectivity and insight which may not be possible in all the cases. Similarly direct observation is also not possible in case of large size of sample. The most convenient and widely used technique for measuring such psychological aspects, as the one in the present study, where the investigator wants to measure professional commitment of teachers with respect to various variables is to construct a scale.

4.2 PROFESSIONAL COMMITMENT SCALE

The Professional Commitment Scale consists of a number of statements that have been carefully prepared by the investigator based on certain components/ criteria. An individual responds to these statements by indicating his / her agreement or dis agreement with which he / she agrees. There are basically two major types of scaling techniques :

- Thurstone's method of scale construction
- Likert's method of scale construction

The tool to measure Professional Commitment was constructed following "The method of Summative Rating" given by Likert (1932) i.e Likert's Method of scale construction was used by the investigator for the present study. This is because of the following reasons:

- Primarily, it has been claimed by Likert (1932) that the method of summated ratings in his survey of attitudes of employed and unemployed men was adopted because of its *relative simplicity.* It is also believed that this method was *less laborious* than that developed by Thurstone.
- Secondarily, it is *less time consuming* as was given by Edward & Kenney (1946). It can be concluded that comparative study of the method of equal appearing intervals and the method of summated ratings that the estimated time required to construct equal appearing interval scale was approximately twice that required by the method of summated ratings.
- Scale Constructed by the Likert Method gives *higher reliability coefficient* with fewer items than scales constructed by the Thurstone Method. This was finding of Hall (1934) and Seiler & Hough (1970).
- The summated score, for any individual, arrived at the end was accepted as being composed of various components.

Few changes from the Likert Method were further made according to the requirement of the present research study. In the Likert's Method all the statements pertained to single component; but in the present study the professional commitment scale was not made of single component. But all the statements were distributed among more than one component depending on the nature of the statement. As professional commitment is multi dimensional , it has more than one component.

4.2.1 CONSTRUCTION OF PROFESSIONAL COMMITMENT SCALE

In the present study, the investigator constructed the Professional Commitment Scale by "the Method of Summated Ratings" given by Likert (1932). The detailed process of construction and standardization of Tool to measure professional commitment is given below:

4.2.1.1 IDENTIFICATION OF COMPONENTS OF PROFESSIONAL COMMITMENT SCALE

From the review of related literature discussed in chapter two, the investigator could find that most of the studies on professional commitment were conducted abroad. Also attempts to construct tools for professional commitment were also chiefly done by researchers abroad. These tools were made for professions other than teaching. Also many studies conducted were on organizational commitment rather than professional commitment. Similarly, attempts were made to construct and standardize tool for professional commitment by **Allen & Meyer (1993),** Organizational Commitment Questionnaire – OCQ by **Mowday & Steers (1979), Cross well (2006)** and **Chan (2006).** These researchers could conclude that commitment is a behavioral attribute.

On these lines, very few studies were conducted in India. These were limited to **Patel (2008), Kohli Kanchan (1996)**, **Khushwinder (2013)** and **Rana (1981).** In most of the Indian and foreign studies these professional and organizational commitment scales were used. It was found that great deal of studies were conducted in Industrial sector and very few were in educational sectors.

From the above studies the investigator could find following components of commitment:

- **Allen & Meyer (1993)** viewed commitment in form of 3 – component model. The following are components of commitment-
    a) **Affective commitment:** Employees have attachment to, identification with and involvement in the organization.
    b) **Continuance commitment:** Employees have awareness of the costs associated with leaving the organization.

c) **Normative commitment:** Employees have a feeling of obligation to continue employment.

- **Mowday & Steers (1979)** viewed commitment in form of following components –

  a) A strong belief in and acceptance of organization's goal and values.

  b) A willingness to exert extra effort for the organization.

  c) A strong desire to maintain membership with the organization.

- **Chan (2006)** viewed commitment in form of the following components –

  a) Teaching as a career choice.

  b) Students' learning and school development.

  c) Teacher – pupil interaction and attitudes.

  d) Demands on teaching and school practices.

- **Crosswell (2006)** viewed commitment in form of the following components-

  a) Teacher commitment as passion

  b) Teacher commitment as an investment of time outside the contact hours of students.

  c) Teacher commitment as a focus on individual needs of students

  d) Teacher commitment as a responsibility to impart knowledge, attitudes, values and beliefs.

  e) Teacher commitment as maintaining professional knowledge.

  f) Teacher commitment as an engagement with school community.

- **Firestone and Rosenblum (1988)** identified the following components of commitment:

  a) Teachers' commitment to their work

  b) Teachers' commitment to their school

  c) Teachers' commitment to their students.

- **Billingsley (1993)** suggested the components of commitment as:

a) Commitment to school

b) Commitment to district

c) Commitment to teaching field

d) Commitment to teaching profession.

- **Tyree (1996)** in a study of primary school teachers reported four components of commitment:

  a) Commitment as caring

  b) Commitment as occupational competence

  c) Commitment as identity

  d) Commitment as career-continuance.

- **Ross and Gray (2006)** in their research identified three dimensions.

  a) Commitment to school mission

  b) Commitment to school-community partnerships

  c) Commitment to school as a learning community.

- **Maheshwari (2005)** in her research on professional commitment of teachers identified six components:

  a) Commitment to learner

  b) Commitment to society

  c) Commitment to institution

  d) Commitment to work

  e) Commitment to achieving excellence

  f) Commitment to human values.

- **Dave (1999)** gave five components of commitment:

  a) Commitment to the learner

  b) Commitment to the society

  c) Commitment to the profession

  d) Commitment to achieve excellence for professional actions

  e) Commitment to basic human values

When the investigator reviewed the literature and tried to identify components for professional commitment, it was observed that all the studies had their own set of components. There was not a single set of or standardized components upon which all the research studies were based. All the research studies have tried to ensure comprehensibility and operationalised own set of components based on the study.

So after exploring all these studies the investigator had concluded that in the present study on Professional commitment of secondary school teachers of Vadodara district the below mentioned components would be the base for framing further statements. The reason for selection of these components presented by **Dave (1999)** is that these components are more comprehensive and include all the components that lead to professional commitment. These components are also recommended by National Curriculum for Teacher Education (2005) for inclusion in curriculum of teacher education. Also, these components are suitable for Indian settings in schools and focus on all important aspects like learner, society, profession, excellence in actions and human values. These components are given below:

1. **Commitment to the Learner**- This component will focus on
    - love for learner
    - readiness to help learner
    - concern for all round development of learner
2. **Commitment to the Society**-This component will focus on
    - awareness and concern on the impact of teachers' work on the degree of advancement of families, communities and Nation as a whole.
3. **Commitment to the Profession**- This component will focus on
    - internal acceptance of the role and responsibility of the teacher's profession no matter under what circumstances one has entered into it.
4. **Commitment to Achieve Excellence for professional Actions** - This component will focus on
    - care and concern shown by the teacher for doing everything in the society and in the community in the best possible manner
    - the do-it well attitude (whatever is done, is done well)

5. **Commitment to the Basic Human Values**- This component will focus on

- genuine practice of professional values such as impartiality, objectivity intellectual honesty, national loyalty with consistency. (Role model)

Dave (1999) argued that commitment plays a decisive role in effective teacher education also. Thus, well trained and effective teachers are those who are both competent and committed professional practitioners. Hence, the task of fostering professional commitment among the teachers must become an integral part of pre – service and in – service teacher education. Also National Council for Teacher Education – NCTE has emphasized the need for quality teachers and have identified these above mentioned commitment components. So the investigator has also identified these components as important for developing professional commitment among teachers.

From various studies it is perceived that, many statements overlap each other it may not be always possible to categorize particular statement in a particular component. In this way initial tool with these five components and sixty three statements was constructed by the investigator. This tool was sent to various experts in the field of education. The statements were judged by the experts based on appropriateness with respect to component and tool, relevance with respect to component and tool and usability of tool in Indian settings and for teachers in schools. Also the statements were checked with respect to grammatical errors. Based on the suggestions provided by the experts, few changes were made and at last a final tool was made which comprised of five components and fifty statements. List of experts is attached in Appendices – Appendix No. IV. Suggestions given by the experts are included in below given table, Table No. 4.1.

