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Teaching and Teacher Behaviour

A Trend Report

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INTRODUCTION

Teaching is a series of events wherein teacher attempts to change the behaviour of students along the intended direction. Research on teaching, therefore, by implication includes the study of relationships between variables atleast one of which refers to a teacher characteristic or behaviour of a teacher (Gage, 1972). This section includes studies attempting to describe teaching, those relating to teacher characteristics and teaching success measured by different criteria, those relating to 'presage-process', and 'process-product' variables. Studies using systematic observation of classroom behaviour of teachers have also been included. An attempt has been made to present an overview of the research in the area, discern trends, locate gaps and suggest the direction for future research on teaching.

OVERVIEW

The actual position that teaching occupies in the total educational process is not reflected in the amount of research produced in the area, leave alone the qualitative aspect. Out of more than 700 studies abstracted, twentyone fall in the realm of teaching and teacher behaviour. Studies using systematic observation of classroom behaviour of teachers have been conspicuous by their absence for a long time and the few studies conducted in recent years can be counted on one's finger tips. It has been a comparatively neglected area in educational research. The failure of research institutions, solely concerned with educational research is evident by the fact that almost all the studies abstracted in the area are doctoral. Neither any attention appears to have been given to this area nor any agency supported this kind of venture till the beginning of the seventies.

The neglect of research on teaching and teacher behaviour may be attributed to the complexity of the problem, absence of adequate tools of observation and the high cost involved in observational studies. Almost in all fields of research in social sciences in general and education in particular, research on process has always lagged behind as compared to that in content and organisation due to the reasons indicated above (Hunter, 1972). In almost all countries the research on process is picking up fast. With the Centre of Advanced Study in Education having taken up teacher behaviour as one of the major areas of research and the growing consciousness among individuals and institutions about the need to undertake more and more research to improve classroom teaching, there is an occasion for cautious optimism. It is against this background that the overview of the present state of research in this area is being presented. The presentation has been divided into (i) coverage; (ii) design; (iii) methodology; (iv) procedure and tools; and (v) analysis and interpretation.

Coverage :

In terms of coverage, the present studies may be considered to have fallen into various categories, viz., descriptive studies aiming at describing teaching

or identifying elements of good teaching as some investigators have put it, as well as status surveys of teaching practices, prediction studies relating to teacher characteristics, success in teaching, and 'presage-process' and 'process-product' studies including studies on teaching methods.

Buch and Santhanam's (1972) and Santhanam's (1972) are the only two studies made through systematic observations of classroom behaviour of teachers using Flanders Interaction Analysis Category System to describe the behaviour patterns of teachers across subjects, grades, sex, qualifications and age of the teachers. In a study to find out qualities of a good teacher, Kulandaivel and Rao (1968) identified teaching acts, perceived to be good by students. Samant (1944) surveyed teaching of mathematics in the erstwhile Bombay province, while Pillai (1970) surveyed the same in Kerala. Dave and Saxena (1965) studied teaching of mathematics in different states of India. Patole (1967) studied teaching of science in the rural primary schools and Narayanaswami (1960) studied teaching of social studies and allied problems in Madurai.

Imagination and maturity as factors indicative of success in teaching were studied by Dosajh (1956). He found positive correlation coefficients of .71 and .80 between levels of imagination and maturity and skill in teaching, respectively. In a study of teacher attitude and its relationship with teaching efficiency, Samantaroy (1971) found that the chi-square test showed the existence of a positive relationship between the dependent variables, i.e., teacher attitude, adjustment and teaching efficiency. Suraj (1965) studied the relationship between teacher trainees' intellectual efficiency (IE), self-acceptance (SA) and teaching skill (TS). The study revealed sex differences in the three relationships, viz., (IE-TS), (SA-TS) and (IE-SA) which were significant at .01 level. The forecasting efficiency of the IE test was fifty-seven percent, while that of the SA test was forty-five percent. The coefficient of determination suggested that most of the variance in TS could be attributed to, or associated with variance in teaching effectiveness (TE), and only a little of it to the variance in SA. The regression equation yielded the predictive value of teaching effectiveness, given a trainee's score on IE or SA. Multiple R of this value of TE was +.87 for males and +.86 for females. Deva (1966) conducted a study on prediction of success in student teaching and found that personality seemed to be the most important and intelligence the least important in predicting success in student teaching. Roy (1965) studied the relationship between the measures of success of teachers as students under training and as teachers in schools. The purpose was also to make an appraisal of the teacher education programme followed in the institution. In the comparison between the success of men and women teachers, no characteristic pattern of difference was suggested by the findings. The teachers' role as a 'director of learning' appeared to be a more tangible criterion than any other in the determination of teacher effectiveness. The study revealed that in determining teacher effectiveness, pooled judgement was likely to yield better results than just individual assessment. Other factors besides classroom teaching seemed to exert a powerful influence on the school principals in their assessment of teachers. While studying teacher trainees' performance in relation to certain intellectual and non-intellectual abilities, Singh (1970) found that no single factor could predict the criterion effectively. The predictors of performance in teaching skill were measures of ascendance, extraversion, intelligence and early academic achievement. Mehta (1972) made factorial analysis of teaching ability of graduate pupil teachers of secondary teachers' training colleges. He found a general ability factor called the 'Teaching Ability' which was highly loaded with the achievement variables of training. In women pupil-teachers, the contribution of personality variables was more than in men. In both men and women, cognitive abilities contributed more than personality variables. The proposed independent and dependent variables were accepted, but the contention that the composite score was the best measure of teaching ability could not be established as the total of practice teaching had the highest loading on the teaching ability factor. Success in theory was not found directly proportional to success in practice teaching. Quraishi (1972) studied the relationship between teachers' personality variables and their classroom behaviour using Flanders Interaction Analysis Category System. He found only teacher attitudes to be associated with classroom behaviour of teachers. Santhanam (1972) studied the relationship between nonpersonality variables of the teacher and his classroom behaviour. Jangira (1972) reported a successful experiment in modifying classroom behaviour of teachers using feedback based on Flanders Interaction Analysis Category System. Pangotra (1972), in an experiment to study the effect of different sources of feedback on student teachers, found that feedback from the supervisor was more effective than feedback from peers, the researcher or the pupils. In Rajasthan, Roy (1970) also studied modification of teacher behaviour. Sharma (1972), in an experiment, studied the effect of four different

