

CHAPTER-III

PLAN AND PROCEDURE

The influence of advancements in the field of science of technology on varied aspects of life has resulted in explosion of knowledge and resources.

Effective communication would require teachers to express the ideas clearly. There must exist a teaching tone of mutuality involving a sharing of experiences which the teacher and his students must commonly undertake together. Good communication is essentially good teaching and good teaching requires a sympathetic sharing and a clear expression and explanation of ideas for achieving specific outcomes. Teachers' help students to learn information, acquire values and develop attitudes. In the process students also learn how to learn.

Good teachers are effective communicators. What then are the personality traits or characteristic peculiar to these effective communicators? As educationists identifying these personality traits in teachers from the four professional courses, Education, Engineering, Law and Medicine would help to plan designs to cultivate and develop these personality traits in the teaching professions. By comparing the four professions Education, Engineering, Law and Medicine an insight into the teachers of the other professions will be unfolded. Therefore, the researcher has undertaken the present study.

METHOD OF RESEARCH :

Descriptive research -

Descriptive research, sometimes known as non-experimental research, deals with the relationships between variables, the testing of hypothesis, and the development of generalization, principles, or theories that have universal validity. It is concerned with functional relationships. The expectation is that if variable 'A' is systematically associated with variable 'B', prediction of future phenomena may be possible and the results may suggest additional or competing hypotheses to test.

The method of descriptive research is particularly appropriate in the behavioural sciences, because many of the types of behaviour that interest the researcher cannot be arranged in a realistic setting. Introducing significant variables may be harmful or threatening to human subjects. Ethical considerations often preclude exposing human subjects to potentially harmful manipulation.

Some experimental studies of human behaviour can be appropriately carried on, both in the laboratory and in the field. The prevailing research method of the behavioural sciences is descriptive. Under the conditions that naturally occur in the home, the classroom, the recreational centre, the office, or the factory human behaviour can be systematically examined and analyzed.

SURVEY METHOD :

The survey method gathers data from a relatively large number of cases at a particular time. It is not concerned with characteristics of individuals as individuals. It is concerned with the generalized statistics that result when data are abstracted from a number of individual cases. It is essentially cross-sectional.

The survey is an important type of study. It must not be confused with the mere clerical routine of gathering and tabulating figures. It involves a clearly defined problem of definite objectives. It requires expert and imaginative planning, careful analysis and interpretation of the data gathered, and logical and skillful reporting of the findings.

Advantages of Survey Method :

- 1) Accumulation of information from individuals is possible at relatively low cost.
 - 2) Generalizability to a larger population is more legitimate.
 - 3) Unlike experimentation, surveys are flexible, Data is collected with the use of a variety of data collection tools.
 - 4) Survey sensitizes the researcher to potential problems that were originally unanticipated or unknown.
 - 5) Surveys may be used as good tools for verifying theories.
- Limitations of the survey method as seen by Gattling Johan (1969) and an attempt to overcome them are discussed below :

- I) The researcher has no control over individual response. Control was not required in the present study as the individuals perception was needed.
- II) Problems of verbal Vs non-verbal, manifest Vs. latent data are not pronounced in this study as the data was collected from an educated sample.
- III) Statements about population from which sample are obtained are tentative. If it is well understood that any social study is a reflection of a society at a particular time.

Sample :

The primary purpose of research is to discover principles that have universal application but to study a whole population to arrive at generalizations would be impracticable, if not impossible. Some populations are so large that their characteristics can-not be measured. Before the measurement could be completed, the populations would have changed.

In conducting a reading experiment with the fifth standard children as subjects a number of difficulties may be encountered. The study of a population of this size would require the services of thousands of researches, the expenditure of hundred of rupees, hundreds of thousands of class hours.

Fortunately, the process of sampling makes it possible to draw valid inferences or generalizations on the basis of careful observation of variables with-in a relatively small proportion

of the population. A measured value based upon sample data is statistic. A population value inferred from statistics is a parameter.

A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type or a more restricted part of that group. All public school teachers, all male secondary school teachers, all elementary school teachers, or all kindergarten teachers may be populations.