TABLE : 4.1

SUGGESTIONS RECEIVED FROM EXPERTS FOR PROFESSIONAL COMMITMENT SCALE

EXPERT NO.	SUGGESTIONS PROVIDED
01	➢ Include Questions related to contemporary teaching practices like Semester system and its effectiveness, Role of teacher in Semester system.
02	➢ Reframe Questions no. 1,5,6,10,29,54. ➢ Suggested to make bilingual tool for both English and Gujarati Medium Teachers.
03	➢ Rearrange Questions so as to maintain continuity. ➢ Suggested one questionnaire for teachers of both the mediums.
04	➢ Did not give any major suggestions.
05	➢ Appreciated the components by questioned commitment to society. ➢ Reframe Questions no. 2,5,54. ➢ Remove few questions that were repeated.
06	➢ Reduce the size of tool so that teachers are interested to fill it.
07	➢ Suggested that the number of statement in each component is adequate and there is a consistency in all the statements included. ➢ Rearrange the statements in each component.
08	➢ Reduce the size of the tool by deleting a few questions. ➢ Suggested that number of positive and negative statements need not be same.
09	➢ Appreciated the components in professional commitment tool. ➢ Include questions related to leadership of Principal and school climate.

EXPERT NO.	SUGGESTIONS PROVIDED
10	➢ Appreciated the situational tool made for job satisfaction tool. ➢ Advised to delete question no. 4 ➢ Include few questions related to teachers' personal situations and its effect on professional commitment and job satisfaction.
11	➢ Advised to include few questions related to use of facilities in school by the teacher like library, computer laboratory. ➢ Grammatical corrections in the tool.
12	➢ Advised to include questions related to use of free time by the teachers, management of time by teachers especially focusing on completion of syllabus.

4.2.1.2 FORMAT AND NATURE OF STATEMENTS

As discussed earlier, professional commitment being a psychological concept can be observed in the behavior of individuals. Observation technique cannot be used every time due to some practical limitations as in the present study, which is a survey, it would not be possible for the investigator to observe all the teachers included in the sample. So there was a need to develop a measuring scale that demanded response in written form. So statements were made in written form that described a situation in hypothetical manner. The teachers (respondents) were asked to react to these hypothetical situations in written form. All the items were in form of statements with five options namely, very often, often, sometimes, rarely and never. There were statements of positive polarity to measure foreness and negative polarity statements to measure againstness of professional commitment.

4.2.1.3 DEVELOPMENT AND SELECTION OF STATEMENTS

All the statements were developed in the word form. There were group of statements in each component. Each component described a particular behavior. **Wang (1932), Thurstone and Chave (1929), Likert (1932), Bird (1940)** and **Edwards & Kilpatrick (1948)** provided following suggestions to be kept in mind for forming the statements:

1. Avoid statements that refer to the past rather than the present.
2. Avoid statements that are factual or capable of being interpreted as factual.
3. Avoid statements that may be interpreted in more than one way.
4. Avoid statements that are irrelevant to the psychological object under consideration.
5. Avoid statements that are likely to be endorsed by almost everyone or by almost no one.
6. Select statements that are believed to cover the entire range of the affective scale of interest.
7. The language of the statements should be clear, simple and direct.
8. Statements should be short, rarely exceeding twenty words.
9. Each statement should contain one complete thought.
10. Statement containing universals such as all, always, none and never often introduce ambiguity and should be avoided.
11. Words such as only, just, merely and others of similar nature should be used with care and moderation in writing statements.
12. Whenever possible, statements should be in the form of simple sentences rather than in the form of compound or complex sentences.
13. Avoid the use of words that may not be understood by those who are to be given the completed scale.
14. Avoid use of double negatives.

An initial pool of sixty three statements was prepared by the investigator by taking help of review of literature and suggestions from experts. These statements were then scrutinized and examined with respect to each component. Also statements were studied grammatically and it was verified that the statements represented appropriate behavior. Also, care was taken while framing the statements that they do not suggest to the respondents to choose for a particular option. Through this procedure a total of fifty statements were finalized and distributed across the components. In this way try out form / pilot study was conducted with sixty three statements. The distribution of statements with respect to components and the polarity is given below:

TABLE : 4.2

DISTRIBUTION OF STATEMENTS OF PROFESSIONAL COMMITMENT SCALE

ON THE TRY OUT FORM (FOR PILOT STUDY)

COMPONENTS	NUMBER OF STATEMENTS		TOTAL NUMBER OF STATEMENTS
	POSITIVE POLARITY	NEGATIVE POLARITY	
Commitment to the Learner	10	02	**12**
Commitment to the Society	09	03	**12**
Commitment to the Profession	11	02	**13**
Commitment to achieve Excellence in Professional Actions	10	03	**13**
Commitment to the Basic Human Values	09	04	**13**
Total	**49**	**14**	**63**

Further the suitability and correctness of the language of the statements was judged by language experts whose advice was also sought for these sixty three statements. Initially pilot study was conducted to know whether the tool constructed was proper or not in terms of its use, language and technique of analysis. The pilot study was conducted on 105 teachers serving in grant in aid schools of Vadodara District in Gujarati and English medium. The tool was constructed in both the languages – Gujarati and English. So help from language expert who was well versed with both the languages was taken.

The statements were assigned numbers one to sixty three. The numbers were randomly assigned to constitute the scale by following randomization with respect to the statement number. Randomization is essential for arrangement of statements in a scale as it would eliminate patterned responses which might result if all the statements belonging to particular component concentrated at one part of the scale.

The arrangement of statements in the Professional Commitment Scale constructed by the investigator along with components and polarity is shown in the below given table no. 4.3

TABLE : 4.3

DISTRIBUTION OF STATEMENTS IN PROFESSIONAL COMMITMENT SCALE ACCORDING TO THE COMPONENT AND POLARITY

STATEMENT NUMBER	COMPONENT	POLARITY
1	P	+
2	E	+
3	E	+
4	L	_
5	E	+
6	S	+
7	E	+
8	L	+
9	V	+
10	L	+
11	S	+
12	E	+
13	S	+
14	P	+
15	S	+
16	E	_
17	E	+
18	P	_
19	P	+
20	L	+
21	P	+
22	P	+
23	L	+
24	L	+
25	V	+
26	P	+
27	L	_
28	P	+
29	V	+
30	P	+

STATEMENT NUMBER	COMPONENT	POLARITY
31	V	+
32	V	+
33	P	+
34	S	+
35	L	+
36	L	+
37	L	+
38	E	+
39	L	+
40	L	+
41	P	+
42	V	+
43	S	_
44	E	+
45	E	+
46	P	+
47	V	_
48	V	_
49	S	+
50	V	+
51	P	_
52	S	_
53	E	+
54	S	+
55	V	_
56	S	_
57	E	_
58	E	_
59	S	+
60	V	+
61	V	_
62	V	+
63	S	+

L : Commitment to Learner **S : Commitment to Society**

P : Commitment to Profession **E : Commitment to Achieve Excellence**

V : Commitment to Basic Human Values

The format of the Professional Commitment Scale which thus resulted was made complete by adding a section named Section – A which sought information regarding personal details from teachers. Also teachers were given information regarding objective of the tool, details of the investigator and purpose of the study. Section – B of the tool consisted of statements related to professional commitment. This format of Professional Commitment Scale was further given to teachers for initial pilot study and is attached in Appendix II.

4.2.1.4 RESPONSE MODE

As the procedure described above, the Professional Commitment Scale was constructed by the investigator. Individual responses on the scale were sought from teachers after reading each statement which described a hypothetical situation. For each statement five options were provided namely, very often, often, sometimes, rarely and never. Respondents who were teachers had to read and understand the statements and put a tick mark √ in the corresponding response box.

4.2.1.5 PILOT STUDY OF PROFESSIONAL COMMITMENT SCALE

In order to select final statement and to prepare the tool finally, pilot study was conducted so that statements would be selected by the investigator from a pool of sixty three statements. This pilot study was conducted on a sample of 105 teachers who were randomly selected. While conducting the pilot study care was taken by the investigator that these were the teacher of schools which were not included in the final sample. This was done to avoid the correlation and interaction effect. If pilot study is conducted on the same teachers i.e who were included in final sample, the teachers would have developed familiarity with the statements, which in turn would have reduced the genuineness of the data. For this sample was collected from ten schools which is shown below in a tabular form:

TABLE : 4.4

LIST OF SCHOOLS WITH NUMBER OF TEACHERS FOR PILOT STUDY (TRY OUT)

Sr. No.	Name of the School	Area/ Location	Medium of Teaching	Number of teachers
01.	Experimental School	Urban	Gujarati	06
02.	Navjeevan School	Urban	Gujarati	10
03.	Geeta Mandir School	Urban	Gujarati	07
04.	Shreyas Vidyalaya	Urban	Gujarati	10
05.	Zenith School	Urban	Gujarati	11
06.	Shreyas Vidyalaya	Urban	English	10
07.	Zenith School	Urban	English	10
08.	Rosary High School	Urban	English	09
09.	Auxillium Convent School	Urban	English	08
10.	Shri. N.K. Modi High School	Rural	Gujarati	13
11.	B.N.High School	Rural	Gujarati	11
			TOTAL	**105**

The investigator here ensured that all the teachers responded to their maximum capacity. So the teachers were explained purpose of the study and were also given time of fifteen to twenty days to fill the scale as per their convenience.