patterns of classroom behaviour of teachers on pupil achievement in relation to knowledge, comprehension and application as instructional objectives. Flanders Interaction Analysis Category System was used for training the teachers in the behaviour patterns selected for the treatments. Jangira (1972), in his study for modifying classroom behaviour of teachers, found that higher responsiveness, flexibility in teacher influence and indirectness resulted in higher pupil adjustment, classroom trust behaviour and independence. Pareek and Rao (1971) also found a significant relationship between indirect teacher influence and pupil adjustment.

There have been a few studies on the efficacy of methods of teaching by Javli (1949), Bombay Municipal Corporation (1955-57), George (1966), Shukla (1968), Khushdil (1960), Ansuya (1970) and Nagarajan (1970).

Teaching being a complex phenomenon involving a number of variables, the coverage, in terms of variables and their relationship, has been rather scanty. This limitation becomes more glaring when they are considered into different sections. This appears to be due to two major reasons. Firstly, the researches have been too few. Secondly, the attempts have been sporadic. There has been no theoretical framework within which the studies were planned. There is a need to develop a conceptual framework for the same.

Design :

If the studies are viewed in terms of design, it is revealed that most of the studies are surveys, correlational, correlational with inferential statistics and very few are experimental. There are fewer studies with adequate experimental controls. Sharma (1972), Jangira (1972) and Pangotra (1972) conducted well-controlled experiments. Pareek and Rao (1971) carried out an experimental field study. Other experimental studies are by Javli (1949), Bombay Municipal Corporation (1955-57), Khushdil (1960), and Nagarajan (1970). The recent trend in the area of teaching and teacher behaviour is towards experimental field studies and even laboratory studies.

Methodology :

Studies may be of two broad types. Firstly, they may be of the descriptive and survey type on classroom behaviour of teachers to describe teaching. Secondly, there may be studies to establish relationship between different variables in teaching and teacher behaviour. Studies with purely correlational designs and employing inferential statistical analysis may continue, but experimental and laboratory type studies will have to be undertaken. Experimental studies pose two problems in implementation, viz., controlling of intersession history of the subjects and stabilising of behaviours of teachers and students. One way of controlling the intersession history of the subjects, is that the experiment may be planned for a short duration (Rosenshine, 1971). Thus errors due to intersession history will be minimised, if not eliminated altogether. Behaviours of both students as well as teachers should be stabilised as the 'novelty effect' may contaminate the reults. This is reduced by having experiments for a longer duration. Here, the intersession history of the subjects remains uncontrolled and conforms to the treatment effects. Both types of experiments should be conducted. One to two weeks experiments in the field and one to three weeks laboratory experiments are advocated.

In most studies Flanders Interaction Analysis Category System has been used to study classroom behaviour of teachers. The emphasis in this tool is on the affective behaviours. Studies may be conducted with tools having provision for the study of cognitive and psychomotor behaviours as well. A number of tools are available in Mirrors of Behaviour (Simon and Boyer, 1970); one tool has also been developed in India (Jangira, 1971). If desired, new systems can be developed keeping the purpose of the study in view. While conducting studies, reviews of research may serve a useful purpose for referring to effective behaviours found in other studies.

In studies on teacher behaviour, conducted here, 'low-inference' level variables have been used. Rosenshine (1971) indicates studies where 'high-inference' variables have also produced some encouraging results. There appears to be a need to study both 'low-inference' and 'high-inference' level variables, simultaneously. With the available computer facilities, it will be worthwhile to lay emphasis on multivariate analysis and study inter alia the effects of different variables.

Procedure and Tools:

Till recently, there has been a practice of using questionnaires, rating scales, tests and checklists in the studies in this area of research. Observation of classroom behaviour of teachers has always eluded research workers for the possible reasons cited else-

where in this report. But in recent years, the trend is towards the use of systematic observation of classroom behaviour in addition to questionnaires, rating scales, tests, etc. Buch and Santhanam (1972), Sharma (1972), Jangira (1972), Santhanam (1972), Pangotra (1972), Quraishi (1972), Sharma (1971), Pareek and Rao (1971), and Roy (1970) have used actual classroom observations. This trend appears to be harbinger of further attempts in this direction.

