CHAPTER III

DESIGN OF THE WORK
PART A

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PART A

3.1 NEED FOR AN ADEQUATE TOOL

As already stated, the entire study has been divided into two fields. Both these fields of investigation are separated clearly with respective specific designations. The specific interest of the study is to measure the attitude of young people toward the aged. This field of the study is referred to as Part A.

Part B of the study is made to investigate into the nature of the adjustment problems the aged are experiencing and to find out whether these are related to the type of attitudes experienced by the aged at the hands of the younger people, especially within the family. Ultimately, this is an indirect method fo find out the relationship between the treatment the old receive and their problems of adjustment, because it is assumed that the treatment is directly and strongly influenced by

the attitudes of the young. The possibility that the problems for old may exist independently of the treatment received, has also been included in this part.

Both these parts are separately dealt with in two different chapters. The present chapter entirely deals with Part A. Here, a need was acutely felt for the adequate tools to measure the attitude of the young toward the aged. Measurement of attitudes is not, yet, widespread in this country, and people are not, still, measurement conscious. As a result, a number of difficulties are usually experienced by the investigator who is out for investigating the attitudes of people.

Amongst all these difficulties, the one that was keenly felt initially, was the absence of appropriate tools, already existing. In the absence of such existing attitude scales, no clue was available as to the type of a suitable instrument for the present investigation. At places where the measurement of attitudes is a very common and frequent research activity, a number of scales are available from which one may directly pick up some suitable items and only change the name of the object of the attitude to be measured. Although a scale cannot scientifically be constructed by such direct picking up, at least it helps a good deal in the process of the scale construction. Master scales, too, are used at times, for the economy of time.

In order to escape the laborious task of constructing separate scales for measuring attitudes toward different objects, Remmers and Silance[1] proposed to develop 'master' scales. The Thurstone scaling technique was followed; but instead of making the various propositions refer only to a single object in each scale, the statements were generalized, so that they could be applied with equal meaning to a wide variety of objects. As no such provision was available, connected with the Indian problems or attitudes of Indian people, the sole reliance was on field work alone. References to other similar scales are conspicuously lacking. However, a number of references, are found for the work in the Western studies.

A point of importance that was noted was that the total attitude, as such, may not be the only precise index of the treatment received by the aged at the hands of the young. As the major concern is with the treatment, provision to measure indices that are directly connected with the treatment, was felt necessary. This could be possible if the instrument included in itself a group of items that openly provide scope for the expression of the behavioural tendencies.

At the same time, the instrument will be required to be spread over the main areas of adjustment between

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[1] Remmers,H.H. and Silance,E.B. "Generalized Attitude Scales", J. Soc. Psychol (1934), V.5, Pp. 298-312.

the young and the old staying together, because, ultimately the mutual adjustment in these areas gives rise to the type of attitudes the young are holding or the type of problems the aged are facing.

Taking these facts into consideration, the first step in the design of the Part A was to construct an adequately suitable tool that would serve the major purposes of the measurement. Interest is not only in assessing the valence but also some components of the multiplexity. A scale is, therefore, constructed to measure the attitude of the young toward the aged, that would include the cognitive as well as the action tendencies based upon the major areas of adjustment between the young and the old.

3.2 THE TECHNIQUES OF ATTITUDE MEASUREMENT

Attitude measurement marks off an important milestone in psychological measurement and research in social psychology. Attitudes have been variously measured, either directly or indirectly. Amongst the methods of direct measurement, the most common are the methods of direct questioning and the observation of overt behaviour.

(a) Method of Direct Questioning

It seems to be perfectly logical to assume that the best and easiest method of being informed about the attitude of the other person is to ask that person

concerned directly about the attitude. However, such an open and direct procedure does not always work well for psychological measurements. Such measurements are subtle and delicate in nature. Although direct questioning may be satisfactory for certain purposes, it does not yield to reliable, objective results, on a number of occasions.

The reluctance of many individuals to give public expression to their feelings on controversial issues is a disadvantage of the method of direct questioning. Fear for social disapproval is likely to tempt the respondent, frequently, to offer faked responses. This difficulty is even more acutely felt by persons of shy and nervous temperament. "Only when the social atmosphere is free from felt or actual pressures toward conformity might we expect to obtain evidence about a person's attitudes by means of direct questioning".[1]

According to the findings of clinical psychologists and psychiatrists, some individuals may not be aware of their feelings toward a given psychological object. Moreover, sometimes the feelings about the psychological object are so mixed and confused that the person concerned may find it difficult to evaluate them by

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[1] Edwards,A.L. Techniques of Attitude Scale Construction. (New York: Appleton Century Crofts, Inc., 1957), P.3.

introspective methods. Such evaluations may demand more objectivity and insight than some individuals are capable of giving in response to a direct question. The measurement done by this method does not make provisions for finer shades of discriminations within the attitudes. Only three dimensions, two of the extremes and one of a neutral or undecided position can be crudely measured.