4.2.1.6 SCORING PROCEDURE FOR PROFESSIONAL COMMITMENT SCALE

The investigator followed scoring procedure given by Likert (1932) for positive and negative polarity of the statements. These five options from high to low depicted degree of professional commitment among the teachers. These five options were very often, often, sometimes, rarely and never. After administration the scoring was done as depicted in the below given table:

TABLE : 4.5

SCORING PROCEDURE FOR PROFESSIONAL COMMITMENT SCALE

Options	For Positive Statements	For Negative Statements
Very often	5	1
Often	4	2
Sometimes	3	3
Rarely	2	4
Never	1	5

Accordingly, the scores of the teachers on the professional commitment scale were calculated. The maximum score attainable on the scale was 250 and minimum score attainable was fifty.

4.2.1.7 SELECTION OF STATEMENTS FOR PROFESSIONAL COMMITMENT SCALE

For final selection of statements, as suggested by Likert (1932) difference between high and low group was taken by the investigator.

In the first step, the investigator considered the frequency distribution of scores based on the responses of all the statements. Then 27 % of the subjects (NH = 100) with highest total scores and also 27 % of the subjects (NL = 100) with the lowest total scores were selected for item analysis. They were formed as high and low groups. For evaluation of the responses of the high and low group of each statements t – value was computed .

The t – value of sixty three statements as calculated by t- test is given in the table no. 4.6.

TABLE: 4.6

MEAN, SD AND t- value FOR SIXTY THREE STATEMENTS FOR PROFESSIONAL COMMITMENT SCALE

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
1	4.30	2.65	1.220	1.430	8.758
2	4.37	2.68	5.039	1.468	3.219
3	3.81	3.09	1.560	1.549	3.275
4	3.77	2.72	1.391	1.421	5.286
5	4.84	3.11	0.560	1.593	10.249
6	3.60	3.36	1.333	1.467	1.42
7	3.40	3.09	1.181	1.256	1.83
8	4.15	3.14	1.058	1.393	6.02
9	3.23	2.9	1.543	1.439	1.63
10	4.24	3.00	1.065	1.231	7.65
11	3.80	2.77	1.407	1.377	5.38
12	3.71	2.79	1.499	1.380	4.87
13	4.11	2.70	1.154	1.283	8.44
14	4.62	3.86	0.874	1.128	5.10
15	3.29	3.15	1.328	1.266	0.76
16	3.73	3.41	1.262	1.319	1.65
17	4.12	2.71	1.511	1.477	6.62
18	4.28	2.73	1.166	1.287	8.91
19	4.35	2.56	1.260	1.373	9.59
20	4.14	3.21	1.288	1.390	4.89
21	4.72	3.31	0.694	1.566	8.22
22	3.58	3.61	1.224	1.23	-0.17
23	4.72	3.31	0.694	1.566	8.23
24	4.54	3.01	0.841	1.424	9.24
25	4.75	3.22	0.739	1.603	8.66
26	3.47	2.76	1.727	1.490	3.109

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
27	3.52	2.73	1.527	1.262	4.35
28	4.12	3.19	1.037	1.323	5.56
29	3.26	2.98	1.447	1.456	1.42
30	4.43	3.00	0.982	1.449	8.17
31	3.82	2.76	1.551	1.443	5.00
32	3.65	2.53	1.705	1.431	5.02
33	3.51	2.67	1.634	1.562	3.71
34	4.49	2.49	1.034	1.204	12.60
35	1.81	2.12	1.080	1.057	- 2.07
36	4.79	3.03	0.5881	1.552	10.59
37	4.15	2.71	1.291	1.625	6.88
38	3.83	3.58	1.198	1.156	1.27
39	3.5	3.13	1.521	1.346	1.80
40	4.32	3.65	0.909	1.218	4.45
41	3.47	2.46	1.329	1.283	4.88
42	4.44	2.95	1.160	1.492	7.87
43	3.48	3.02	1.337	1.341	2.55
44	3.68	2.41	1.528	1.334	6.25
45	4.67	3.04	0.773	1.535	9.53
46	4.77	3.01	0.785	1.634	9.70
47	4.37	3.23	1.119	1.434	6.26
48	5.13	3.27	5.656	1.554	3.170
49	4.72	2.93	0.694	1.570	10.43
50	4.19	2.79	1.238	1.267	7.87
51	3.32	2.99	1.384	1.299	1.64
52	4.78	3.93	0.705	1.265	5.69
53	3.88	3.39	1.148	1.238	3.07
54	4.52	3.08	0.998	1.39	8.61
55	4.29	3.14	1.065	1.398	6.28

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
56	3.59	3.21	1.173	1.387	2.13
57	4.08	2.98	1.316	1.435	5.35
58	1.79	2.15	1.175	1.149	-2.30
59	4.33	3.18	1.105	1.409	6.417
60	2.77	2.74	1.427	1.284	0.15
61	3.64	3.16	1.277	1.306	2.56
62	3.24	3.25	1.571	1.395	-0.04
63	2.39	2.38	1.421	1.277	0.05

For selection of statements for the final format of the Professional Commitment Scale, the following criteria suggested by Likert (1932) were followed:

The value of t is a measure of the extent to which a given statement differentiate between the high and low groups. As a crude and approximate thumb rule, any t-value equal to or greater than 1.75 as indicating that the average response of the high and low groups to a statements differs significantly.

From the Table : 4.6, it is evident that statement numbers : 6, 9, 15, 16, 22, 29, 35, 38, 51, 58, 60, 62 and 63 do not satisfy the above mentioned criteria. There by these statements are rejected at the first sight. With this rejection the there are fifty statements were left of which forty three statements have positive polarity and seven statements have negative polarity. Thus to conclude, the investigator rejected thirteen statements and selected fifty statements for the final format of professional commitment scale. The final draft of professional commitment scale is attached in Appendix V.

4.2.1.8 FINAL FORMAT OF PROFESSIONAL COMMITMENT SCALE

The final format of Professional Commitment Scale consisted of fifty statements of which forty three statements had positive polarity and seven statements had negative polarity. The distribution of statements is shown in the below given table:

TABLE : 4.7

DISTRIBUTION OF STATEMENTS OF PROFESSIONAL COMMITMENT SCALE IN FINAL FORMAT

COMPONENTS	NUMBER OF STATEMENTS		TOTAL NUMBER OF STATEMENTS
	POSITIVE POLARITY	NEGATIVE POLARITY	
Commitment to the Learner	8, 10, 20, 23, 24, 35, 36, 37, 39, 40 **(10)**	4,27 **(02)**	**12**
Commitment to the Society	6, 11, 13, 15, 34,49 **(06)**	43 **(01)**	**07**
Commitment to the Profession	1, 14, 19, 21, 22, 26, 28, 30, 33, 41, 46 **(11)**	18 **(01)**	**12**
Commitment to achieve Excellence in Professional Actions	2, 3, 5, 7, 12, 17, 38, 44, 45 **(09)**	16 **(01)**	**10**
Commitment to the Basic Human Values	9, 25, 29, 31, 32, 42, 50 **(07)**	47,48 **(02)**	**09**
Total	**43**	**7**	**50**

The scoring procedure for the Professional Commitment Scale was same as that discussed in table 4.7.

4.2.1.9 PYCHOMETRIC PROPERTIES OF THE PROFESSIONAL COMMITMENT SCALE

In the present study the investigator has established reliability, validity, percentile norms and factor analysis for establishing psychometric properties of the professional commitment scale. The details are discussed below:

4.2.1.9.1 RELIABILITY

A test or a scale should be reliable which means that it measures whatever it is measuring consistently. For the present study Cronbach's Alpha Reliability was computed by the investigator.

Cronbach's Alpha is a test reliability technique that requires only a single test administration to provide a unique estimate of the reliability for a given test. The value of Cronbach's Alpha Coefficient normally ranges from 0 to 1. The closer is this value to 1.0, the greater is the internal consistency of the items included in the scale. The reliability of the Professional commitment scale when computed in form of Cronbach's Alpha was found to be 0.864 for fifty statements included in five components. This value indicates that the Professional commitment scale has high internal consistency since this value of 0.864 is closer to 1.0. So it can be concluded that Professional Commitment Scale is reliable.

