CHAPTER 2

METHOD AND PROCEDURE

METHODOLOGY

A variety of approaches can be used in research studies
of the student-teacher relationship, such as student or
teacher listing of characteristics of the most liked and
disliked relationships, careful studies of student-teacher
relationships in the classroom and by having experts classify
the observations as representing the most and the least ideal
relationship. Most of the devices used in this area employ
principally paper-pencil questionaires and ratings, which
are the major approaches used in almost every kind of study.
Recently, a new approach called 'Q-Methodology' was developed
by Stephenson.[1] It is a special method of presenting test
items and analyzing the results. The unique characteristic
of Q-Method is that it permits the calculation of correlations
between people or between different occasions for the same
person. Wallen, Travers and Reid[2] stated that Q-Method has
several advantages over ratings. It permits the systematic
comparison of each subject with every other subject with

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[1]William Stephenson, The Study of Behavior, 376 pp.

[2]Norman E. Wallen, Robert M.W. Travers, Ian E. Reid,
"Relationships Between Teacher Needs and Teacher Behavior
in the Classroom," Journal of Educational Psychology 54(1):
23-32, 1963.

respect to each characteristic and hence provides a more stable frame of reference.

In using the Q-Method, first of all the field or the problem under study should be thoroughly investigated, then a universe of items (statements, pictures or the like) concerning the traits under study should be defined; and from this universe a sample of items should be drawn, resulting in a specific number of items representative of the universe. It is in the definition of the universe and in the structuring of that sample that the theoretical basis of the study becames important. Jackson[3] said "...Q-Methodology is appropriate only to those studies which are based on theory..." After the selection of items, every item to be used must take the form of statements, pictures or the like. These statements should be presented to the subject in a form which permits him to rank them according to some stated criterion. The statements are usually presented in a pack of cards which must be sorted from high to low along a forced or unforced frequency distribution according to the criterion. This method of using the ranking of statements to measure traits and their relationships is referred to as Q-Technique or

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[3]David M. Jackson, "A Modification of Q-Technique," Educational and Psychological Measurement 19(2): 221-232, 1959.

Q-Method and the card sort device as the Q-sort.

The ranking assigned by the subjects to each of the statements provides the raw data for analysis. According to Stephenson[4] both analysis of variance and factor-analysis can be used to analyze Q-data. The predictions of uniformities in the data based on the theory can be tested by using factor-analysis. This statistical analysis is devoted to the indentification of existing solutions which are compatible with the theorectical formulations. Analysis of variance is useful to confirm directly the theorectical structure of the study. After having factor-analyzed a pattern of statements classified by means of the Q-Technique, it is often desirable to obtain a factor-array which is an arrangement of items or statements which best typifies the factor. The items or statements are arranged in order of their contribution to the factor loading, and from these we get an idea of the nature of the factor.

Q-Technique may be utilized to classify elements into either a forced or unforced frequency distribution. But since the method for analyzing the results when using an unforced distribution is very complicated a forced normal frequency distribution is more popular because it helps minimize some troubles in analyzing the data. Cronbach and Gleser[5] have commented that, in general, the forced

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[4]Stephenson, op. cit., pp. 101-113.

[5]L.J. Cronbach, and Goldine C. Gleser, "Assessing Similarity Between Profiles," Psychological Bulletin 7:456-473, 1953

choice results in loss of certain information which would be retained if and unforced choice was used. Block[6] empirically studied the relative efficiencies of the forced and unforced Q-sorting procedure. In various comparisons, the forced choice appeared equal or superior to the natural unforced choice. Studies have been done to determine the kind of situations which calls for a forced choice and the kind of situation which calls for unforced choice, but no conclusion could be drawn from them.

At first, Q-Technique has been used in psychology in the study of self-psychology, the results of psychotherapy and the study of persons with personality disorders. Later on there have been indications that this method can be utilized in the study of related social problems as Corsini[7] did in his study of happiness in marriage. It has also been used in the measurement of attitudes and beliefs as Broen[8] used in his study of religious attitudes. Q-Technique also

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[6]Jack Block, "A Comparison of the Forced and Unforced Q-Sorting Procedure," Education and Psychological Measurement 16(4):481-493, Winter, 1956.

[7]R.J. Corsini, "Understanding and Similarity in Marriage," Journal of Abnormal Psychology 52:327-332, 1956.

[8]W.E. Broen, Jr., "A Factor-Analytic Study of Religious Attitudes," Journal of Abnormal Psychology 54:176-179, 1957.

offers educators a means for dealing more systematically with some problems. Morsh[9] described the use of a Q-sort procedure in securing the classes' evaluation of the teachers. Revie[10] used this method to describe both the teachers' and the school psychologists' concept of pupil.

The main difficulties in using the Q-Technique are that it requires much time in administering the sorting because it calls for an individual sorting and the method for analyzing the data is very complex. Because of this complexity, the number of respondents should not be too large, so any study using this method will confronted with the problem of generalization of results which can be done to only a very limited area.

SAMPLES

There are three groups of subjects. The first group are adolescent students in MS.3 (grade 10) studying in the Demonstration School at Chulalongkorn University. Numbers, started from one, were assigned to all the students in MS.3

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[9]J.E. Morsh, "The Q-Sort Technique as a Group Measure," Education and Psychological Measurement 15:390-395, 1955.