(b) Method of Direct Observation of Behaviour

Another approach to the problem of investigating attitudes has been to observe the behaviour of individuals with respect to a psychological object. Incidental questions for clue to the behaviour are also used in addition. This procedure may stand on a theoretical ground. As a scientific method, the method of objective observation is quite legitimate. It may work with a limited sample for intensive study. But a research worker interested in the attitudes of a large number of individuals toward some object may not have the opportunity to observe in detail the behaviour of his large sample. The method becomes extremely time consuming as the observer has to wait for the desired reactions between the persons and the object of attitude. Any forced reactions would fail to reveal the genuine attitude.

In case of spontaneous reactions too, behaviour is in many cases designed to conceal feelings. There are a

number of factors besides attitudes that direct the behaviour of an individual. Attitudes as one amongst them, may not necessarily be the most prepotent. At times, those other factors gain an upper hand over the feelings. Thus there is no one-to-one necessary correspondence between overt behaviour and attitudes.

In spite of the previously mentioned limitations the verbal behaviour may serve as a more accurate indication of the feelings or attitudes of individuals than observations of their non-verbal behaviour. It is a disadvantage of both the methods of direct questioning and the observation of behaviour that they do not conveniently lend themselves to an assessment of the degree of affect, individuals may associate with a psychological object. These methods result in a rather crude classification of attitudes; and the members of a certain class thus formed, may be quite heterogeneous with respect to the strength or intensity of their attitudes.

(c) Less Direct Measure of Attitudes

Scaling methods aim at an indirect measurement of an attitude. The attitude is inferred from the opinion of the subjects as expressed in responding to the items of the attitude scale. However, there are other techniques which differ from both the direct and indirect measurements.

Remmers[1] describes them as "the less direct measures of attitudes".

It is indicated in the scaling techniques that there is a possibility of distortion of responses which are given to the questionnaire. To overcome this difficulty, projective techniques are used at times. Parental attitudes, religious attitudes or attitudes towards a social group are often measured this way. Lydia Jackson's[2] test of family attitudes is a good example of this device. Here the individual has less chance to distort the data.

(d) Measurement by Rating

A number of judges are made to rate the attitude of the subject. The judges are experts like clinicians or interviewers. But before the judge can rate the person's opinion or attitude, he must have data from various sources to serve as a basis for his ratings. For his evaluation, the judge makes use of (1) observation of the overt behaviour of the person in relation to the object of the study, (2) the verbal behaviour of the person, and (3) the responses to the projective tests.

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[1] Remmers, H.H. Introduction to Opinion and Attitude Measurement. (New York: Harper & Bros., 1954), P. 197.

[2] Jackson Lydia, A Test of Family Attitudes. (London: Methuen & Co. Ltd., 1952)

Rating as a method of evaluating the attitude is indeed an economical technique. It has its equivalents in the scaling methods in the form of rank order and paired comparison methods. Rating requires much less time than paired comparisons and can be used with a large number of stimuli. As it stands at a common sense level it appeals to the interest of the rater.

However, the rating scale methods have certain definite disadvantages when compared with paired comparisons and rank order. There is wide scope for bias and error. The assessment lacks objectivity.

(e) Self-rating Method

This method occupies a place by itself. In this procedure, the individual himself is a judge. His job is to place himself at a point which represents his position on the dimension being measured. This method too, lacks objectivity. But it is often useful in schools, clinics and industry. One may arrive at fairly reliable indications of interests and attitudes if the subject is able and willing to cooperate. Especially, with the multiple choice method, it works well.

(f) The Scaling Methods

In clarifying the concepts of measurement in the previous chapter, the scaling methods and their objectives have already been explained. The scaling method is an

indirect method of assessing the attitude of an individual. There are different types of scales generally used for the purpose of attitude measurement. The differences, however, lie in the method used for assigning the scale values to the items that make up the scale. Otherwise, in principle all the scales have a common aim of placing the individual at a specific point along a continuum on the basis of his agreement or disagreement with the statements. The attitude scales thus make provision for an indirect way of estimating the valence of the attitude.

The commonly used popular techniques are Likert's technique of summated ratings and Thurstone's technique of equal-appearing intervals.

(i) Likert's Method of Summated Ratings

This method devised by Likert in 1932, has an aim similar to that of other scaling methods, viz., to place an individual at a specified point on a continuum ranging from favourable to unfavourable attitude.

This method requires a large number of items ranging from extremely favourable to extremely unfavourable. These are presented to a group of subjects in an actual trial form. Analysis of the responses is made itemwise on the basis of internal consistency. Those with a high level of consistency are ultimately maintained as they

are obviously tapping the same attitude. In a successfully constructed scale, there emerges a list of items with high internal consistency and high split half reliability. The final scale consists of items which possess the highest degree of discrimination level. These items are used with five response categories for obtaining the scores.

This method of constructing an attitude scale is a popular device because of its economy of labour. In comparison to other methods of scale construction, it requires moderate time and labour. One more advantage of the method is that it offers a clear qualitative picture of the individual's attitude as the subject has to react to every item on a five-point scale. This is actually a strong point in favour of the method when compared with the Thurstone's technique of equal-appearing intervals, in which the subject either accepts or rejects. Similarly in Likert's scales specific items are available for individual analysis of their content. Thurstone's technique cannot serve this dual function. Thus Likert's scales are useful for the purpose of comparison between groups regarding the mean position of the attitude and for observing the amount of change brought about by some experimental variable.