TABLE 4.8

RELIABILITY OF PROFESSIONAL COMMITMENT SCALE

Cronbach's Alpha	No. Of Items
0.864	50

The high reliability value of the Professional Commitment Scale can be attributed to Likert's technique used for the development of Scale. Regarding length of professional commitment scale, it was suggested by Garrettee (1959) that, " the longer the test, the less probability that affects of temporary and variable disturbances will be cumulative in one direction and the more accurate the estimate of score reliability.

4.2.1.9.2 VALIDITY

Validity is the extent to which a scale accurately represents the concept of interest. Validity of test can be defined as the degree to which the test measures what it is intended to measure. For the present study the investigator conducted Face Validity and Content Validity.

a) Face Validity

Face validity deals with the appearance of the scale. A scale is said to have face validity when by appearance it "looks like" measuring what it is meant to measure. Before construction of the professional commitment scale, the investigator reviewed literature. Also while constructing the professional commitment scale, suggestions provided by the experts were also incorporated. Thus, face validity of professional commitment scale was established by the investigator.

b) Content Validity

Content validity is a measure of the degree to which data collected using the professional commitment scale represents the content of commitment being measured. It is referred to as a logical or rational validity. The professional commitment scale constructed by the investigator was also given to experts for their valuable suggestions for ensuring the content coverage with respect to the components of the scale. Their feedback and suggestions were considered and incorporated by the investigator for final construction of the tool. Thus, the content validity of the professional commitment scale was established by the investigator.

4.2.1.10 FACTOR ANALYSIS OF PROFESSIONAL COMMITMENT SCALE

Factor analysis is done to establish factor loading by analyzing the scale by establishing correlation with a factor. This is also called factor loading. In factor analysis groups of related variables are analyzed and reduced to a small number of components. In the present study on professional commitment of secondary school teachers, factor analysis is done to find out whether five components can be extracted from fifty statements of professional commitment to represent commitment to learner, commitment to society, commitment to profession, commitment to achieve excellence and commitment to basic human values. Factor analysis involves assessment of suitability of data, factor extraction and factor rotation and interpretation.

The adequacy of the data was evaluated on the basis of result of Kaiser – Meyer – Oklin (KMO) Measure of Sampling adequacy. In addition, Bartlett's Test of Sphericity was conducted. The results of the tests are shown in the below given table:

TABLE : 4.9

KAISER – MEYER – OKLIN (KMO) AND BARTLETT'S TEST FOR PROFESSIONAL COMMITMENT SCALE

Kaiser – Meyer – Oklin (KMO) Measure of Sampling Adequacy		0.893
Bartlett's Test of Sphericity	**Approximate Chi Square**	2678.365
	df	242
	Significance	.000

From Table : 4.9 it can be observed that since the KMO measure of sampling adequacy is 0.893, the data is adequate and suitable for factor analysis. Similarly, Bartlett's test of sphericity which is conducted for homogeneity of variance is significant ($p < 0.01$), indicating sufficient correlation between the variables. So further analysis was done which is depicted in the following table:

TABLE : 4.10

COMMUNALITIES FOR PROFESSIONAL COMMITMENT SCALE

Statement No.	**Initial**	**Extraction**
B01	1.000	.570
B02	1.000	.623
B03	1.000	.527
B04	1.000	.619
B05	1.000	.602
B06	1.000	.638
B07	1.000	.619

Statement No.	Initial	Extraction
B08	1.000	.693
B09	1.000	.575
B10	1.000	.729
B11	1.000	.635
B12	1.000	.672
B13	1.000	.697
B14	1.000	.641
B15	1.000	.725
B16	1.000	.619
B17	1.000	.513
B18	1.000	.623
B19	1.000	.501
B20	1.000	.719
B21	1.000	.623
B22	1.000	.611
B23	1.000	.634
B24	1.000	.587
B25	1.000	.713
B26	1.000	.602
B27	1.000	.616
B28	1.000	.629
B29	1.000	.607
B30	1.000	.571
B31	1.000	.602
B32	1.000	.597
B33	1.000	.640

Statement No.	Initial	Extraction
B34	1.000	.544
B35	1.000	.687
B36	1.000	.650
B37	1.000	.682
B38	1.000	.606
B39	1.000	.738
B40	1.000	.572
B41	1.000	.489
B42	1.000	.549
B43	1.000	.661
B44	1.000	.583
B45	1.000	.525
B46	1.000	.549
B47	1.000	.653
B48	1.000	.706
B49	1.000	.546
B50	1.000	.665
Extraction Method: Principal Component Analysis.		

Table : 4.10 explains that the KMO measure of sampling adequacy is 0.893. So all the statements have good extraction value. All the statements exhibited good homogeneity in substantiating item validity with respect the whole professional commitment scale and further analysis was done using Varimax Rotation. The Principal Component Analysis of the Professional Commitment Scale is presented in Table 4.11 below:

TABLE : 4.11

PRINCIPAL COMPONENT ANALYSIS FOR PROFESSIONAL COMMITMENT SCALE

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**11.718**	**23.436**	**23.436**	**11.718**	**23.436**	**23.436**
2	**3.118**	**6.237**	**29.673**	**3.118**	**6.237**	**29.673**
3	**2.888**	**5.776**	**35.449**	**2.888**	**5.776**	**35.449**
4	**2.450**	**4.900**	**40.349**	**2.450**	**4.900**	**40.349**
5	**2.078**	**4.155**	**44.504**	**2.078**	**4.155**	**44.504**
6	**1.547**	**3.095**	**47.599**	**1.547**	**3.095**	**47.599**
7	**1.451**	**2.902**	**50.501**	**1.451**	**2.902**	**50.501**
8	**1.353**	**2.707**	**53.208**	**1.353**	**2.707**	**53.208**
9	**1.174**	**2.348**	**55.556**	**1.174**	**2.348**	**55.556**
10	**1.146**	**2.291**	**57.847**	**1.146**	**2.291**	**57.847**
11	**1.051**	**2.103**	**59.950**	**1.051**	**2.103**	**59.950**
12	**1.002**	**2.004**	**61.954**	**1.002**	**2.004**	**61.954**
13	.947	1.893	63.847			
14	.910	1.820	65.667			
15	.894	1.787	67.455			
16	.822	1.643	69.098			
17	.751	1.502	70.600			
18	.735	1.469	72.069			
19	.721	1.442	73.511			
20	.706	1.412	74.923			
21	.686	1.373	76.296			
22	.661	1.322	77.618			
23	.628	1.256	78.874			
24	.607	1.213	80.087			
25	.585	1.169	81.257			
26	.571	1.142	82.399			
27	.550	1.100	83.499			
28	.525	1.050	84.549			
29	.520	1.041	85.590			
30	.503	1.007	86.597			
31	.494	.989	87.586			
32	.466	.932	88.518			
33	.437	.873	89.391			

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
34	.425	.850	90.241			
35	.416	.832	91.073			
36	.404	.807	91.880			
37	.384	.768	92.648			
38	.372	.745	93.393			
39	.355	.709	94.102			
40	.343	.686	94.788			
41	.324	.648	95.436			
42	.323	.646	96.082			
43	.289	.577	96.660			
44	.280	.560	97.219			
45	.270	.540	97.759			
46	.250	.501	98.260			
47	.242	.484	98.743			
48	.232	.465	99.208			
49	.204	.409	99.617			
50	.192	.383	100.000			
Extraction Method: Principal Component Analysis.						

From Table : 4.11 it can be concluded that twelve factors (components) in the initial solution have Eigen Value over one. They account for **61.954 %** of the observed variation among teachers of secondary schools in terms of their Professional Commitment.

4.2.1.11 FIXING THE NORMS FOR PROFESSIONAL COMMITMENT SCALE

Once the tool is constructed and administered, the scoring is done which gives information to the individual who is tested- here secondary school teachers. The score is meaningful only if it is understood. A score on the tool is given meaning by referring it to the group average. Thus, for any standardized tool, norms need to be provided which forms a yardstick required to measure the magnitude of deviation of individual's score from the general population average or from the average of the group. Thus it can be said that norms are a standard of reference and so the investigator has developed norms for professional commitment scale.

Norms provide user of the standardized scale with the basis for a practical interpretation and application of the results. Norms are the levels attained by a particular group of a person on a set. For the present study, the investigator has established percentile norms. A percentile is best described as a comparison score. A percentile is a number between one to hundred that relates an individual's performance to those of other who have used the scale. In a set of numbers, the percentile for a given value indicated the percentage of numbers that are less than or equal to that value.