A sample is a small proportion of a population selected for observation and analysis. By observing the characteristics of the population from which it is drawn contrary to some popular opinion, sample are not selected haphazardly, they are chosen in a systematically random way. So that chance or the operation of probability can be utilized.

The researcher has selected three different samples for the research problem at hand. As its study is limited to the Kolhapur city only, the sample are as follows :

- i) Professional courses : Of the various professional courses offered by the Shivaji University, Kolhapur, the following four professional courses only have been purposively selected namely, Education, Engineering, Law and Medicine.

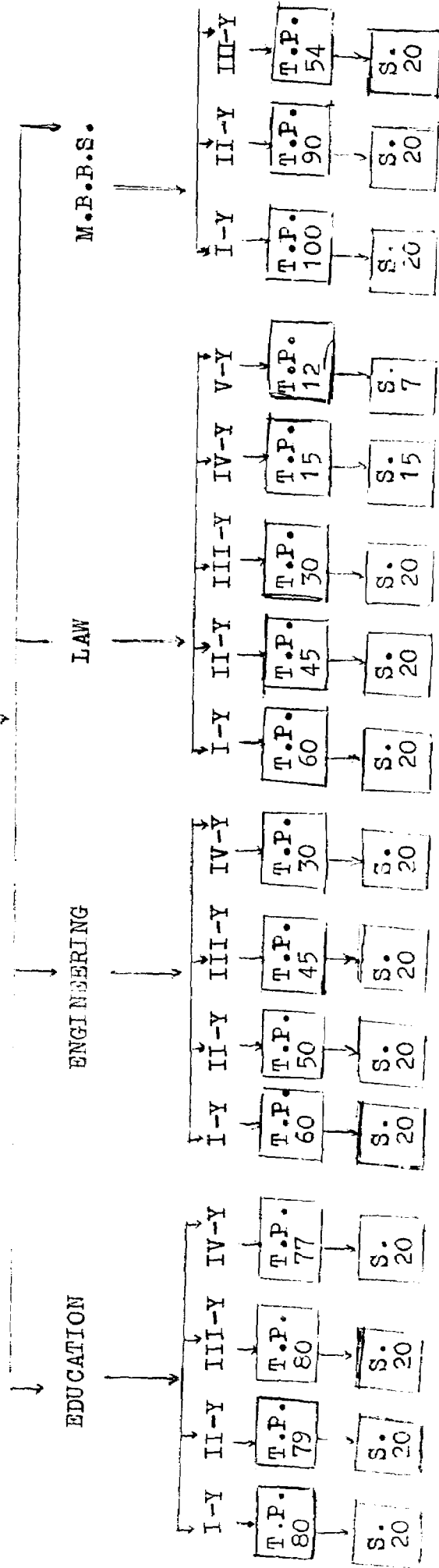
- ii) Student sample : Year-wise lists of students names enrolled in 1992-93 were procured from each of the four professional colleges. Depending on the strength of students for each year figure number 1 gives the details of the sample that was randomly selected. This sample identified yearwise effective and non-effective teachers teaching them who were later administered the LEQ.
- iii) Teachers sample : A purposive sample of 2 teachers (1 - effective and 1 non-effective) yearwise from each of the four professional courses, identified by the student sample, formed the teachers sample in this study.

The characteristics of the teachers sample yearwise, their sex, age group and the grades given to them by their students are analysed professionwise.

The students were asked to allot their teachers grades based on their efficiency of teaching. The grades were 'A', 'B+' and 'C'. 'A' standing for an effectively communicating teacher 'B+' for an average communicating teacher and 'C' for a below average communicating teacher.



SAMPLE FOR STUDY



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- I-Y = First Year
- II-Y = Second Year
- III-Y = Third Year
- IV-Y = Fourth Year
- V-Y = Fifth Year
- T.P. = Total Population
- S. = Sample.

Fig.No.1.

TABLE No.1Characteristics of Teachers Sample 'Education'.