The main disadvantage, however, is that the scores are integrated in terms of where the individual falls in relation to the total distribution of scores. This is the way the scores are integrated in most of the psychological tests. They fail to give us the idea of the individual's absolute standing, without any comparison to the total distribution of scores. Besides, it gives little insight into the cause and effect relationship. Moreover, the purpose of investigation is obvious to the subjects and thus there are more chances of getting faked responses.

(ii) Thurstone's Method of Equal-appearing Intervals

This method is originally described by Thurstone and Chave[1] in 1929. The characteristic peculiarity of this method is the use of a group of judges for deciding the scale value of each item separately.

The items selected in a Likert scale do not represent different degrees of favourability or unfavourability. They are considered equivalent in both the categories. The position of the individual is influenced by the number of favourable and unfavourable responses and their intensity.

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[1] Thurstone,L.L. and Chave,E.J. The Measurement of Attitude. (Chicago : University of Chicago Press, 1929).

In Thurstone's method of equal-appearing intervals, every statement differs in its degree of valence; and agreement with any of them directly influences the position of the individual on the scale. The use of a group of judges is a unique characteristic of this method. In equal-appearing interval scales, the attitude scores obtained by a single subject has an absolute interpretation in terms of the psychological continuum of scale values of the statements making up the scale. That is because the attitude score is taken as the median of the scale values of the statements with which the subject agrees.

The value of an item thus has an absolute interpretation whereby the scores of the individual obtain a clear-cut specific significance. The interpretation of the scores can be made independently of the distribution of scores for a particular group of subjects. The scores do not indicate a relative position of the individual as they do in the Likert scale. This method also makes provision for locating a point of neutrality along the scale.

Thurstone's technique of equal-appearing intervals is found to be comparatively superior. But its main drawback is that it is a lengthy procedure. It requires almost double the time required by the Likert Scale.

The factors that make for invalid self report are equally present in both the scales.

The Likert technique permits response set to influence the scores which may lower the validity. Thurstone's scale does not create this type of set, as one is only to indicate the agreement with the items, apart from the intensity of the agreement.

(g) Comparative Evaluation of Summated Ratings and Equal-appearing Intervals

The relative effectiveness of various methods has rarely been studied. But Hevner[1] scaled samples of handwriting by three methods - paired comparisons, ranking and equal-appearing intervals. The findings of her study were that the scale values of the first two methods were similar, but different from the method of equal-appearing intervals. Ferguson[2] studied the above three techniques and reported that there was a close agreement among the scale values. He finally concluded that the method of equal-appearing intervals is superior, considering the accuracy of the interpretations. Here the scale values are not affected by the inclusion or exclusion of the other items.

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[1] Cited by Green,E.B., Measurement of Human Behaviour. (New York : Odyssey Press, 1952), P. 625.

[2] Ferguson,L.W., "The Influence of Individual Attitudes on Construction of an Attitude Scale". J. Soc. Psychol., (1935), V.6, Pp.115-117.

Some controversy has centred around the subject of the comparative reliabilities of scales constructed by the method of summated ratings and by the method of equal-appearing intervals. Likert[1] has himself studied the reliability of a Thurstone type scale that was scored by both methods.

The results were ultimately slightly in favour of the Likert scale so far as reliability was concerned.

However, Ferguson[2] has pointed out that the higher reliability of the Likert technique can be explained by the length of the forms in the work of Likert. Ferguson[3] has quoted Thurstone as reporting the reliabilities of scales constructed by the method of equal-appearing intervals, under his direction, as being, "all over .8, most of them being over .9". He adds that in his own studies he has found reliabilities for equal-appearing interval scales, ranging from " .52 to .80 for the 20

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[1] Likert, R. "A Technique of Measurement of Attitudes". Arch. Psychology; 1932, No.140.

[2] Ferguson,L.W., "A Study of the Likert Technique of Attitude Scale Construction". J. Soc. Psychol. (1941) V. 13, Pp. 51-57.

[3] Ferguson, L.W., "The Requirements of an Adequate Attitude Scale". Psychol. Bulletin, (1939) V. 36, Pp. 665-673.

item forms and from .68 to .89 for the 40 item forms. Edwards[1] says, "According to the evidence at hand, there is no reason to doubt that scales constructed by the method of summated ratings will yield reliability coefficient as high as or higher than those obtained with scales constructed by the method of equal-appearing intervals".

Edwards in collaboration with Kenney[2], also carried out a study for the purpose of the comparative evaluation of both the techniques.

The results show that both the technqiues are on a par so far as the reliability value is concerned. They, however, admit that the time required to construct an equal-appearing interval scale is approximately twice that required by the method of summated ratings.