For the purpose of deriving percentile norms in the present study, the mean, standard deviation, median, percentiles, skewness and kurtosis of the entire sample (N=200) were computed.

TABLE: 4.12

PERCENTILE NORMS OF PROFESSIONAL COMMITMENT SCALE

	ALL THE SAMPLE
Mean	196.58
SD	20.189
Median	198.00
P 10	163.00
P 20	175.00
P 30	183.00
P 40	189.00
P 50	198.00
P 60	205.00
P 70	216.00
P 80	225.00
P 90	235.00
Skewness	- 2.254
Kurtosis	1.725

The lowest score obtained on the Professional Commitment Scale was 158 and the highest score obtained was 236. It was found that 43 teachers (21.50 %) hold low professional commitment i.e their professional commitment was less than 190. The

professional commitment score of 18 teachers (9 %) was found to be average i.e. their professional commitment was between 191 to 220. Professional commitment of 139 teachers (69.50 %) was found to be high i.e more than 220.

The norms established in the present study may be applied in comparing the professional commitment of other teachers from the population. The individual teacher can be placed in a particular group and from this it can judged how far the individual is professionally committed.

4.3 TOOL TO MEASURE JOB SATISFACTION

The tool to measure job satisfaction of teachers was also constructed and standardized by the investigator. Job satisfaction is a result of employees' perception of how well the job provides those things which are viewed as important. Job satisfaction is the overall affective orientation of job occupant towards his job. Job satisfaction is a multi dimensional state of mind because firstly it is an emotional response to a job situation; secondly, job satisfaction is often determined by how well outcomes of a job are met or exceed expectation and lastly job satisfaction represents several related attitudes. These feelings for the job cannot be expressed directly as there are many factors that lead to job satisfaction. From the review of literature, the investigator found that there can be one or more factors that can lead to job satisfaction. These factors may be work itself, pay, promotion opportunities, supervision and co – workers. Job satisfaction can be expressed as positive, neutral or negative. As discussed earlier for professional commitment, since job satisfaction is also a psychological construct, it cannot be directly but has to be observed in the behavior of an individual. Also it was observed from various studies reviewed by the investigator that professional commitment has a direct correlation and significantly affects job satisfaction. So one of the major objectives framed by the investigator was to measure job satisfaction of secondary school teachers of grant in aid schools.

4.4 JOB SATISFACTION SCALE

Measuring job satisfaction of teachers is a complicated procedure. It seems simple to go to the employees, teachers in present case, and to gather data and then interpret. But it is observed that such procedures can limit the validity and usefulness of the survey. So keen attention should be given on construction of questions, maintaining anonymity with teachers and sampling procedure. After review of literature, the investigator found that in most of the studies related to job satisfaction, measurement of job satisfaction was done either by interview or by conducting test on teachers. In the present study, as the survey was conducted having large sample, interview was not feasible. So the investigator with consultation with guide decided to construct a tool to measure job satisfaction. The investigator decided to construct a tool for job satisfaction based on The method of Summative Rating given by Likert (1932). The tool constructed according to this model is relatively simple, less time consuming and has higher reliability coefficient.

Few changes were made in Likert Model which was mainly to suit the tool for the present study. The tool for Job Satisfaction constructed by the investigator was in form of hypothetical situations as against statements. For the present Job Satisfaction tool, the investigator presented a situation followed by three options of reactions on five point Likert scale. The investigator tried to give all the situations to the teachers so that their response could be obtained. These various situations have been given because job satisfaction depends mainly on situation in the organization and climate of the organization. So in order to understand and measure job satisfaction, various hypothetical situations were present to the teachers. These situations were broken up component wise also.

4.4.1 CONSTRUCTION OF JOB SATISFACTION SCALE

For construction of Job Satisfaction Scale, the investigator constructed it on the basis of “the Method of Summated Ratings” given by Likert (1932). The detailed process of construction and standardization of the Tool for Job Satisfaction is given below:

4.4.1.1 IDENTIFICATION OF COMPONENTS OF JOB SATISFACTION SCALE

From the review of related literature focusing on job satisfaction it was found that many studies of job satisfaction were conducted in India and abroad. These studies were based on various components. These components were based on various factors that affect job satisfaction of teachers. Review of these studies helped the investigator to find various components for the present study. A summary of few such studies is given below:

- **Schriesheim & Tsui (1980)** gave following six components of job satisfaction:

  a) Work itself

  b) Supervision

  c) Co – workers

  d) Pay

  e) Promotion opportunities

  f) Job in general

- **Stagnner & Wood (1952)** gave following components of job satisfaction:

  a) General working conditions

  b) Union management relations

  c) General qualities of teachers

  d) Grievances handling procedure

- **Godel (1953)** argued that components of job satisfaction are different for employees of different age groups. So components of job satisfaction are different for younger group of employees and for those employees whose age was more than forty. Accordingly components of job satisfaction were as given below :

  For Younger Group of Employees (Below forty years of age):

  a) Security of Job

  b) Pay

c) Co workers

d) Ease of Communication

e) Enhancement opportunities / promotional opportunities

For Employees above forty years of age :

a) Security of job

b) Supervision policies of company

c) Working hours

- **Ross & Zander (1984)** gave following components of job satisfaction:

  a) Recognition by the society

  b) Autonomy for working/ autonomous climate

  c) Importance given for doing work

  d) Fair evaluation of work done

- Studies conducted by **Maidini (1991), Volkwein & Zhou (2003)** gave the following dimensions of job satisfaction:

  a) Intrinsic job satisfaction consisting of 'motivators' or 'job content' factors such as accomplishment, recognition, autonomy, achievement and advancement.

  b) Extrinsic job satisfaction referred to as 'hygiene' factors such as pay, security, physical working conditions, company policies, administration, supervision, hours of work and relations of union with management.

From various studies it can be concluded that various factors such as pay, work load, office routine, procedures in offices, professional competence, availability of physical facilities, professional autonomy, school climate, occupational level, job content, job security, promotion opportunities from job and social reputation are important factors affecting job satisfaction.

Keeping these factors in view, the investigator decided following components for the present study in which one of the objectives is to measure job satisfaction of

Secondary School teachers of Vadodara district. These components were given below were decided by the investigator in consultation with guide and experts. These components are as follows:

1. **Individual Characteristics:** This component includes –
    - individual characteristics of the teacher with respect to his confidence, zeal, cheerfulness, enthusiasm,
    - initiative taken up by teacher for doing new assignments
    - teacher as a hope for the entire teaching field.
2. **Behavioural characteristics:** This component includes behavioral characteristics such as-
    - Individual characteristics of teachers like discipline of teacher
    - extra effort put in by the teacher for students
    - personal adjustments done by the teacher with the school,
    - efficiency of the teacher
    - willingness of teacher to work beyond his/her limits.
3. **Group Spirit Characteristics:** This component includes various factors such as -
    - Feeling pride for the group in the teacher
    - feeling of cohesiveness in the teacher
    - developing cohesive climate at school
    - teacher's own feelings for institutional goals
    - Teacher's individual ambitions for accomplishment of goals
    - leadership quality of teacher.
4. **Attitude towards Job:** This component includes factors such as –
    - stability in job
    - job satisfaction with respect to salary
    - job satisfaction with respect to workload and curriculum,

- teacher's attitude towards school and students
- opportunity for decision making given to teachers.

5. **Community Involvement:** This component includes –

- support as well as pressure from the community on the teacher to work at their level best and achieve the wider goals of education and society.

These components were decided because all the factors that affect job satisfaction of teachers were included in these components. Various situational statements were framed for each of the above mentioned components.

4.4.1.2 FORMAT AND NATURE OF STATEMENTS FOR JOB SATISFACTION SCALE

Job satisfaction is one of the variables for the present study because from the review it was observed that job satisfaction affects professional commitment significantly. Also as job satisfaction is a psychological construct as professional commitment and cannot be viewed directly, so the investigator tried to develop a relevant tool for measurement of job satisfaction. While constructing the tool care was taken by the investigator that the tool suited Indian settings. The tool prepared was such that various hypothetical situations were provided because job satisfaction does not depend on one factor. In fact, it is affected by a number of factors.