Sr. No.	Year	Teacher	Sex		Age Group		Grade		
			F	M	25 to 30	31 to 35	A	B+	C
1.	F.Y. B.A.B.Ed.	2	2	-	2	-	1	1	-
2.	S.Y. B.A.B.Ed.	2	1	1	2	-	1	1	-
3.	T.Y. B.A.B.Ed.	2	2	-	1	1	-	1	1
4.	Fourth Year B.A.B.Ed.	2	2	-	2	-	1	1	-
Total		8	7	1	7	1	3	4	1

Observation : In Table No.1, the characteristics of the teachers sample - teaching the 4 year Education course are seen. Their distribution year-wise sex-wise, age-wise and the grades allotted to them are discussed.

Interpretation : Two teachers from each of the 4 years were purposively selected. There are seven females and 1 male teacher, seven of them are in the age-group 26 to 30 years and only one is in the 31-35 age group. The students of first year, 2nd year and 4th year have given 'A' grade to one teacher and B+ grade to the

other teacher. But the third year students have graded differently grading 1 teacher B+ and the other C.

Conclusion : There are 7 female and one male teachers in the college of Education indicating that female teachers are in the majority. Seven of them are in the age group 25 to 30 years. The students have graded 3 teachers with 'A' grade 4 with 'B' and 1 with a 'C' grade.

TABLE No.2

Characteristics of Teachers Sample - Engineering.

Year	Teacher No.	Sex		Age Group				Grade		
		F	M	25-30	31-35	36-40	41-45	A	B+	C
B.E.(I)	2	-	2	-	1	1	-	1	1	-
B.E.(II)	2	-	2	1	1	-	-	1	1	1
B.E.(III)	2	-	2	-	1	1	-	-	2	-
B.E.(IV)	2	-	2	1	1	-	-	-	1	1
Total	8	-	8	2	4	2	-	2	5	2

Observation : In Table No.2 the characteristics of the teachers sample teaching the 4 year Engineering course is seen. Their distribution year-wise, sex-wise, age-wise and the grades allotted to them are discussed.

Interpretation : Two teachers from each of the 4 years were purposively selected. The eight teachers are male teachers. Two of them are in the age group 25-30, four of them are in the age group 31-35 and the remaining two are in the age-group 36-40 years. The students of 1st year, 2nd year have given 'A' grade to one teacher and 'B+' grade to the other teacher. But the third year students have graded both their teachers 'B+'. The fourth year students have graded differently grading 1 teacher in 'B+' grade, the other 'C' grade.

Conclusions : There are eight male teachers in the Engineering college. Majority i.e. four teachers are in the age group 31-35 years. The students have graded 2 teachers with 'A' grade 4 with 'B+' and 2 with 'C' grade.

TABLE NO.3

Characteristics of Teachers sample - 'Law'.

Year	Teacher No.	Sex		Age Group				Grade		
		F	M	25-30	31-35	36-40	41-45	A	B	C
Law(I)	2	1	1	1	1	-	-	1	1	-
Law(II)	2	-	2	-	1	1	-	1	1	-
Law(III)	2	-	2	-	1	-	1	1	-	-
Law(IV)	2	-	2	-	1	1	-	-	2	-
Law(V)	2	-	2	-	1	-	1	1	1	-
	10	1	9	1	5	2	2	4	5	1

Observation : In Table No.3, the characteristics of the teachers sample teaching the five year law course are seen. Their distribution sex-wise, age-wise and the grades allotted to them are discussed.

Interpretation : Two teachers from each of the 4 years were purposively selected. These are nine male of one female teacher. One of them is in the age group 25 to 30 years, five of them are in the age-group 31 to 35 years, two of them are in the age-group 36 to 40 years and two are in the age group 41 to 45 years. The students of 1st year, 2nd year and 5th year have given 'A' grade to one teacher and 'B+' grade to the other teachers, But 3rd year students have graded differently, grading 1 teacher 'A' grade and the other 'C' and 4th year students have graded differently grading 2 teachers in 'B+' grade.

Conclusions : There are nine male and one female teachers in the college of Law, indicating that male teachers are in the majority, five of them are in the age-group 31-35 years. The students have graded 4 teachers with 'A' grade, 5 with 'B' grade and one with 'C' grade.