Analysis and Interpretation of Data :

Most of the studies used percentages, correlation and inferential statistics to analyse and interpret data. Multivariate analysis has not been frequently used. This has resulted in the neglect of interaction effects during interpretation of the data and more often than not in the distortion of the findings. There are studies with multiple regression analysis, factor analysis and multidimensional analysis of variance and covariance; with computer facilities, the tendency to use multivariate analysis is expected to increase further.

NEEDED RESEARCH

Research on teaching has, for a long time, been conducted by standing outside the classroom and therefore, actual classroom behaviour of teachers has been sidetracked. The results are naturally unhealthy. The concept of teaching remains vague with the result, classroom teaching remains ineffective in the majority of our classrooms. Serious concerted attempts will have to be made in research on teaching in general and teacher behaviour in particular, if the desired objectives of teaching are to be realised. For future research on teaching a few suggestions are outlined in this section, but are by no means exhaustive. The ingenuity of the research workers and actual needs of the practitioners in the field will give rise to more and more fruitful research in the area. It is in this light that the following suggestions regarding research on teaching are to be viewed.

Sporadic attempts at research on teaching and teacher behaviour have to be replaced by programmatic research, as such attempts result in wastage or atleast fail to get maximum returns in relation to the amount of human energy and financial resources invested. This, however, does not bar any research worker from conducting studies besides those scheduled in the institution's programme of research.

Programmatic research, by implication, requires a theoretical framework for research on teaching. Can research institutions exclusively devoted to educational research like the Centre of Advanced Study in Education and the National Council of Educational Research and Training, develop and provide such a framework for individuals and institutions interested in this area? It is hoped that they can and will do so. The report of the Third National Seminar (1972) on 'Towards a Theory of Teaching' organised by the CASE, is one such attempt. The major purpose of this attempt is to evolve a theory to which studies conducted on the various aspects may contribute over a period of time.

In the overview of the coverage, it was noticed that studies conducted so far are scanty; more studies will have to be conducted. This implies that adequate attention has to be paid to this area of educational research. Owing to its practical utility, the need to do so is quite obvious. Human as well as financial resources need to be increasingly diverted to this area. Research on teaching and teacher behaviour is to provide, in the first place, meaningful relationships between 'presage-process' and 'process-product' variables, the latter being badly needed to provide the teachers effective teaching behaviours. It is also imperative to conduct studies in the modification of classroom behaviour of teachers. Potentiality of different techniques like simulated teaching, microteaching and interaction analysis will have to be studied and perhaps modified to suit Indian conditions to accomplish this task. Studies should be carried out to find out the relationship between pupil characteristics and the classroom behaviour of teachers alongwith studies of the relationship between teacher characteristics and his classroom behaviour. Experimental studies should also be carried out to further examine the hypotheses generated by the above studies. Another important area of research on teaching is the relationship between the different patterns of classroom behaviour of teachers and pupils' attainment in relation to different instructional objectives. Studies can also be taken up to find out the relationship between situational variables like organisational climate and attitude of the administration and community towards school and teachers. Studies should be replicated in different parts of the country. For this purpose, research reports should contain sufficient details regarding the conditions under which the studies were executed. These studies should aim at gathering knowledge about the kind of teacher behaviour that will be helpful in realising different instructional objectives, in a variety of pupils.

Again, we should come out with potential techniques to enable teachers to develop, sustain, select and modify their classroom behaviour effectively in keeping with the demands of the situation.

CONCLUSION

There are wide gaps in research on teaching and inadequacies in the design and analysis of studies as revealed in the overview. However, there is cause for cautious optimism because in recent years, there has been an increase in the number and quality of the research studies produced. This is the time to attract more people to the area, procure financial resources to develop the enterprise and make a concerted attempt to multiply systematic research on teaching as it is on this quality of research that the status of the teaching profession, as well as the quality of teaching, will depend. Without this, the 'destiny of India' cannot be shaped properly in the classrooms.

ABSTRACTS : 544-564

544. *ADAVAL, S. B., An Investigation into the Qualities of Teachers under Training, Ph.D. Edu., All. U., 1952.*

The aim of this study was to find out the specific qualities needed to make the teacher successful in the profession and the way in which training colleges equip our teachers with these requirements.

After perusal of the related literature, a list of some broad essential qualities as conditional for success in teaching was developed. Against the framework of these qualities an assessment of teachers was made by administering some research tools. Collection of data regarding motives was done through a questionnaire. The other research tools used for collection of data included (i) a test of general knowledge developed by the investigator, (ii) a self-administering test of mental ability and (iii) the Test of Aptitude for Teaching by Moss, Hunt and Wallace. Medical examination was conducted to evaluate the physical efficiency of the teachers.

Some of the salient findings were as follows: (i) The teachers in general were found to have some general knowledge about the world around them. Men trainees had more general knowledge than women. Also those with some teaching experience fared better in the test. (ii) It was revealed that love for public service, love for children, etc., were the chief motives for undertaking the profession. (iii) The test of intelligence revealed that most of the trainees had an IQ between 80 and 109; the mean IQ of men trainees was higher than that of women and the postgraduate trainees had a higher IQ than the undergraduates. (iv) There was a high correlation between intelligence and general knowledge. (v) Teachers with higher IQ had broader outlook and interests. (vi) The analysis of the data regarding aptitude for teaching revealed a low aptitude on the part of the teachers. The conclusion was that there were very few people in our training colleges who had an aptitude for the profession. It was further revealed that women trainees had greater aptitude for teaching than men. (vii) The high correlation found between intelligence and aptitude for teaching showed that intelligence was an important factor in determining one's aptitude for teaching. The investigator has given some suggestions for improving the quality of teachers and their teaching efficiency. The aspects covered are selection, duration of training, organisation of the courses, examination, lapse into pretraining condition, etc.