So in the present study the investigator developed a tool in which a situation was described to the teacher. The possible reaction of teachers in those situations was also presented for each situation. Thus all the items in this tool for job satisfaction were based on situations. Thus a situational tool was made. Items in these tools were framed keeping in mind all the situations of the schools like teaching learning process, evaluation, meeting with parents, satisfying needs of all the students, semester pattern, work load of teachers, their association with parents, society and community members, personal reactions of teachers at the time of stress, dealing with problems of students and so on. Teachers reactions to these situations are different and depend on climate of the schools. For each situational statement thus formed, three alternative options were given which indicated teachers' reactions.

This whole tool was formed on five point Likert scale from very often to never i.e very often, often, sometimes, rarely and never. Teachers were expected to read the situational statements and provide their reactions for each situation in written form.

4.4.1.3 DEVELOPMENT AND SELECTION OF STATEMENTS FOR JOB SATISFACTION SCALE

All the statements for the job satisfaction scale were developed in form of hypothetical statements and in written form. For the development and selection of statements, the investigator met teachers working in secondary school teachers. Then these situational statements were developed with help of expert opinions provided by guide. Also experts in field of education were consulted. Then various situations were decided for which statements were framed and according to the situations, reactions of teachers were assumed and presented in written form. Following things were kept in mind by the investigator while framing these situational statements :

1. All the statements presented situations in simple and lucid language.
2. Only one situation was presented in a particular statement.
3. All the statements were short and presented the situation clearly.
4. Confusing or ambiguous situations were avoided.
5. Teachers were presented all the situations related to teaching learning process starting from techniques used by teachers, their relations with co workers, examination pattern, relation with principal and so on.
6. For each situational statement, appropriate reactions of teachers were imagined and presented by the investigator in the written form.
7. Double negatives were avoided.

Keeping all the above things in mind, the investigator prepared an initial pool of twenty five situational statements. Along with each situational statement three alternatives were given for three choices to the teacher that the teacher will make if he / she is in that situation. Thus there were seventy five statements in all. These situational statements were framed based on the components decided by the investigator. Then pilot study was conducted for finalizing the statements

TABLE: 4.13

DISTRIBUTION OF STATEMENTS OF JOB SATISFACTION SCALE ON THE TRY OUT FORM (FOR PILOT STUDY)

COMPONENTS	NUMBER OF STATEMENTS		TOTAL NUMBER OF STATEMENTS
	POSITIVE POLARITY	NEGATIVE POLARITY	
Individual Characteristics	07	13	**20**
Behavioral Characteristics	07	07	**14**
Group Spirit Characteristics	06	01	**07**
Attitude towards Job	15	10	**25**
Community Involvement	08	01	**09**
Total	**43**	**32**	**75**

The suitability and correctness of language of the situational statements were judged by language experts. Pilot study was conducted to know whether the situational tool was proper or not in terms of its options / alternatives provided, language and analysis technique. The pilot study was conducted on 105 teachers serving in grant in aid schools of Vadodara District in Gujarati and English medium. The tool was constructed in both the languages – Gujarati and English. So help from language experts well versed in both the languages was taken by the investigator. First draft of Job Satisfaction scale is attached in Appendix III.

The statements were assigned numbers one to twenty five and simultaneously each of the three alternatives was numbered alphabetically like a, b and c. The situational statements were arranged randomly eliminate patterned response. The arrangement of statements and polarity is shown in table no: 4.14

TABLE: 4.14

DISTRIBUTION OF STATEMENTS OF JOB SATISFACTION SCALE ACCORDING TO THE COMPONENT AND POLARITY

STATEMENT NUMBER	COMPONENT	POLARITY
1A	IC	–
1B	BC	+
1C	A	–
2A	GS	+
2B	BC	–
2C	BC	–
3A	IC	+
3B	CI	+
3C	BC	–
4A	BC	+
4B	BC	–
4C	CI	+
5A	BC	+
5B	IC	–
5C	A	–
6A	IC	–
6B	IC	–
6C	IC	+
7A	A	–
7B	BC	+
7C	A	–
8A	IC	–
8B	A	+
8C	A	+
9A	IC	–
9B	BC	+
9C	A	+
10A	BC	–

STATEMENT NUMBER	COMPONENT	POLARITY
10B	CI	+
10C	CI	_
11A	A	+
11B	A	+
11C	A	+
12A	A	_
12B	CI	+
12C	GS	+
13A	IC	_
13B	BC	+
13C	A	+
14A	GS	+
14B	GS	+
14C	GS	+
15A	A	_
15B	IC	_
15C	BC	_
16A	A	+
16B	IC	_
16C	IC	_
17A	A	+
17B	IC	+
17C	A	+
18A	CI	+
18B	A	_
18C	A	+
19A	A	+
19B	A	+
19C	CI	+
20A	IC	+
20B	IC	_
20C	IC	+

STATEMENT NUMBER	COMPONENT	POLARITY
21A	IC	+
21B	IC	–
21C	BC	–
22A	IC	+
22B	GS	–
22C	A	+
23A	A	–
23B	GS	+
23C	A	–
24A	A	–
24B	A	+
24C	CI	+
25A	CI	+
25B	BC	–
25C	IC	–

IC : Individual Characteristics **BC : Behavioral Characteristics**

GS : Group Spirit **A : Attitude towards Job**

CI : Community Involvement

Thus, the tool to measure job satisfaction of was prepared and given to teachers of secondary school teachers for pilot study along with the tool for professional commitment. While constructing the tool for job satisfaction it was observed that many situations overlapped each other and could be included in more than one component. So the investigator with consultation of guide and experts decided to put one particular situation in one component only. The tool for job satisfaction was thus finalized for the research study.

4.4.1.4 RESONSE MODE FOR JOB SATISFACTION SCALE

Once the tool for measuring job satisfaction was prepared by the investigator, it was given to teachers serving in grant in aid secondary schools. Individual responses were sought for each situational statement. As described earlier, these statements posed various situations to the teachers and for each such statement that described a situation, three alternative responses by the teacher were also written. Also for each situational statement, five options were given namely, very often, often, sometimes, rarely and never. Teachers were first given the tool and explained the importance and objectives of the study. Then they were explained the situational statement to measure job satisfaction. Teachers had to read the situational statement and understand and put a √ in all the responses for each situation i.e. a, b and c in the most appropriate box of the rating scale. All these instructions were also provided to teachers verbally also.

4.4.1.5 PILOT STUDY FOR JOB SATISFACTION SCALE

For construction and finalization of the tool to measure job satisfaction, a pilot study of the tool was conducted by the investigator. This pilot study was conducted along with professional commitment scale. The sample for both the tools i.e. professional commitment scale and job satisfaction scale was the same. The sample consisted of randomly selected 105 teachers serving in grant in aid secondary schools of Vadodara District. The teachers that formed the sample for pilot study were not again selected for the final data collection in order to avoid correlation and interaction effect. In this way attempt was made by the investigator to collect genuine data. Before collecting data, the investigator explained purpose of the study to the teachers so that teachers would participate in data collection. The details of sample for the pilot study is same as that for professional commitment and discussed earlier. (Refer Table 4.4)

4.4.1.6 SCORING PROCEDURE FOR JOB SATISFACTION SCALE

As mentioned earlier, the options represented the degree of specificity from high to low. The five options were very often, often, sometimes, rarely and never. The scoring procedure was same as that suggested by Likert (1939) ranging from 5 to 1. Also the same scoring procedure was followed for the tool to measure professional commitment. The maximum score on Job Satisfaction Scale was 375 and the minimum score was 75 (Refer table 4.5)

4.4.1.7 SELECTION OF STATEMENTS FOR JOB SATISFACTION SCALE

For final selection of statements, the same procedure as discussed earlier for professional commitment scale was followed. This procedure was suggested by Likert (1932) in which difference between high and low group was taken by the investigator. The frequency distribution of scores was calculated in the first step. Then, as described earlier, 27 % of the subjects (NH = 100) with highest scores and 27 % of the subjects (NH = 100) with lowest scores were analyzed to form high and low groups. Then t-value for all the statements was calculated which is presented below table no: 4.15:

TABLE: 4.15

MEAN, SD AND t- value FOR TWENTY FIVE STATEMENTS WITH THREE OPTIONS EACH FOR JOB SATISFACTION SCALE

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
1A	3.47	2.76	1.727	1.491	3.109
1B	4.11	2.72	1.512	1.478	6.63
1C	4.77	3.24	0.782	1.493	8.88
2A	4.30	2.65	1.220	1.430	8.758
2B	4.37	2.68	5.039	1.468	3.219
2C	3.81	3.09	1.560	1.549	3.275
3A	4.44	2.95	1.160	1.492	7.87
3B	3.48	3.02	1.337	1.341	2.55
3C	3.68	2.41	1.528	1.334	6.25
4A	4.67	3.04	0.773	1.535	9.53
4B	4.14	3.12	1.247	1.445	5.28