It has been claimed by Likert[3] that the method of summated ratings is simpler and easier to apply in the development of an attitude scale than is the method of equal-appearing intervals. The claim has been supported by Hall[4] and also by Rundquist and Sletto.[5]

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[1] Edwards,A.L. Techniques of Attitude Scale Construction. (New York:Appleton Century Crofts,Inc.,1957,P.162.

[2] Edwards,A.L. and Kenney,K.C. "A Comparison of the Thurstone and Likert Techniques of Attitude Scale Construction", Journal of Applied Psychol.(1946),V.30,Pp.72-83.

[3] Likert,R. "A Technique for the Measurement of Attitudes", Arch. Psychol., (1932), No.140.

[4] Hall,O.M., "Attitudes and Unemployment", Arch. Psychol.,(1934), No. 165.

Thus, the only point of disadvantage about ehe method of equalappearing intervals seems to be the laborious procedure of the scale construction. However, we now know that it is not necessary to use an excessively large group of judges (300 as was originally used by Thurstone) in order to obtain reliable scale values. Judgements can be obtained quickly and conveniently in terms of the methods used by Seashore and Hevner[1] and Ballin and Farnsworth[2]. Once judgments have been obtained, scale and 'Q' values can be rapidly determined through the use of a monograph, as described by Jurgenson.[3] Edwards and Kilpatric[4] also have discussed similar devices.

Thus it can be seen that so far as time and labour is concerned, both the methods are comparable.

Ultimately the method of equal-appearing intervals was selected for the present investigation, considering

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[5] Rumdquist,E.A. and Sletto,R.F. Personality in the Depression (Minneapolis : University of Minnesota Press, 1936).

[1] Seashore,R.H. and Hevner,K. "A Time Saving Device for Construction of Attitude Scales", J. Soc. Psychol., (1934), V.5, Pp. 228-238.

[2] Ballin,M. and Farnsworth,P.R. "A Graphic Rating Method for Determining the Scale Values of Statements in Measuring Social Attitudes". J. Soc. Psychol,(1941), V. 13, Pp. 323-327.

[3] Jurgenson,C.E. "A Monograph for Rapid Determination of Medians". Psychometrika, (1943), V.8, Pp. 265-269.

[4] Edwards,A.L. and Kilpatric,F.P. "A Technique for the Construction of Attitude Scales", J. Appl.Psychol., (1948), V.32, Pp. 374-384.

certain points of advantage of the method, which are already pointed out at various stages of discussion. The chief amongst them are the following :

(a) It is a widely used method for obtaining scale values for a large number of statements. Its use for the last twenty-five years is a common practice. That makes the technique a familiar device.

(b) The use of judges to determine the points on the attitude continuum is the outstanding feature. It gives the scale positions a rational and absolute meaning. Especially, if the judges are in good agreement, the score tells us directly about the position of the attitude of the respondents.

(c) This method also assumes that the intensity of the judgments is independent of the judges' own attitudes. There is no scope, thus, for the bias of the judges.

(d) Fine verbal discriminations of the intensity of the feelings is not required for the subjects. Even the less educated subjects can be perfectly at ease with this technique as their task is only to indicate their agreement and not its degree.

(e) The neutral point is an outstanding feature of this method that joins the two continui making them continuous. It provides for an actual visualization of the position of the respondent along the scale.

3.3 CONSTRUCTION OF THE SCALE : PILOT WORK

The scale constructed by the method of equal-appearing intervals, generally, is made up of twenty to twenty-five items. But the scale for the present investigation had to be a bigger scale than is normally constructed. It has to spread over a number of areas where the problem of adjustment arises for the young staying together with the old. The first step was to decide the number and types of these areas. Some books[1] on developmental psychology and gerontology were referred to; some articles in the current journals[2] were also made use of for getting an idea of the aboye areas.

The genuine difficulty, however, was that literature based upon Indian conditions was conspicuously absent. Whatever areas of adjustment were found in the Western society may not be applicable to the Indian society. Sociological factors determining them differ from society to society and culture to culture. With this consideration, it was decided to keep the major reliance on field work.

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1 & 2 As stated in the Bibliography.

A small sample of the Marathi speaking population of the city of Baroda was selected. Incidentally, it was decided that the scale would be administered upon the Marathi speaking population of the city of Baroda. The small sample for the present purpose was selected so as to include both the sexes, three income groups and three educational levels. Moreover, it was a bimodal sample including young as well as old members. It was also seen that the young and the old had to stay together. It was considered essential for them to be clearly conscious of the mutual adjustment problems. This pilot work, it was thought, would also be useful for constructing adequate tools for the Part B of the study, which was planned to deal with the adjustment problems of the aged.

The number of the old persons in the family was found to be limited, generally a single or two at times. Within the same family, three or more young members could be easily available.

The sample was defined with reference to the requisite particulars and in all, thirty six cells were formed as shown in the following table.

Table 3.1 The sample for the pilot work to decide the main areas of adjustment for the young and the old.