545. *DEBNATH, H. N., Teaching Efficiency: its Measurement and Some Determinants, Ph.D. Edu., Viswa Bharati U., 1971.*

The study aimed at finding out some determinants of teaching efficiency. Efforts were also made to study the relative efficiency of the method of analytical judgement based on critical observation of a lesson throughout a period.

Two hundred and twentysix headmasters selected by stratified random sampling and staff members of twentytwo training colleges of West Bengal served as the sample of the study. The variables studied here were age, experience, academic achievement and training. A questionnaire and an evaluation sheet for observation of the lesson were developed in order to study the effectiveness of the lesson. Both quantitative and qualitative methods were used for data collection. These questionnaires were mailed to the headmasters and the staff members of the training colleges. One hundred and one questionnaires duly filled were returned. Sixtyseven teachers were observed while teaching and the evaluation sheets were used to collect data on teacher efficiency.

The important correlates of teaching efficiency, as found in the study, were knowledge of the subject matter, sincerity in teaching, mastery of the method of teaching, academic qualifications, mode of exposition, sympathetic attitude towards students, discipline, students' participation, proper use of aids and appliances in teaching, and the art of questioning. Analysis of data gathered through questionnaires revealed that professional training, intelligence, interest in teaching, friendliness, democratic behaviour, ability to judge reactions of others, and possession of allround information were related to teaching efficiency. The findings through actual classroom observations revealed that age, experience, academic achievement and professional training were significantly related to teaching efficiency. The coefficients of correlation between the teaching efficiency and age, experience, academic achievement and training were found to be .21, .24, .19, and .31, respectively. It was finally concluded that age, experience, academic achievement and professional training were the significant determinants of teaching efficiency.

546. *DEVA, R.C., Prediction of Student Teaching Success, Ph.D. Edu., AMU, 1966.*

The aims of the present study were to select a

set of predictors with a view to using them to prognosticate teaching efficiency; to develop an instrument for measuring teaching efficiency; to find out the extent to which the predictor measures forecast teaching ability; and finally, to lay down a suitable working procedure for actual selection.

Data were collected from 546 student-teachers of six teacher training institutions in western Uttar Pradesh preparing for the B.T. examination of Agra University. Intelligence, social adjustment, personality adjustment, socio-economic status and academic achievement were used as predictors of teaching ability. Tools used in this investigation included the Jalota Group Test of General Mental Ability, the Washburne Social Adjustment Inventory, the Saxena's Vyaktitva Parakh Prashnavali, the Kuppuswamy's Socio-Economic Status Scale and a weighted aggregate of divisions obtained at the high school, intermediate and first degree examinations. A rating scale—the Student Teacher Rating Scale was constructed to provide the criterion measure of student teaching. The dimensions of this scale were evolved through Flanagan's 'Critical Incidents Technique'. By this technique, teacher characteristics were abstracted from actual teaching situations. About 2,300 reported "Critical Incidents" were scrutinised, classified and categorised to evolve the dimensions. The reliability and validity of the rating scale were established. Correlations between the predictors and the criterion scores and the intercorrelations between the various predictor scores were computed. The technique of multiple regression analysis was used.

All the correlations between predictor and criterion scores were found significant at .01 level. The intercorrelations between different predictor variables, except those between the two personality measures, were not significant. A multiple correlation coefficient of .565, between the predictors and the criterion of teaching success was obtained. The coefficient of multiple determination worked out to .319 showed that just about 32 percent of the variance in the criterion was accounted for by whatever was measured by the five predictor variables taken together. Personality adjustment accounted for 23.6 percent of the variance. Personality, thus, seemed to be the most important and intelligence the least important in predicting success in student teaching. The multiple R dropped by only .006 when the Jalota's General Mental Ability Test was eliminated, but fell by 0.95 when the Washburne's Social Adjustment Inventory was removed from the battery of predictors. If any one of the other variables was eliminated, the multiple R diminished by about .02. The beta coefficients for the different predictors were found to be .0855 (intelligence), .3627 (social adjustment), and .1506 (academic achievement). The beta coefficient for intelligence was not found to be significant.

547. *DOSAJH, N.L., Imagination and Maturity as Factors Indicative of Success in Teaching, Ph.D. Psy., Pan. U., 1956.*

The objective of the study was to show the efficiency of the Horn-Hellersberg Test as a tool for measuring different levels of imagination and maturity as indicators of success in the teaching profession.

The sample of the study was drawn from the teacher trainees of the Government Training College, Jullundur, during the years 1951-52, 1952-53, 1953-54, and 1954-55. The Horn-Hellersberg Test and the Rorschach Ink Blot Test were used as research tools.