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
4C	3.77	2.89	1.252	1.253	5.43
5A	5.13	3.27	5.656	1.554	3.170
5B	4.65	3.82	0.895	1.153	5.51
5C	4.13	3.42	1.134	1.319	3.90
6A	3.65	3.01	1.484	1.448	3.25
6B	4.08	2.98	1.316	1.435	5.35
6C	3.80	3.06	1.080	1.236	4.68
7A	3.77	2.72	1.391	1.421	5.28
7B	4.84	3.11	0.560	1.593	10.25
7C	4.73	3.33	0.694	1.566	8.23
8A	4.08	2.98	1.316	1.643	5.38
8B	3.43	2.84	1.409	1.412	3.08
8C	4.14	3.35	1.065	1.336	4.72
9A	4.30	3.37	1.36	1.361	5.27
9B	4.22	3.38	1.027	1.269	5.35
9C	4.41	2.29	1.413	1.422	7.68
10A	3.82	3.09	1.560	1.549	3.28
10B	4.37	2.68	5.039	1.465	3.21
10C	4.30	2.65	1.220	1.430	8.75
11A	3.59	3.21	1.174	1.387	2.14
11B	4.29	3.14	1.066	1.399	6.28
11C	4.52	3.08	0.998	1.39	8.61
12A	4.78	3.93	0.705	1.265	5.69
12B	4.08	2.98	1.317	1.436	5.36
12C	4.12	3.19	1.037	1.323	5.56
13A	3.88	3.40	1.147	1.237	3.07
13B	3.55	2.75	1.529	1.265	4.38
13C	4.37	3.23	1.119	1.434	6.26
14A	3.84	3.36	1.144	1.235	3.03
14B	3.80	2.77	1.407	1.377	5.38
14C	4.73	3.20	0.737	1.601	8.64
15A	3.75	2.70	1.389	1.419	5.26
15B	4.30	2.65	1.220	1.430	8.76
15C	3.47	2.76	1.727	1.490	3.10
16A	3.66	3.42	1.339	1.472	1.82
16B	4.70	3.29	0.692	1.564	8.21

Statement No.	MEAN		SD		t- values
	UPPER	LOWER	UPPER	LOWER	
16C	4.12	2.71	1.511	1.477	6.52
17A	3.41	2.86	0.874	1.128	5.10
17B	4.59	3.83	0.996	1.164	4.76
17C	3.71	2.79	1.499	1.380	4.87
18A	3.45	3.13	1.185	1.264	1.86
18B	3.95	3.40	1.218	1.214	3.21
18C	3.34	2.79	1.387	1.274	3.26
19A	3.21	2.61	1.513	1.406	2.93
19B	4.28	3.59	0.996	1.365	4.08
19C	4.11	3.11	1.244	1.436	5.27
20A	3.82	2.76	1.551	1.443	5.00
20B	3.65	2.53	1.705	1.431	5.02
20C	3.51	2.67	1.634	1.562	3.71
21A	3.88	3.39	1.148	1.238	3.07
21B	4.32	3.65	0.909	1.218	4.45
21C	4.28	3.13	1.064	1.397	6.27
22A	4.18	3.03	1.074	1.410	6.19
22B	4.12	2.71	1.511	1.477	6.52
22C	4.52	3.08	0.998	1.39	8.61
23A	3.47	2.76	1.727	1.491	3.109
23B	3.81	3.09	1.560	1.549	3.275
23C	4.11	2.72	1.512	1.478	6.63
24A	4.30	2.65	1.220	1.430	8.75
24B	4.77	3.24	0.782	1.493	8.88
24C	4.30	2.65	1.220	1.430	8.758
25A	4.67	3.04	0.773	1.535	9.53
25B	4.73	3.20	0.737	1.601	8.64
25C	3.80	2.77	1.407	1.377	5.38

From the above table, it can be noted that all the statements had value greater than 1.75. All the statements were accepted. Also these situational statements were framed in such a way that each situational statement was given three alternative options. So all the statements were linked to each other. These statements were thus finalized for the construction of tool for job satisfaction. Final Draft of Job Satisfaction Scale is attached in Appendix VI.

4.4.1.8 FINAL FORMAT FOR JOB SATISFACTION SCALE

The final format for Job Satisfaction Scale constructed and standardized by the investigator consisted mainly of twenty five statements describing a hypothetical situation of teaching learning process. For each situational statement, three options in which teacher would react were also given and each such option was rated on five point rating scale. The teachers had to respond to all these options also. So in this way seventy five situations were presented in the final format in written form. Out of them, forty three statements were with positive polarity and thirty two statements were with negative polarity. The distribution of statements in the final format is same as in Table: 4.16.

4.4.1.9 PSYCHOMETRIC PROPERTIES FOR JOB SATISFACTION SCALE

For the present study, one of the objective was to construct and standardize the job satisfaction scale. In order to standardize this scale reliability, validity, percentile norms and factor analysis was established for job satisfaction scale constructed by the investigator.

4.4.1.8.1 RELIABILITY

As discussed earlier for professional commitment scale, a test should be reliable in order to measure consistently. For the present study, Cronbach's Alpha Reliability was computed by the investigator. Cronbach's Alpha is a test of reliability which requires single administration of the test. The range of value is 0 to 1. The closer this value is to 1.0, the greater is the reliability of the test. For the Job Satisfaction Scale that was constructed by the investigator, Cronbach's Alpha was found to be 0.891 which is closer to 1.0. So it can be concluded that the Job Satisfaction Scale is reliable.

TABLE 4.16

RELIABILITY OF JOB SATISFACTION SCALE

Cronbach's Alpha	No. Of Items
0.891	75

4.4.1.8.2 VALIDITY

As discussed for professional commitment scale, validity of test is defined as the degree to which the test measures what it is intended to measure. So the investigator conducted Face Validity and Content Validity.

Both Face Validity and content validity of the Job Satisfaction Scale was found to be appropriate after it was shown to experts. Also their suggestions were incorporated by the investigator.

TABLE 4.17

SUGGESTIONS RECEIVED FROM EXPERTS FOR JOB SATISFACTION SCALE

EXPERT NO.	SUGGESTIONS PROVIDED
01	➢ Components for Job satisfaction are comprehensive.
02	➢ Reframe Questions no. 15,17 and 19 ➢ Suggested to make bilingual tool for both English and Gujarati Medium Teachers.
03	➢ Rearrange Questions so as to maintain continuity. ➢ Suggested one questionnaire for teachers of both the mediums.
04	➢ Did not give any major suggestions.
05	➢ Appreciated the components Attitude towards job. ➢ Reframe Questions no. 15 and 22. ➢ Remove few questions that were repeated.
06	➢ Reduce the size of tool so that teachers are interested to fill it. ➢ Appreciated the situations given in the tool as it made the tool more comprehensive.
07	➢ Suggested that the number of statement in each component is adequate and there is a consistency in all the statements included. ➢ Job Satisfaction depends on the situations and so the tool was appreciated for its situational statements

EXPERT NO.	SUGGESTIONS PROVIDED
08	➢ Reduce the size of the tool by deleting a few questions. ➢ Suggested that number of positive and negative statements need not be same.
09	➢ Appreciated the situational tool made for job satisfaction tool.
10	➢ Appreciated the situational tool made for job satisfaction tool. ➢ Advised to delete question no. 4 ➢ Include few questions related to teachers' personal situations and its effect on professional commitment and job satisfaction.
11	➢ Advised to include few questions related to use of facilities in school by the teacher like library, computer laboratory. ➢ Grammatical corrections in job satisfaction scale.

4.4.1.10 FACTOR ANALYSIS FOR JOB SATISFACTION SCALE

As discussed earlier, factor analysis is done to establish factor loading by analyzing correlation with a factor. For the present study, job satisfaction scale was based on five main components from which twenty five situational statements were extracted. These five main components are: Individual Characteristics, Behavioral Characteristics, Group Spirit, Attitude toward Job and Community Involvement. Factor analysis involves assessment of suitability of data, factor extraction and factor rotation and interpretation.