	Young			Old			
	P	Q	R	P	Q	R	
X	2	2	2	-	1	-	Females
Y	2	2	2	1	1	-	
Z	2	2	2	2	2	2	
X	2	2	2	2	2	2	Males
Y	2	2	2	2	2	2	
Z	2	2	2	2	2	2	

P - Family income exceeding Rs. 12,000 a year

Q - ,, ,, between Rs. 6000 - 12,000

R - ,, ,, below Rs. 6,000

X - Higher Education (degree holder)

Y - Secondary Education

Z - Primary Education

Among the young, the males and females were equal- two each in every cell making in all eighteen males and eighteen females. Among the old, this condition could not be maintained as the ladies above sixty with higher education could not be easily traced and special effort for it was not made. With more effort, this difficulty could be easily got over. But it was not thought essential. The total sample, thus, included sixty three subjects.

Although the young, selected, had an old member in their family, the young and the old were not selected from the same family to avoid scope for bias.

The sample was interviewed. Separate intensive interviews were conducted for the young and the old. The main questions included in the interview schedule are shown in the Appendix IV along with their English translations.

The responses were analysed on the basis of frequency and ultimately eight major areas were decided where adjustment between the old and the young was considered to be possible. They are as under :

i) Appearance and personality of the aged.
ii) Social status and social relationships.
iii) Emotional problems of the aged and their nature.
iv) Financial status and problems.
v) Health
vi) Family relationships and status within the family.
vii) Religious.
viii) Moral

With this preliminary pilot work the first step in the scale construction was the collection of the items. As has already been pointed out, construction of attitude scales is not a very common research activity in India. Items could not be easily picked up from already constructed scales. Once again the reliance was on field work.

All the items were collected from a random sample. They were graduate and post-graduate students from the Maharaja Sayajirao University of Baroda and Marathi speaking citizens of the city of Baroda. The college students were given the instructions[1] in the English language and their responses were also in the same language and were later on translated in Marathi. With the citizens the instructions[2] as well as the responses were in Marathi.

The items thus collected were carefully scrutinized. Long complex sentences were split up. The figurative confusing items were omitted. It was also seen that the items that are not apparently diagnostic fall out. Ultimately, a list of 144 items was selected for further work.[3]

3.4 RATING BY THE JUDGES

The use of a group of judges is an outstanding feature of the method of equal-appearing intervals. The judges are supposed to be experts who can judge the degree of affect of a certain statement. Obviously they have to be educated persons with a considerable weight to the judgements they make. The 120 judges who were selected were all educated and belonging to responsible

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[1] See Appendix V (A)

[2] See Appendix V (B)

[3] See Appendix VI (A) and (B)

and respectable professions as teaching, medicine, government, legal, etc. They were all Marathi speaking persons of both the sexes, from the city of Baroda.

The judges were selected from the different income groups and different castes. Fixing their age limite was a crucial point. It is here that the problem of the personal attitude of the judges props in.

The basic assumption of the method of equal-appearing intervals is that the scale values of the statements are independent of the attitude of the judges who do the sorting. Otherwise, the scale values cannot have an objective meaning. Since the publication of the Thurstone and the Chave monograph, much research has been done concerning the relationship between the scale values of statements and the attitudes of the judges doing the sorting.

Hinckley[1] used three groups of judges who he had some reason to believe differed in their attitude toward the Negro. He finally concluded that the scale values of the statements were independent of the attitudes of the judges.

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[1] Hinckley,E.D., "The Influence of Individual Opinion on Construction of an Attitude Scale", J. Soc. Psychol. (1932), V.3, Pp. 283-296.

In other study by Beyle[1] where the statements relate to a particular candidate for political office and are scaled by the supporters and non-supporters of the candidate, the dcale values obtained from the two groups with opposing attitudes were seen to be highly correlated. There are similar works by other authors like Ferguson[2], Pintner and Forlano[3], and Eysenck and Crown[4] that support the same view.

However, the more recent tendency is to believe that the attitude of the judges does influence the scale values of the statements. A number of studies are conducted where the conclusions are drawn to this effect. Hovland and Sherif[5] obtained equal-appearing interval judgments from a group of Negro subjects, from a group of white

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[1] Beyle, H.C.,"A Scale for the Measurement of Attitude Toward Candidates for Elective Governmental Office". Amer. Polit. Sci. Rev. (1932), V.26, Pp. 527-544.

[2] Ferguson,L.W., "The Influence of Individual Attitudes on the Construction of an Attitude Scale", J. Soc. Psychol. (1935), V.6, Pp. 115-117.

[3] Pintner,R. and Forlano, G. "The Influence of Attitude Upon Scaling of Attitude Items". J.Soc.Psychol. (1937), V. 8, Pp. 39-45.

[4] Eysenck, H.J. and Crown, S., "An Experimental Study in Opinion - Attitude Methodology". Int.J.Opin. Attitude Res. (1949), V.3, Pp. 47-86.

[5] Hovland,C.I. and Sherif,M. "Judgmental Phenomenon and Scales of Attitude Measurement : Item Displacement in Thurstone Scales". J.Abnorm. Soc. Psychol.(1952), V.47, Pp. 822-832.

subjects with favourable attitudes toward the Negro and a group of white subjects with unfavourable attitudes toward the Negro. The scale values differed for all the three groups.