The investigation revealed that (i) distribution of the scores on the Horn-Hellersberg Test was normal, since the standard error of skewness was not significant; (ii) the contingency coefficient of correlation between levels of imagination of the Horn-Hellersberg Test and its parallel form, and also between levels of maturity on the Horn-Hellersberg Test and its parallel form were .65 and .59 respectively and the values of ratios were found to be significant beyond .01 level of confidence; (iii) the contingency coefficients between the Horn-Hellersberg Test and the Rorschach Ink Blot Test for imagination and emotional maturity were found to be .79 and .69, both being significant beyond .01 level; (iv) in order to show that imagination and maturity were indicative of success in the teaching profession, contingency coefficients of correlation between levels of imagination and maturity on the Horn-Hellersberg Test and levels of skill in teaching were calculated and were found to be .71 and .80.

548. *JANGIRA, N.K., Classroom Behaviour Training of Teachers and its relationship with some selected measures of Pupils' Criteria of Teacher Effectiveness, Ph.D. Edu., MSU, 1972.*

The purposes of the study were: (i) to test the effectiveness of 'Classroom Behaviour Training' based on interaction analysis vis-a-vis conventional programme of student teaching in developing responsiveness, indirectness and flexibility of teacher influence in the student-teachers; (ii) to investigate whether the student-teachers sustain and carry over the classroom interaction patterns learnt in the training institute to their actual teaching performance when

they assume charge of their designated positions in the teaching profession after completion of their training; and (iii) to study the relationship between the 'Classroom Behaviour Training' imparted to the student-teachers and the performance of pupils under their charge on adjustment to home, school, teacher, and peers, their dependency level and classroom trust behaviour.

The study employed pretest post-test control group design in two phases. In the study fourteen variables, namely, sex of the student-teachers, grade taught, subject taught, initial ability of student-teachers, contamination between the experimental and control groups, halo effect, intersession history, maturation, testing, regression, instrumentation, other teacher influence on pupils, pupils' initial ability and treatment fidelity were controlled. As many as twenty student-teachers and 398 pupils in their classes formed the sample. In the first phase, the experimental group of ten student-teachers received 'Classroom Behaviour Training' for eight weeks, while the control group continued with its conventional programme of student teaching. Pretraining and post-training observations of the two groups of student-teachers were made and analysed by using 2 x 2 covariance analysis adjusting post-training scores on classroom interaction patterns for pretraining scores. Three more post-training observations at different intervals were treated in the same way. In the second phase, pretest and post-test scores of pupils under the charge of the two groups of student-teachers on the Pre-Adolescent Adjustment Scale, the Pre-Adolescent Dependency Scale and Pre-Adolescent Classroom Trust Schedule were obtained and 2 x 2 analysis of covariance technique for adjusting post-test scores for their initial ability was employed.

The main findings of the study were : (i) 'Classroom Behaviour Training' did change the classroom interaction patterns of the student-teachers; (ii) after their student teaching, the student-teachers with 'Classroom Behaviour Training' scored significantly higher on classroom interaction variables PPT, TRR, TQR, TRR 89, TQR 89, PIR, and MFR and scored significantly lower on PTT, PSC, CCR, and SSR than student-teachers who had undergone the conventional programme of student-teaching;(iii) the student-teachers with 'Classroom Behaviour Training' scored higher on PSSR than the student teachers who had undergone the conventional programme of student-teaching, but the difference was not significant; (iv) in post-training, the student-teachers with 'Classroom Behaviour Training' scored significantly lower on PSC than the other group of students which had undergone the conventional programme of student teaching, but the differences became non-significant in subsequent post-training measurements; (v) the student-teachers with 'Classroom Behaviour Training' sustained significant differences on classroom interaction patterns as compared to the student teachers with conventional student-teaching even after twentysix weeks of their training; (vi) the pupils under the student-teachers with 'Classroom Behaviour Training' scored higher on adjustment to school, adjustment to teacher, general adjustment, dependency and classroom trust than pupils under student-teachers with the conventional programme of student teaching; and (vii) the pupils under the student-teachers with 'Classroom Behaviour Training' scored higher on adjustment to home and peers than the pupils under the student-teachers with conventional programme of student teaching. The differences, however, were not significant.

549. *JAYAMMA, M.S., Construction and Standardisation of an Inventory for Predicting Teacher Efficiency (for the primary school teachers of Mysore State), Ph.D. Edu., MSU, 1962.*

The study was undertaken to construct and standardise an inventory for predicting teacher efficiency of primary school teachers particularly for use in Mysore State.

The investigator prepared a questionnaire consisting of two parts—sixtyfive items in part A and thirtyfive in part B. The responses for part A were to be on a five point scale ranging from 'strongly agree' to 'strongly disagree'. Responses for part B were to be made by selecting one of the probable reactions from the five alternatives provided. The variables studied were: (i) professional knowledge and skill; (ii) acquaintance with the principles of psychology; (iii) class management, school organisation and educational administration; (iv) relationship with others; and (v) individual qualities of humour, patience and sympathy. The sample consisted of 500 teachers drawn from sixty institutions. One hundred and ninetyeight of them were women, and the rest were men. They were from both rural and urban areas, from junior primary, senior primary and the training institutions and also from other types of schools. The chi-square test was used to find the discriminating items. Biserial 'r' and the indices of difficulty value of the items were calculated. The scoring system consisted of weighted scores for all the 100 items. The reliability and validity of the present inventory were estimated by different techniques. Factor ana-

lysis was carried out to find out the factor composition of the test.