[10]V.A. Revie, " The Effect of Psychological Case Work on The Teacher's Concept of the Pupil," Journal of Abnormal Psychology 3:125-129, 1958.

in this school. Then a set of 15 numbers, started from 8, 16, 24 until 120 was selected by the investigator to represent the numbers of persons chosen to be samples. After that, samples were drawn, they appeared to be 9 boys and 6 girls of average 15 years of age. The second group are fourth-year students, 3 males and 12 females, from The Faculty of Education, Chulalongkorn University, selected by the same procedure described above. Each of them has ever had an experience as a student-teacher for half a year. The selection of the third group which are teachers at the Demonstration School still followed the same procedure. First of all, it was intended to do the study with only teachers who taught in MS.3, so 15 teachers were selected from this specific group to be samples. After two weeks of administering the sort, four teachers refused to co-operate. The school was closed, so no time was available for a second sampling; another three teachers, taught in the same school and are acquainted with the investigator, were asked to sort the cards. All these three taught in elementary grade level. This third group altogether then were composed of 14 subjects, 4 males and 10 females, three taught in the elementary grade level and 11 taught in secondary grade level. Every of them has graduated from the university at least three years ago.

Only a small number of subjects in each group is used because the analyzing of the Q-data is very complex. Since Q-Method calls for individual sorts and no specific time is

established for each sorting, quite a large amount of time
should be required in administering the sorting. Any school
which is selected in the study should excuse the subjects of
this study from their usual requirements for a sufficient
period of time and should provide a quiet location for
administering the sort. The Demonstration School is selected
in the hope that more cooperation will be received there than
elsewhere and that the students and teachers there will be
less defensive in sorting the statements because they are
acquainted with responding to questionaires. The less
defensive the subjects are the more reliable the sorting will
be. Fourth-year education students are included in the study
because they are students who are going to be teachers in
the near future: so their perceptions of ideal student-teacher
relationship represent partly the perceptions of students
partly the perceptions of teacher.

THE NATURE OF THE STATEMENTS

The seventy-five Q-sort statements used in this study
are Thai translations of Tyler's statements.[11] Help in
translation is from Archan Jarnthorn Buranabunpoj and Archan
Sumonl Amornviwat and they are approved by Dr. Saisuree
Juthikul. All these seventy-five statements are classified
into three dimensions, these dimensions are a priori, not

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[11]Tyler, op.cit., p. 113.

empirical (as a result of experiment or survey) determined.
The steps within the dimensions, along with the numbering
system for the Q-sort, is the following:

Communication

    1-16-31-46-61-- No communication is possible.

    4-19-34-49-64-- Communication is poor.

    7-22-37-52-67-- Some communication exists.

    10-25-40-55-70-- Communication and understanding is good.

    13-28-43-58-73-- Communication and understanding is excellent.

Emotional Distance

    2-17-32-47-62-- Teacher draws away from or rejects student.

    5-20-35-50-65-- Teacher is somewhat cool toward student.

    8-23-38-53-68-- Teacher is emotionally neutral.

    11-26-41-56-71-- Teacher tends to draw emotionally close to
                       student.

    14-29-44-59-74-- Teacher tends to be too close, is sticky.

Status

    3-18-33-48-63-- Teacher feels very inferior and insecure.

    6-21-36-51-66-- Teacher tends to look up to and defer to
                       student.

    9-24-39-54-69-- Teacher maintains peer relationship with
                       student.

    12-27-42-57-72-- Teacher tends to look down on student.

    15-30-45-60-75-- Teacher feels very superior to student.

    (The listing of the seventy-five statements can be
seen in appendix A and B.)

PROCEDURE

All the statements were printed on 3½"x2" cards. The
number of each statement was put on the back of the card.
The pack of cards was arranged from number one to seventy-five
and then shuffled before presentation to the subjects. Subjects
had to sort the cards along a forced normal frequency distribu-
tion with 1, 7, 18, 23, 18, 7, 1 cards in seven categories
from the most ideal relationship to the least ideal one
according to the instructions (see appendix C.) The scores
for each category were 7, 6, 5, 4, 3, 2, 1 ordered from the
statements describing the most ideal relationship to the least
ideal one. Instructions were given in two ways. For the
two students groups, instructions were given orally by the
investigator together with the readily shuffled pack of cards;
then the individual sort began. The group of teachers which
served as subject were so busy that no time was available
for them to do the sorting individually with the investigator,
so instructions were printed and sent together with the pack
of cards so that they could do the sorting at home. During
the performance, close observation of subjects was made and
note was taken about such relevant matters as time consumed
and subjects' attention and motivation.

STATISTICAL ANALYSIS OF THE DATA

Ideally, the data should be factor-analyzed so that a
factor-array sort could be computed. But since there is no

compeuter program available in time for the deadling of the thesis, these following statistical techniques are employed instead:

1. The correlation matrix for each group is computed through Pearson Product Moment Correlation.

2. Difference between mean of each correlation matrix is tested by Fisher's t-test. Guilford[12] has suggested that the coefficients of correlation are only index numbers because they are not values on a scale of equal metric units. Differences between large r's must be much greater than those between small. If the sample r's to be averaged are of about the same value and if they are not too large, a simple arithmetic mean will suffice. If the r's differ considerably in size and they are large, it is best to transform the r coefficients into Fisher's Z coefficients before computing the arithmetic mean. Thus, all the r coefficients obtained from this study are converted into Z coefficients by means of Fisher's table before the computation of arithmatic means and the t test.

3. A cluster analysis for each correlation matrix is calculated by Tyron's method which is the modification of Holzinger and Harman's B-coefficient.[13]

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[12]J.P. Guilford, Foundamental Statistics in Psychology and Education, pp. 348-349.

[13]Benjamin Fruchter, Introduction to Factor Analysis, pp. 12-17.

4. Mean scores of the sorting of each statement are computed to provide the ranking of statements into a rough array.