A subsequent study by Kelley, Hovland, Schwartz and Abelson[1] also shows similar results. In a research conducted by Webb and Chueh[2], there is ample evidence to support the view that the judges' attitudes make a difference in the scale values.

In the face of differing views, a middle course was kept. Although any age limit as such was not fixed for the judges, those with an age sixty or above were not included in the group. The judges were, however, all mature men and women.

The number of judges was one more point of importance. Thurstone and Chave used 300 subjects for obtaining scale values. Subsequent research by Nystrom[3], Rosander[4], and Edwards and Kenney[5] indicates that reliable scale values

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[1] Kelley,H.H., Hovland,C.I., Schwartz,M. and Abelson, R.P., "The Influence of Judges' Attitudes in Three Methods of Attitude Scaling", J.Soc.Psychol.,(1955),V.42,Pp.147-158.

[2] Webb,S.C. and Chueh,J., "The Effect of Role-taking on the Judgment of Attitudes", J.Soc.Psychol., (1965), V.65, Pp. 279-291.

[3] Nystrom,G.H., "The Measurement of Filipino Attitudes Toward America by the Use of Thurstone Technique". J.Soc. Psychol. (1933), V.4, Pp. 249-252.

[4] Rosander,A.C., "The Spearman-Brown Formula in Attitude Scale Construction". J.Exp.Psychol.(1936) V.19, Pp.486-495.

[5] Edwards,A.L. and Kenney K.C. "A Comparison of the Thurstone and Likert Techniques of Attitude Scale Construction", J.Appl. Psychol. (1946), V.30, Pp. 72-83.

can be obtained with smaller groups of subjects.

Edwards and Kenney have reported a correlation of .95 between the scale values obtained from a group of 72 judges with the scale values for the same statements based upon the judgment of 300 judges. Correlations as high as .99 have been reported by Rosander for scale values obtained, independently from two groups with as few as 15 judges in each group.

The evidence thus points to the conclusion that a relatively small number of judges can be used to obtain reliable scale values for statements using the method of equal-appearing intervals. Thus, reducing the number of judges, obviously, provides for an economy of time, without affecting the reliability of the scale values.

Ultimately, it was decided to make use of a group of 120 judges, to start with. In order to obtain judgments from subjects following the procedure described by Thurstone and Chave, subjects must be provided with sufficient work space to spread out the 11 cards on which the statements are sorted. The method that was practised some 25 years back can be modified as a result of a number of modern studies conducted in the same area. Many authors have introduced slight verifications in giving instructions and work facilities to the judges.

Webb's[1] work is a good example.

The instructions given to the judges are included in Appendix VI along with the English translation. The 144 statements in the eight areas are also printed in the same form, in a random order. As scaling of attitudes is not a very common activity in India, it was anticipated that the judges may not be quite clear of their job. Their duties were, therefore, explained on the printed form as clearly as possible. Concrete illustrations and demonstrations were given so that their job may be clear to them.[2] But inspite of the explanations, some judges failed to realise their duties. The forms were distributed in person and the subjects were requested to go through the instructions. This manner of judging without involving the personal views was found to be something new for majority of the subjects. That is why some of the subjects who had not responded with one approach had to be visited twice or even thrice especially when they appeared confused. They were given sufficient time for the purpose whenever they asked for it.

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[1] Webb, S.C., "A Generalized Scale for Measuring Interest in Science Subjects". Educ. Psychol. Measurement. (1951), Vol. 11, Pp. 456-469.

[2] See Appendix VI.

If they admitted their confusion, further explanations and demonstrations were verbally supplied.

Out of 120 subjects used, 7 failed to cooperate. The responses of eleven subjects were eliminated as they were found to be careless or not enlightened. A criterion used by Thurstone and Chave for eliminating such judgements was a simple one. Those subjects who put 30 or more statements in the same category were taken to be either careless or those who have failed to follow the instructions. Edwards and Kilpatrick[1] report that they eliminate those subjects who show obvious reversals of the continuum. This can be quickly done by looking at the judgements made for two or three key statements, believed to fall at each of the two extremes of the continuum. This procedure was used for eliminating such judgements in the present study. The judgements of two more subjects out of the remaining 102 were eliminated to obtain an ease of calculation. Ultimately the judgment of a group of 100 judges was made use of.

3.5 SCALE VALUES AND 'Q' VALUES OF THE STATEMENTS

The scale values of the 144 items were computed by the following formula[2]:

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[1] Edwards,A.L. and Kilpatrick,F.P., "A Technique for the Construction of Attitude Scales". J.Appl.Psychol., (1948), V.32, Pp. 374-384.

[2] Edwards,A.L., Techniques of Attitude Scale Construction. (New York: Appleton-Century Crofts,Inc.) 1957, P.87.

$$S = L + \left(\frac{.50 - \leq Pb}{Pw} \right) i$$

Where S - The median or scale value of the statement.

L - The lower limit of the interval in which the median falls.