TABLE NO.4

Characteristics of teachers Sample - 'Medicine'

Year	Teacher No.	Sex		Age Group				Grade		
		F	M	25-30	31-35	36-40	41-45	A	B+	C
F.Y. M.B.B.S.	2	-	2	-	-	1	1	1	1	-
S.Y. M.B.B.S.	2	-	2	-	-	1	1	1	1	-
T.Y. M.B.B.S.	2	-	2	-	1	-	1	1	-	1
Total	6	-	6	-	1	2	3	3	2	1

Observation : In table No.4, the characteristics of the teachers sample teaching the 4 year medicine course are seen. Their distribution year-wise, sex-wise, age-wise and the grades allotted to them are discussed.

Interpretation : Two teachers from each of the 3 years were purposively selected. There are six male teachers, three of them are in the age-group 41-45 years, two of them are in the age group 36-40 years and the remaining one teacher is in the age-group 31-35 years. The students of 1st year, 2nd year have given 'A' grade to one teacher B+ grade to the other teachers but the third year students have graded differently, grading 1 teacher with 'A' grade and the other 'C' grade.

Conclusion : There are 6 male teachers in the college of

medicine indicating that male teachers are in the majority 3 of them are in the age group 41-45 years. The students have graded 2 teachers with A Grade, 3 with B+ and 1 with a C grade.

TOOLS :

The following tools were used in this study :

- i) Interview,
- ii) Questionnaire - LEQ.
- iii) The 16 Personality Factor Questionnaire.

(i) Interview :

The interview is, in a sense, an oral questionnaire, instead of writing the response the subject or interviewee give the needed information verbally in a face to face relationship.

With a skillful interviewer, the interview is often superior to other data gathering devices. One reason is that people are usually more willing to talk than to write. After the interviewer gains rapport, or establishes a friendly secure relationship with the subject, certain types of confidential information may be obtained that an individual might be reluctant to put in writing. The interviewer can explain the purpose of his investigation, and can explain more clearly just what information he needs. If the subject misinterprets the question, the interviewer may follow it with a clarifying question at the same time he may evaluate the sincerity and insight of the interviewee.

It is also possible to seek the same information, in several ways, at various stages of the interview thus providing a check of the truth-fullness of the responses.

Through the interview technique the researcher may stimulate the subject to greater insight into his own experience and thereby explore significant areas not anticipated in the original plan of investigation.

After the selection of the sample the investigator interviewed the students of the four professions yearwise. The purpose of which was to identify one effective and one non-effective teacher-communicator from each year. These teachers were administered the 16 P.F. Questionnaire and based on them the students completed the LEQ.

(ii) The Questionnaire :

The general category of inquiry-forms, includes data gathering instruments through which respondents answer questions or respond to statement in writing. A questionnaire is used when factual information is desired. When opinions rather than facts are desired an opinionnaire or attitude scale is used.

Questionnaires administered personally to groups of individuals have a number of advantages. The person administering the instrument has an opportunity to establish rapport, explain the purpose of the study, and explain the meaning of items that

may not be clear. The availability of a number of respondents in one place makes possible an economy of time and expense and provides a high proportion of usable responses. It is likely that a principal would get completely usable responses from teachers in the institution or a teacher from students in the classroom. However, individuals who have the desired information cannot always be contacted personally without the expenditure of a great deal of time and money in travel. It is in such situations that the mailed questionnaire may be useful. The mailed questionnaire is one of the most used or probably most criticized data gathering device. It has been referred to as the lazy persons way of gaining information, although the careful preparation of a good questionnaire takes a great deal of time, ingenuity, and hard work. There is little doubt that the poorly constructed questionnaires that flood the mails have created a certain amount of contempt. This is particularly true when the accompanying letter pleads that the sender needs the information to complete the requirements for a graduate course, thesis, or dissertation.

Characteristics of a good Questionnaire.

- 1) It deals with a significant topic, one the respondent will recognize as important enough to warrant spending his or her time on. The significance should be clearly and carefully stated on the questionnaire, or in the letter that accompanies it.