The reliability by test-retest method, split-half method, K-R method, Rulon's formula and Flanagan's formula were .89, .86, .96, .93 and .87, respectively. The five subtests were correlated with the whole test and the coefficients of correlations and intercorrelations were more than .72. The coefficient of correlation between the marks of terminal examinations of fortyseven pupil teachers and the scores on the present inventory was found to be .66. The coefficient of correlation between the ratings of supervisors and the inventory scores was .31. The coefficient of correlation between the inventory scores and the evaluation of children by the teachers was found to be .46. The predictive validity coefficient of the pupil-teachers with the scores of final public examinations was .56. Factor analysis showed the presence of only one factor and the saturation values of the tests calculated by Spearman's method and Thurstone's centroid method were almost the same. The order of the subtests, in respect of saturation, showed that the first area was professional skill and interest, which was the best measure of efficiency. The other observations were: (i) a teacher's professional success was in no way influenced by sex or the locality of work and (ii) training, experience and qualifications could add to the professional success.

550. *KULANDAIVEL, K. and RAO, T. R. S., Qualities of a Good Teacher and a Good Student (a study in Student Ratings), R. K. Mission Vidyalaya, Coimbatore, 1968.*

The study was undertaken to analyse the qualities of a good teacher and a good student as rated by students.

The sample comprised 1227 boys and 1435 girls from standards VI to XI of eleven schools of different types—public, private, single sex and coeducational. Two checklists for studying qualities, one for teachers and the other for students, were developed. Information regarding sex, age, marks secured in the recent examination and occupation and income of the father was also gathered.

The major findings of the study were as follows: (i) In the class a good teacher, as viewed by the students, teaches well, inspires good qualities in the students and reteaches a lesson when not understood by the students; in his dealings with the students he treats them alike without showing caste prejudices; he reprimands students for their follies then and there and tries to reform problem students; he is conscientious and acts as a guide to the students. (ii) The boys of different socio-economic backgrounds exhibited more heterogeneity in their ratings than the girls. (iii) Not even one specific quality of the teacher was consistently ranked at the same level by the boys, while the girls were more uniform and consistent. (iv) A good student, as visualised by the group, reads well, secures good marks, behaves properly, acts according to the wishes of the teachers, respects the teachers, strives to keep up the prestige of the school, chooses other good students as friends, acts in a way that others benefit by his education, and loves and serves his country. (v) Both the boys and the girls laid greater stress on general behaviour of the students than on mere academic achievement. (vi) There was no difference between ratings of boys and girls from different age groups with regard to student qualities. (vii) The students of different socio-economic backgrounds did not show any significant difference in their ratings with regard to student qualities.

551. *MANUEL, N.V., Conditions required for Quality Teaching, The S.I.T.U. Council of Educational Research, Madras, 1964. (NCERT financed)*

The investigation aimed at (i) collecting, interpreting and presenting the relevant data on the subject so that the findings might be of some use in educational planning; (ii) focussing the attention of teachers to this very important problem; and (iii) encouraging cross-fertilization of ideas so that the best practice discovered to be useful in some schools might be adopted and practised in others.

The study was conducted on a sample of eight boys', nine girls' and eighteen coeducational institutions of Madras and Chinglepet districts and of these, twentythree were urban and twelve were rural schools. The data were collected by using a questionnaire constructed and finalised in a pilot study meant to provide information about the headmasters and organisational factors, teachers and methods of teaching, the role of professional associations, material facilities and requirements, the place of cocurricular activities and parent-school relationship. Interviews with twentythree head masters supplemented the data.

It was found that (i) parents preferred a school for the quality of its discipline, standard of teaching and results, and facilities for cocurricular activities; (ii) pupils preferred extra-curricular activities, where-

as teachers preferred discipline; (iii) material facilities, teaching aids, small classes, satisfactory living conditions, increased status of teachers, academic freedom to headmasters and teachers, free time to teachers, parental cooperation were the prerequisites of quality teaching; (iv) undisturbed school administration had a high positive correlation with S.S.L.C. results; (v) there were competent teachers for social studies; (vi) most of the headmasters attributed deterioration in the standard (specially in English) to the home and school conditions; (vii) provision was made for helping backward pupils by giving them extra drill, special classes, etc.; (viii) atleast three schools had elaborate arrangements for recording allround development of the pupils; (ix) though there was some special provision for the gifted children, yet it was inadequate in comparison to that of the backward pupils; (x) all the schools had teachers' associations and majority of the best schools discussed a range of problems and some schools encouraged the teachers to better their qualifications; (xi) in general the government schools had more accommodation, better material facilities and used films and other mass media; and (xii) cocurricular activities constituted a criterion for quality teaching by pupils, teachers and parents, and most of the headmasters felt that these activities helped rather than hindered school work.