$\leq Pb$ - The sum of the proportions below the interval in which the median falls.

Pw - The proportion within the interval in which the median falls.

i - The width of the interval and is assumed to be equal to 1.0.

As a measure of the variation of the distribution of judgments, the interquartile range or 'Q' was made use of. To determine the 'Q', it was first necessary to calculate the 75th centile and 25th centile of each statement. These were worked out making use of the following formula[1]:

$$C_{25} = L + \left(\frac{.25 - \leq Pb}{Pw} \right) i$$

Where C_{25} - the 25th centile

L - The lower limit of the interval in which the 25th centile falls.

$\leq Pb$ - The sum of the proportions below the interval in which the 25th centile falls.

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[1] Edwards, A.L., Op.cit., P. 88

Pw - The proportion within the interval in which the 25th centile falls.

i - The width of the interval and is assumed to be equal to 1.0

$$C_{75} = L + \left(\frac{.75 - \leq Pb}{Pw} \right) i$$

Where C_{75} - the 75th centile.

$\leq Pb$ - The sum of the proportions below the interval in which the 75th centile falls.

Pw - The proportion within the interval in which the 75th centile falls.

i - The width of the interval and is assumed to be equal to 1.0.

$$Q = C_{75} - C_{25}$$

The scale values and 'Q' values obtained for the items in all the eight areas are shown in the following tables :

Table 3.2 Appearance and Personality

Item No.	S	Q
1	0.57	1.19
9	9.02	2.88
17	2.11	1.05
25	6.12	0.64
33	9.14	2.76
41	8.98	1.80
49	6.10	0.74
57	3.14	2.62
65	9.46	2.25
73	3.72	1.35
81	5.93	3.02
89	3.22	1.90
97	8.89	2.07
105	2.08	1.95
112	2.20	1.39
119	2.06	1.86
126	2.04	2.10
131	6.26	1.62
136	7.75	1.38
141	8.60	3.04

Table 3.3 Social Status and Relationship

Item No.	S	Q
2	2.50	2.48
10	2.43	1.99
18	10.33	1.62
26	1.63	1.93
34	1.63	1.25
42	10.54	1.40
50	10.61	1.42
58	3.76	0.86
66	3.20	1.80
74	1.81	0.80
82	8.80	2.28
90	6.09	0.75
98	1.64	2.14
106	9.18	2.25
113	1.42	1,54
120	2.96	0.98
127	3.81	2.85
132	8.76	2.19
137	9.23	2.60
142	1.67	1.92

Table 3.4 Emotional Problems and Nature

Item No.	S	Q
3	2.40	1.48
11	9.30	2.17
19	2.17	1.89
27	4.45	2.45
35	2.47	1.84
43	2.36	1.82
51	2.48	2.44
59	8.25	2.48
67	8.73	2.47
75	10.40	1.03
83	2.44	2.34
91	9.93	1.98
99	9.69	2.86
107	6.02	0.60
114	6.82	2.14
121	1.82	1.82
128	9.90	1.76
133	3.93	1.90
138	9.64	2.36
143	8.10	2.55

Table 3.5 Financial Status

Item No.	S	Q
4	8.50	2.48
12	2.50	2.29
20	9.58	2.45
28	1.86	1.91
36	6.07	0.77
44	2.61	1.78
52	2.80	2.81
60	1.63	1.35
68	8.76	1.85
76	3.06	3.04
84	7.62	2.77
92	8.98	2.90
100	8.66	1.83
108	10.61	1.22
115	7.94	2.33
122	1.33	1.37
129	9.42	1.83
134	4.88	2.75
139	6.23	1.26

Table 3.6 Health

Item No.	S	Q
5	6.39	1.63
13	4.30	2.69
21	2.96	2.14
29	6.09	0.73
37	3.43	2.04
45	8.26	2.80
53	2.65	3.84
61	3.79	1.95
69	7.42	1.66
77	3.98	1.94
85	2.88	2.13
93	8.63	2.39
101	3.00	2.02
109	3.34	2.25
116	5.22	3.27
123	4.04	2.17

Table 3.7 Family Relationship

Item No.	S	Q
6	10.57	1.26
14	1.01	2.41
22	2.29	1.24
30	1.44	1.27
38	1.15	1.08
46	2.17	1.00
54	9.94	1.04
62	9.92	1.56
70	1.86	2.03
78	10.57	2.29
86	10.10	2.22
94	9.59	1.92
102	1.40	1.30
110	1.94	2.93
117	8.70	3.19
124	5.25	1.80
130	5.76	4.87
135	5.08	3.88
140	9.13	2.42
144	3.95	4.25

Table 3.8 Religious Problems

Item No.	S	Q
7	3.20	2.54
15	2.74	2.90
23	7.50	3.19
31	8.96	2.96
39	6.92	2.74
47	3.15	2.19
55	3.64	2.11
63	7.70	2.24
71	2.67	1.48
79	1.65	1.62
87	3.50	2.04
95	9.24	2.40
103	5.81	2.18
111	6.04	0.09
118	3.28	1.94
125	7.81	2.87