- 2) It seeks only that information which cannot be obtained from other sources such as school reports or census data.
- 3) It should be as short as possible and long enough to get the essential data. Long questionnaire frequently find their way into the waste basket.
- 4) It should be attractive in appearance, neatly arranged, and clearly duplicated or printed.
- 5) Directions for a good questionnaire are clear and complete. Important terms are defined. Each question deals with a single idea and is worded as simply and clearly as possible. The categories provide an opportunity for easy, accurate and unambiguous responses.
- 6) The questions should be objective, with no leading suggestions as to the responses desired. Leading questions are just as in-appropriate on a questionnaire as they are in a court of law.

The questionnaire was used as a tool to establish if the teachers identified by the students as effective and non-effective were really so.

The LEQ (Lecturer Evaluation Questionnaire) is a standardised questionnaire prepared by the Department of Education, University of Hong-Kong. It comprises of 62 questions to be answered on a '0' to '9' points scale. 0 being not appropriate, 1-2 very poor, 3 and 4 poor, low, 5 and 6 moderate average, 6 and 7 good

high, 8 and 9 very good, very high. The students were to keep the particular effective and non-effective teachers teaching them in mind and then fill in the LEQ based on their own perception of that teacher.

(III) Cattell's 16 Personality Factor Questionnaire.

A brief orientation to the 16 P.F. test -

The Sixteen Personality Factor Questionnaire (16 P.F.) is an objectively scorable test devised by basic research in psychology to give the most complete coverage of personality possible in a brief time. The test was designed for the individuals aged sixteen and above. Forms A,B,C and D, are most appropriate for literate individuals whose educational level is roughly equivalent to that of the normal high school student. Two other forms of the test, E which is presently available, and F in preparation are designed for individuals with marked educational and reading deficits. The test can be scored by hand or by machine and various types of answer sheets are available for this reason.

A more intensive description of the scientific and statistical properties of the test is given in the Hand book for the 16 P.F.

Comprehensive coverage of personality tests upon measurement of sixteen functionally independent and psychologically meaningful dimensions isolated and replicated in more than thirty years of

factor analytic research on normal and clinical groups. The test user may need a little practice to get used to handling as many as sixteen traits, but the expanded possibilities for understanding and predicting behaviour will more than compensate him for the effort involved.

The personality factors measured by the 16 P.F. are not just unique to the test but instead rest within the context of a general theory of personality. Nearly ten years of empirical, factor-analytic research preceded the first commercial publication of the test in 1949. For convenience these dimensions are set out briefly in Table No.05.

These sixteen dimensions or scales are essentially independent. Any item in the test contributes to the score on one of only one factor so that no dependencies were introduced at the level of scale construction. Moreover, the experimentally obtained correlations among the sixteen scales are generally quite small so that each scale provides some new piece of information about the person being tested.

The general theory of personality from which the 16 P.F. was developed, however, anticipated their demands along certain major dimensions. Thus, for example, related scales are available to measure primary source traits below the adult age, rang for which the 16 P.F. is intended special purpose tests have been

TABLE No. 5

THE PRIMARY SOURCE TRAITS COVERED BY THE 16 PF TEST

Factor	Low Sten Score Description (1-3)	High Sten Score Description (8-10)
A	<i>Reserved, detached, critical, aloof, stiff</i> Sizothymia ^a	<i>Outgoing, warmhearted, easygoing, participating</i> Affectothymia
B	<i>Dull</i> Low intelligence	<i>Bright</i> High Intelligence
C	<i>Affected by feelings, emotionally less stable, easily upset, changeable</i> Lower ego strength	<i>Emotionally stable, mature, faces reality, calm</i> Higher ego strength
E	<i>Humble, mild, easily led, docile, accommodating</i> Submissiveness	<i>Assertive, aggressive, competitive, stubborn</i> Dominance
F	<i>Sober, taciturn, serious</i> Desurgency	<i>Happy-go-lucky, enthusiastic</i> Surgency
G	<i>Expedient, disregards rules</i> Weaker superego strength	<i>Conscientious, persistent, moralistic, staid</i> Stronger superego strength
H	<i>Shy, timid, threat-sensitive</i> Threctia	<i>Venturesome, uninhibited, socially bold</i> Parmia
I	<i>Tough-minded, self-reliant, realistic</i> Harria	<i>Tender-minded, sensitive, clinging, overprotected</i> Premsia
L	<i>Trusting, accepting conditions</i> Alaxia	<i>Suspicious, hard to fool</i> Protension
M	<i>Practical, "down-to-earth" concerns</i> Praxernia	<i>Imaginative, bohemian, absent-minded</i> Autia
N	<i>Forthright, unpretentious, genuine but socially clumsy</i> Artlessness	<i>Astute, polished, socially aware</i> Shrewdness
O	<i>Self-assured, placid, secure, complacent, serene</i> Untroubled adequacy	<i>Apprehensive, self-reproaching, insecure, worrying, troubled</i> Guilt proneness
Q ₁	<i>Conservative, respecting traditional ideas</i> Conservatism of temperament	<i>Experimenting, liberal, free-thinking</i> Radicalism
Q ₂	<i>Group dependent, a "joiner" and sound follower</i> Group adherence	<i>Self-sufficient, resourceful, prefers own decisions</i> Self-sufficiency
Q ₃	<i>Undisciplined self-conflict, lax, follows own urges, careless of social rules</i> Low self-sentiment integration	<i>Controlled, exacting will power, socially precise, compulsive, following self-image</i> High strength of self-sentiment
Q ₄	<i>Relaxed, tranquil, torpid, unfrustrated, composed</i> Low ergic tension	<i>Tense, frustrated, driven, overwrought</i> High ergic tension