552. *MEHTA, V.B., A Factorial Analysis of Teaching Ability of Graduate Pupil-Teachers of Secondary Teachers' Training Colleges, Ph.D. Edu., Nag. U., 1972.*

This investigation was limited to the pupil-teachers of secondary training colleges. It aimed at identifying the factor patterns of teaching ability of pupil-teachers. The major hypothesis was that there is an ability called teaching ability possessed by pupil-teachers and is maximally expressed in classroom teaching. The hypotheses examined in the study were: (i) the components of teaching ability are personality traits, the values accepted by pupil-teachers and their cognitive abilities; (ii) there is difference in the teaching ability components of male and female pupil-teachers; (iii) biographical variables like age, sex, graduation marks and experience are related to level of attainment in teaching; (iv) attainment marks are the criterion of measurement of teaching ability of pupil-teachers; (v) measures of personality, values, scholastic aptitude, graduation marks, age and experience are the independent variables and the attainment marks in theory and practice are the dependent variables and the composite score is the best measure of teaching ability; (vi) abilities required for success in theory are different from those required for success in the classroom teaching; (vii) success in theory is directly proportional to the success in practice teaching; and (viii) the constellation of abilities is the factor pattern and this pattern is different in the low achievers and high achievers from among the pupil-teachers.

The sample consisted of 489 pupil-teachers in the year 1967-68 in the training colleges of Akola, Amraoti, Bhandara, Chanda, Nagpur and Wardha. There were thirtyseven variables of teaching ability. Cattell's 16 PF Test, the Differential Aptitude Tests Battery and the Allport-Vernon-Lindzey's Study of Values were used to measure the variables. The following statistical techniques were used—mean, standard deviation, correlation coefficients, and varimax rotated factor matrices. Sets relating to men pupil-teachers and women pupil-teachers were also separately analysed alongwith the total group. Multiple regression coefficients were calculated. The standard scores were calculated separately for high and low achievers, and were tested for significance. The profiles as well as the graphs were drawn for the distribution of scores on different variables and the vector configurations of factor analysis results were prepared.

The important findings were as follows. There was a general ability called 'Teaching Ability' found as a factor highly loaded with achievement variables of training; the highest loading of this factor was from the total practice teaching marks which showed that maximum expression was given to this ability in classroom teaching. This finding supported the major hypothesis. In the total sample, eighteen factors were extracted by principal components and out of them sixteen had eigen values greater than one. In women pupil-teachers, the contribution of personality variables was more than in men. In both men and women, the cognitive abilities contributed more than the personality variables. It was found that men were more outgoing, assertive, venturesome, shrewd and radical than the women pupil-teachers. Women, on the other hand were more tender. Men rated higher on verbal reasoning, theoretical values and economic values, whereas women were higher on aesthetic and religious values. Men were higher on all biographical variables and women were higher on all the achievement variables considered in the study. The proposed independent and dependent variables were accepted, but the contention that composite score was the best measure of teaching ability could not be established as the practice teaching total had the highest loading

on the 'Teaching Ability' factor. Success in theory was not found to be directly proportional to success in practice teaching. The high and low achievers showed significant differences on six personality variables. The high achievers were found to be more conscientious, venturesome, tender minded and experimenting, whereas the low achievers were more outgoing and imaginative. The high achievers were higher on all aptitudes of the Differential Aptitude Tests-Verbal Reasoning, Numerical Ability, Space Relations and Abstract Reasoning. They were higher on theoretical values also, and preferred to be practical. The low achievers had more teaching experience and had scored better at their first graduation examination than the high achievers. This showed that there was difference in the teaching ability of the high and low achievers.

553. *NATIONAL INSTITUTE OF BASIC EDUCATION, Difficulties of Basic School Teachers, New Delhi, 1960.*

The purpose of the investigation was to find out the difficulties experienced by teachers of Basic schools in their day to day work with a view to pinpointing the specific areas and grading them in order of priority for consideration of the authorities concerned.

A questionnaire, consisting of two parts, was constructed. The first part mentioned ten broad areas of difficulty, i.e., difficulties pertaining to building, equipment, organisation, staff, craft, syllabus, teaching method, community living, teacher-pupil relationship and attitude. In the second part, each of these areas was subdivided into specific items of difficulty. In the first part, the respondents were asked to rank according to the extent of acuteness and seriousness, the ten areas of difficulties, as felt by them, while in the second part they were requested to rate the different specific items of difficulty on a four point scale. The data were collected from a representative sample of 409 Basic school teachers of eleven erstwhile states. Teachers from both junior Basic and fullgrade Basic schools were represented in the sample. Statistical analysis was carried out for the total sample as well as for each state sample separately. Correlation analysis was made to study how far the rankings assigned to various difficulties by different regions agreed. Correlation coefficient was also found out for studying the agreement between the rankings given by teachers of junior Basic and fullgrade Basic schools as based on the pooled data.

Some of the major findings of the study were: (i) though the order of priority regarding the seriousness of the ten areas of difficulties varied from state to state, there was no evidence of any significant statistical difference between most of these rankings; (ii) problems relating to organisation, staff and attitude were felt more acutely in fullgrade Basic schools than in the junior Basic schools, while those relating to craft were more seriously felt in the junior Basic schools, but the overall rankings for the ten areas of difficulties were not significantly different in the two cases; (iii) the specific items of difficulty which were felt acutely by a majority of respondents and which were also common among most of the regions related to lack of proper facilities for libraries (separate room for library, adequate number of books), paucity of literature, difficulties pertaining to craft work and provision of residential quarters for the teachers.