Table 3.9 Moral Problems

Item No.	S	Q
8	10.25	2.83
16	9.78	2.77
24	2.83	1.92
32	1.16	0.66
40	1.33	1.15
48	9.30	3.17
56	1.36	0.71
64	2.44	1.84
72	9.00	1.71
80	3.05	3.16
88	3.43	1.75
96	5.77	2.63
104	5.98	0.62

The final selection is made on two criteria. (1) Statements with a wide 'Q' indicate less degree of agreement between the judges so far as that item is concerned. Such items were eliminated. (2) It was also seen that the scale values should be evenly distributed along the continuum. Making use of these criteria, ultimately 48 statements were selected for the final scale.[1]

These 48 items belonged to eight different areas. But they were finally classified by combining a pair of areas. This was done to obtain evenly spread scale values. The four areas are given below. The numbers of the items (in the final scale) are given against them.

(1) Appearance, Personality and Health

1, 4, 6, 8, 12, 21, 31, 33, 35, 42, 44, 48.

(2) Social Status and Emotional Problems

2, 9, 10, 14, 18, 20, 22, 25, 26, 32, 37, 38, 45, 46.

(3) Financial Status and Family Relationship

3, 7, 11, 16, 17, 19, 27, 28, 39, 40, 41, 43, 47.

(4) Religious and Moral Problems

5, 13, 15, 23, 24, 29, 30, 34, 36.

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[1] See Appendix VII (A) and (B)

All the items were carefully scrutinized in order to find out those which directly refer to the behavioural tendencies. Twelve such items were found out which are shown below :

2, 7, 9, 13, 16, 25, 27, 32, 40, 41, 43, 47.

3.6 TESTING THE TOOL

(a) Reliability

It has been customary among those working with the method of equal-appearing intervals to construct two comparable forms of the attitude scale. This is done by selecting from the initial group of statement for which scale and Q values have been obtained, in addition to the first set, a second set of 20 to 22 statements such that they also have scale values fairly equally spaced along the psychological continuum and with fairly low Q values. If both forms of the attitude scale are then given to the same group of subjects, the scores for the subjects on the two forms can be correlated and this correlation taken as a measure of the reliability of the scale.

It was not possible to do so in the present work as the scale was a longer one than is ordinarily used. (Only 20 to 22 items). The test-retest method was, therefore, used for establishing the reliability.

A group of 125 candidates in different final year degree classes of the M.S. University of Baroda was selected. They were all Marathi speaking subjects of both sexes. The form was administered after a period of two months approximately the same subjects were given the forms once again. 106 subjects of the original group were available. Finally the responses of the two administrations of 100 subjects were made use of.

The coefficient of correlation between the scores of the two administrations was calculated by the product-moment method.

It amounted to .91. This evidently shows a highly significant reliability of the scale.

(b) Validity

The validity was computed by making use of the empirical criterion for comparison. This method is being widely used during the recent years. Patel's[1] work shows that it works well. Two contrasting groups that were known to the investigator were selected. They were small groups of young persons of both sexes selected at random. One was of persons having a favourable attitude toward the old. This could be made out from the fact

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[1] Patel, A.S. Advances in Education. (The Maharaja Sayajirao University of Baroda Press, Baroda, Vol. 1, No. 2, 1965,) Pp. 14-15.

that there were old persons in their families and the subjects showed evidence in their behaviour to a favourable attitude. They respected the old family members, had sympathy for them and cared for them in a favourable manner. There were in all 35 members in this group. All the responses in this group showed a score tending toward a fairly favourable point. The mean value of the score was 9.2.

The contrasting group had 30 subjects. As known to the author, they had often expressed their unfavourable opinion toward the old persons. Some of them had old persons in their family who were quite often criticized for their strange behaviour. They were considered to be of no use to the family and society. It was obvious from their behaviour that their attitude toward the old is unfavourable. Their responses, however, did not show scores tending towards the unfavourable point, but they were neutral. The mean value of the scores was 6.16. Somehow it was definitely lower than the previous group. That is why it was considered to express their attitude as not favourable. This reveals that the scale has a high validity. This made the investigator treat the tool as a valid scale for measuring the attitudes of the young toward the aged.

The attitude scale that was thus standardized was considered to be an adequate tool for investigating into the nature of the attitude of the young toward the aged. The data collected by administering this scale was planned to be analysed quantitatively. The variables were defined for the purpose of quantitative analysis and provision was made in the final form[1], so that the information about those variables could be easily obtained.

3.7 SUMMARY

An adequate tool applicable to the Indian social conditions was felt essential for the measurement of the attitudes of the young toward the old. A scale for measuring the attitude was thought to be the best device amongst the various other devices. Out of the most commonly used scaling techniques, the Thurstone's method of equal-appearing intervals was ultimately selected for constructing the attitude scale. This scale was spread over the different areas of adjustment that are possible between the young and the old. Items were collected and given to judges for deciding scale and 'Q' values. Ultimately 48 items were selected for the final scale. The reliability and the validity of the scale was established.

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[1] See Appendix VII (A) and (B)