^aTitles in roman type are the technical names for the factors and are explained more fully in the *Handbook*.



devised to measure only one secondary trait, such as anxiety of extraversion, when the psychologist wishes to focus and intensify his measurement. In this fashion similarly the Clinical Analysis Questionnaire was developed to augment the power of the 16 P.F. in clinical usage by adding 12 scales, sub-stationally pathological in nature to the 16 normal scales.

Design and Construction of the test.

Arrangement of Question :

Ten to thirteen items are provided for each scale in form 'A' and form 'B'. In Form 'C' and Form 'D', there are eight items for the motivational distortion scale, and six items for each of the remaining scales. The questions are arranged in a roughly cyclic order determined by a plan to give maximum confidence in scoring by stencil and to ensure variety and interest for the examinee.

Method of Answering :

Three alternative answers are provided for each of the questions, since the two-alternative "forced-choice" situation forbidding any middle of the road compromise, tends to force a distorted distribution it may produce aversion to the test on the part of the examinee. This is particularly the case with adults to average or higher intelligence for whom forms A, B, C and D are designed. With children, or with less intelligent, less competent, or culturally deprived adults, a two choice design appears better.

If such a design is used in the Law Liter Age Scales of the 15 P.F. constructed for such populations (forms E and F).

Avoidance of Motivational Distortion Effects :

Questionnaires are often, justifiably, considered susceptible to distortion and deliberate faking test construction is aimed to minimize this, but it is also the responsibility of the examiner to neutralize such tendencies as far as possible. It is important to develop good rapport, and to let the client see that the test can best contribute to his own benefit if he cooperates with frank reports. Actually items have been chosen to be as "neutral" in value as possible, to emphasize both desirable and undesirable aspects at both ends of each factor scale furthermore, items which are not "face valid i.e. which do not obviously refer to the trait but which correlationally are known to measure it have been chosen wherever possible as a "built-in" protection against distortion. In any case, this questionnaire problem is probably not so serious as its frequent discussion might seem to indicate, since the psychologist or counsellor is most likely to use the test in those situations where the client fully realizes that accurate results will contribute to his own welfare. If time is taken to make sure that the person tested understands the importance of careful and truthful response, a long step towards achieving good measures has been taken.

Application of forms of the test : The primary difference

between forms 'A' and 'B' on the one hand and forms 'C' and 'D' on the other is the length of time needed for administration and the reading level required. Forms A or B requires 45-60 minutes where as form C or D had 25-35 minutes each. With a lower reading level as compared to form A or D.

Consistencies of the 16 P.F. :

The consistency in factor scores is quite good even over four-year interval. A substantial increase in consistency is possible by using more than one form of the test.

Validities :

Substantial over all validity increases by using more than one form of the test. The test duct and induct estimates of validity are found to be exceptionally high.

Having decided on the tools for data collection the procedure adopted for the study is elaborated.