The adequacy of data was evaluated on the basis of the result of Kaiser – Meyer – Oklin (KMO) measure of sampling adequacy. Also, Barlett's Test of Sphericity was also conducted. The results of the test are shown below table no 4.18:

TABLE : 4.18

KAISER – MEYER – OKLIN (KMO) AND BARTLETT'S TEST

Kaiser – Meyer – Oklin (KMO) Measure of Sampling Adequacy		0.864
Bartlett's Test of Sphericity	**Approximate Chi Square**	1198.455
	df	242
	Significance	.000

From Table : 4.18 it can be observed that since the KMO measure of sampling adequacy is 0.864, the data is adequate and suitable for factor analysis. Similarly, Bartlett's test of sphericity which is conducted for homogeneity of variance is significant ($p < 0.01$), indicating sufficient correlation between the variables. So further analysis was done which is depicted in the following table:

TABLE : 4.19

COMMUNALITIES FOR JOB SATISFACTION SCALE

	Initial	**Extraction**
C01A	1.000	.646
C01B	1.000	.667
C01C	1.000	.722
C02A	1.000	.642
C02B	1.000	.730
C02C	1.000	.513
C03A	1.000	.720
C03B	1.000	.770
C03C	1.000	.721
C04A	1.000	.710
C04B	1.000	.709
C04C	1.000	.677
C05A	1.000	.548
C05B	1.000	.737
C05C	1.000	.693

	Initial	Extraction
C06A	1.000	.731
C06B	1.000	.718
C06C	1.000	.801
C07A	1.000	.556
C07B	1.000	.697
C07C	1.000	.723
C08A	1.000	.793
C08B	1.000	.633
C08C	1.000	.741
C09A	1.000	.774
C09B	1.000	.782
C09C	1.000	.731
C10A	1.000	.740
C10B	1.000	.675
C10C	1.000	.707
C11A	1.000	.754
C11B	1.000	.686
C11C	1.000	.695
C12A	1.000	.732
C12B	1.000	.812
C12C	1.000	.704
C13A	1.000	.701
C13B	1.000	.754
C13C	1.000	.763
C14A	1.000	.815
C14B	1.000	.711
C14C	1.000	.854
C15A	1.000	.751
C15B	1.000	.807
C15C	1.000	.745
C16A	1.000	.811
C16B	1.000	.881

	Initial	Extraction
C16C	1.000	.743
C17A	1.000	.656
C17B	1.000	.716
C17C	1.000	.751
C18A	1.000	.694
C18B	1.000	.725
C18C	1.000	.688
C19A	1.000	.772
C19B	1.000	.777
C19C	1.000	.718
C20A	1.000	.640
C20B	1.000	.750
C20C	1.000	.761
C21A	1.000	.696
C21B	1.000	.711
C21C	1.000	.706
C22A	1.000	.695
C22B	1.000	.775
C22C	1.000	.769
C23A	1.000	.793
C23B	1.000	.769
C23C	1.000	.793
C24A	1.000	.676
C24B	1.000	.782
C24C	1.000	.813
C25A	1.000	.635
C25B	1.000	.693
C25C	1.000	.735
Extraction Method: Principal Component Analysis.		

Table : 4.19 explains that the KMO measure of sampling adequacy is 0.864.So all the statements have good extraction value. All the statements exhibited good homogeneity in substantiating item validity with respect the whole Job Satisfaction scale and further analysis was done using Varimax Rotation. The Principal Component Analysis of the Job Satisfaction Scale is presented in Table 4.20 below:

TABLE : 4.20

PRINCIPAL COMPONENT ANALYSIS FOR JOB SATISFACTION SCALE

Compo-nent	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumu-lative %	Total	% of Variance	Cumu-lative %
C01A	15.036	20.048	20.048	15.036	20.048	20.048
C01B	5.235	6.980	27.028	5.235	6.980	27.028
C01C	4.645	6.194	33.221	4.645	6.194	33.221
C02A	3.667	4.889	38.110	3.667	4.889	38.110
C02B	2.594	3.458	41.569	2.594	3.458	41.569
C02C	2.347	3.129	44.698	2.347	3.129	44.698
C03A	2.259	3.012	47.710	2.259	3.012	47.710
C03B	1.805	2.407	50.116	1.805	2.407	50.116
C03C	1.734	2.312	52.429	1.734	2.312	52.429
C04A	1.612	2.149	54.578	1.612	2.149	54.578
C04B	1.530	2.040	56.618	1.530	2.040	56.618
C04C	1.472	1.962	58.580	1.472	1.962	58.580
C05A	1.394	1.859	60.439	1.394	1.859	60.439
C05B	1.332	1.775	62.214	1.332	1.775	62.214
C05C	1.286	1.715	63.929	1.286	1.715	63.929
C06A	1.180	1.574	65.503	1.180	1.574	65.503
C06B	1.107	1.476	66.979	1.107	1.476	66.979
C06C	1.085	1.447	68.426	1.085	1.447	68.426
C07A	1.066	1.421	69.846	1.066	1.421	69.846
C07B	1.025	1.367	71.213	1.025	1.367	71.213
C07C	1.004	1.339	72.552	1.004	1.339	72.552

Compo-nent	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumu-lative %	Total	% of Variance	Cumu-lative %
C08A	.956	1.274	73.826			
C08B	.948	1.264	75.090			
C08C	.884	1.178	76.268			
C09A	.835	1.113	77.382			
C09B	.803	1.071	78.453			
C09C	.787	1.049	79.502			
C10A	.727	.969	80.471			
C10B	.694	.926	81.397			
C10C	.651	.868	82.265			
C11A	.630	.841	83.106			
C11B	.607	.810	83.916			
C11C	.579	.772	84.687			
C12A	.557	.743	85.430			
C12B	.545	.726	86.156			
C12C	.514	.685	86.842			
C13A	.505	.674	87.515			
C13B	.481	.642	88.157			
C13C	.470	.627	88.784			
C14A	.457	.609	89.393			
C14B	.422	.562	89.955			
C14C	.418	.558	90.513			
C15A	.397	.529	91.042			
C15B	.393	.524	91.566			
C15C	.365	.486	92.052			
C16A	.351	.467	92.520			
C16B	.333	.445	92.964			
C16C	.319	.425	93.389			
C17A	.315	.420	93.809			
C17B	.302	.403	94.212			
C17C	.282	.376	94.588			

Compo-nent	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumu-lative %	Total	% of Variance	Cumu-lative %
C18A	.275	.367	94.955			
C18B	.272	.363	95.317			
C18C	.253	.338	95.655			
C19A	.243	.323	95.978			
C19B	.236	.314	96.293			
C19C	.228	.303	96.596			
C20A	.222	.296	96.892			
C20B	.217	.289	97.181			
C20C	.202	.269	97.450			
C21A	.198	.264	97.714			
C21B	.194	.258	97.973			
C21C	.175	.233	98.206			
C22A	.160	.213	98.419			
C22B	.156	.208	98.627			
C22C	.145	.193	98.820			
C23A	.133	.177	98.997			
C23B	.124	.165	99.162			
C23C	.120	.160	99.322			
C24A	.110	.147	99.469			
C24B	9.457 E-02	.126	99.595			
C24C	8.935 E-02	.119	99.714			
C25A	7.756 E-02	.103	99.818			
C25B	7.256 E-02	9.674 E-02	99.915			
C25C	6.408 E-02	8.544 E-02	100.000			
Extraction Method: Principal Component Analysis.						

From Table : 4.20 it can be concluded that twenty one factors (components) in the initial solution have Eigen Value over one. This account for **72.552%** of the observed variation among teachers of secondary schools in terms of their Job Satisfaction.

4.4.1.10 FIXING THE NORMS FOR JOB SATISFACTION SCALE

As discussed earlier for professional commitment, similarly norms were fixed for job satisfaction scale as a part of standardizing the scale. Percentile norms were derived in the present study, the mean, standard deviation, median, percentile, skewness and kurtosis of the entire sample (N=200) were computed.

TABLE: 4.21

PERCENTILE NORMS OF JOB SATISFACTION SCALE

	ALL THE SAMPLE
Mean	225
SD	25.675
Median	236.00
P 10	105.00
P 20	135.00
P 30	150.00
P 40	200.00
P 50	225.00
P 60	270.00
P 70	295.00
P 80	310.00
P 90	375.00
Skewness	- 3.145
Kurtosis	1.95

The lowest score obtained on Job Satisfaction Scale was 100 and the highest score obtained was 325. It was found that 35 teachers (17.50 %) teachers had scored low on Job Satisfaction Scale i.e their job satisfaction was less than 200. The job satisfaction score of 16 teachers (8 %) was average i.e between 200 to 310. Where as a large majority of teachers i.e. 149 teachers had scored more than 310 on the job satisfaction scale. The norms thus established in the present study may be applied in comparing job satisfaction for other teachers from the population.