PROCEDURE

To study the relationship between the personality traits and effective communication of teachers from professional courses, four courses of the Shivaji University were purposively selected, namely Education, Engineering, Law and Medicine. Each of these courses are for a four year duration. The names of the colleges is given in Appendix 'A'.

A letter of recommendation from the Department of Education, Appendix B, enabled the researcher to get permission from the principals of the colleges to collect the necessary information.

A list containing the names of teachers teaching in each of the four colleges yearwise during the academic session 1992-93 was procured, similarly a year-wise list of names of students from each of the four colleges for the academic session 1992-93 was collected. Through systematic sampling procedure a 25% of data producing student sample was selected from each of the four professional colleges.

To make the identification of effective and non-effective teachers easy and correct the following guidelines were supplied to the students.

- I) Does the teacher stimulate students to take part in class discussion ?
- II) Is the teachers explanation clear ?
- III) Does the teacher teach enthusiastically ?
- IV) Does the teacher solve the students problems satisfactorily ?
- V) Does the teacher use teaching aids while teaching ?

Those teachers for whom the above five questions were in the affirmative were termed effective communicators and for those

in the negative. With the help of the students, yearwise one effective and one non-effective teacher communicators formed the teacher sample. (Appendix C).

The students sample (Fig.No.1) which provided the above information were administered the Lecturers Evaluation Questionnaire (LEQ). The LEQ is a standardised tool for rating effective and non-effective teacher on a nine point scale (Appendix D).

All the necessary information for successfully filling in the LEQ was first communicated to the students yearwise in each of the four colleges. The following time plan was followed for collection of the data.

Sr.No.	College	Student Interview	Student data
1)	Education	25th Sept.,1992	29th & 30th Sept.,92
2)	Engineering	5th and 6th Dec., 1992.	5th and 6th Dec., 92
3)	Law	14th and 15th Dec., 1992.	14th and 15th Dec., 92.
4)	Medicine	6th & 7th Jan.,93	6th & 7th Jan., 1993

In keeping with the above time plan the data was collected and tabulated in two columns effective and non-effective teacher communicators yearwise and collegewise, e.g. Education 'Appendix-B'.

Each student had given his/her response to both the

effective and non-effective teacher communicators teaching them. The number of effective and non-effective teacher communicators selected professionwise is given below :

Sr. No.	Course	No.of effective communicator	No.of non-effective communicator
1.	Education	4	4
2.	Engineering	4	4
3.	Law	5	5
4.	Medicine	3	3
Total		16	16

The responses 0-4 on the LEQ indicated non-effective teacher communicators, whereas 5-9 were for effective teachers on each of the 62 questions in the LEQ. The calculations were done professionwise. The 't' test was used to find out significance of the mean of effective and non-effective teachers communicators.

The formula used to calculate the 't' test is given below :

$$t = \frac{\frac{(\bar{x} - \bar{y})}{\sqrt{\frac{1}{N_1} + \frac{1}{N_2}}}}{\sqrt{\frac{(\bar{x}_1 - \bar{x})^2 + (\bar{y} - y_1)^2}{N_1 + N_2 - 2}}}$$

Information regarding the 't' test is given in Appendix 'F'.

Having collected the data on the LEQ and having analysed it, the teachers sample was administered the Cattell's 16 P.F. Questionnaire which is a standardised tool to find out the personality factors of effective and non-effective teacher communicators from each of the four professions.

A copy of the 16 P.F. questionnaire is attached as Appendix 'G'. Those teachers who could not fill them and required time were provided a self-addressed envelop by the researcher and required to complete the same and return them by the first week of January 1993. Reminders had to be sent to six teachers. By the end of February, 1993 all the filled in questionnaires were received and ready for tabulation and analysis.

The 16 P.F. key (Appendix H) was placed on each answer sheet and the raw scores on each of the 16 P.F. for each teacher were tabulated with the help of the conversion table (Appendix I), the raw scores were converted into sten scores. The sten scores for each of the three professions of effective and non-effective communicating teachers yearwise were found out. Based on this information the personality factors of effective and non-effective teachers. Classwise and profession-wise were compared to find out how similar or different they were and whether a particular profession was characterised by particular personality traits.

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