554. *PANGOTRA, N.N., A Study of the Effects of Feedback from Different Sources on the Classroom Behaviour of Student Teachers using the Technique of Interaction Analysis, Ph.D. Edu., MSU, 1972.*

This investigation aimed at studying (i) the classroom verbal behaviour of B.Ed. student-teachers preparing themselves for the teaching profession and (ii) whether interaction analysis feedback provided by different sources exhibit modification and improvement of teaching behaviour in the predicted direction, and if so to what extent.

The method of inquiry adopted a pretest and post-test design to compare the effects of different forms of feedback on the scores obtained by groups of students on a schedule of interaction analysis. A random sample of fortyeight women student-teachers was drawn from a population of the B.Ed. unmarried women student-teachers of a college of education for women in Punjab. Flanders Interaction Analysis Category System was used as a research tool.

The study revealed that interaction analysis can be an effective feedback mechanism and student-teachers who received interaction analysis feedback made significant gain in the predicted direction in their use of the specific teacher verbal behaviour. Some changes were found in certain patterns of teaching behaviour of the treatment group as compared to that of the control group, i.e., the group of student-teachers with traditional student teaching programme. Teachers of treatment group praised or encouraged pupil actions or behaviours more than the control group teachers. They accepted, clarified, developed,

compared or summarised ideas suggested by pupils more than the teachers in the control group. They gave less directions, commands, or orders with which a pupil was expected to comply. They elicited more student-initiated student talk, made more indirect talk as opposed to direct talk and made more praise extension than the control group teachers. They were more responsive to the ideas suggested by the pupil and pupil initiation as they made more extension of ideas suggested by the pupils as compared to the teachers in the control group. They made less negative affective talk, and asked more questions while guiding the content oriented part of class discussion. Thus, they solicited more pupil reaction to certain ideas which they thought important and checked on their understandings more than the control group teachers. They developed a skill to respond to pupil talk with questions compared to their tendency to lecture and developed a skill to praise or integrate pupil ideas more into classroom discussions at the moment pupil stopped talking. They made more extension of pupil-initiated pupil talk than the teachers in the control group. The status of the supervisor engaged in feedback of information to the student-teachers played a significant role to modify the teaching behaviour.

555. *PRASAD, M., Evaluation of Professional Efficiency (Abilities) of Primary School Teachers in service, Ph.D. Edu., Sag. U., 1970.*

The purpose of the present investigation was to evaluate the professional efficiency of primary school teachers, both male and female, working in Madhya Pradesh. Professional efficiency has been studied from three angles, namely, (i) efficiency in classroom teaching, (ii) efficiency in organising curricular activities and (iii) efficiency in organising activities related to school-community relationship aspect of school life.

The sample of the study comprised 1951 teachers (male and female) and 1000 students of class VIII. A research tool for measuring professional efficiency of inservice primary teachers was developed and standardised. To evaluate the teacher, the criteria accepted were (i) presage criterion, (ii) process criterion and (iii) product criterion. Under presage criterion, intelligence of teachers was measured, whereas under product criterion, teacher aptitude was measured. To study the professional efficiency of teachers under process criterion, teacher efficiency observation schedule was developed and validated. Validity of the tool was calculated on the basis of "residual pupils' gain" and "experts' rating on sociometry". Reliability and standard scores of the measure were calculated. Factors affecting pupil achievement other than the teacher were controlled and teacher efficiency was measured in four subjects, namely, Hindi, social studies, general science and mathematics. Academic and administrative problems of the teachers were also studied. The tool covered general efficiency level, reasons for falling standards in teaching efficiency, and measures for rating teaching efficiency on twentyfive points through a five point rating scale which was administered to teachers, education officers, and guardians.

The investigation resulted into development of the Teacher Efficiency Observation Schedule—a standardised research tool for measuring teacher efficiency. An intensive historical study of teachers' role in different periods in India and other countries was made. Different methods of assessing teacher efficiency were critically evaluated. The teacher efficiency scale developed here can be used by supervisors and other educational administrative officers.

556. *QURAISHI, Z.M., Personality, Attitudes and Classroom Behaviour of Teachers, Ph.D. Edu., MSU, 1972.*

The objectives of the research were: (i) to study the relationship between four dimensions of teacher behaviour, viz., proportion of indirect behaviour to direct behaviour—I|D ratio, proportion of motivating behaviour to controlling behaviour—i|d ratio, proportion of teacher behaviour to student behaviour—T|S ratio and teacher behaviour of accepting students' ideas plus one dimension of student behaviour (student initiation) with certain personality traits and attitudes of teachers; (ii) to predict the above mentioned five behaviour dimensions on the basis of personality traits and attitudes; and (iii) to study the effect of personality on proportion of indirect behaviour to direct behaviour (I|D ratio).

The sample of the study consisted of 200 teachers, drawn from twentyone secondary schools. Flanders Interaction Analysis Category System was used for observing and recording teachers' classroom verbal behaviour. Thurstone Temperament Schedule was employed to assess the personality traits, and attitude scales constructed by Wandt, Glassey, and Patel were adapted to measure attitudes. Pearson's product-moment correlaion technique, stepwise regression analysis, and t test technique were used for analysing the data.

The study revealed the following: (i) Teachers' verbal behaviour in the classroom was related in a small measure to their personality and attitudes. (ii) Teachers' attitude towards democratic classroom procedures correlated significantly (at .05 level) with I|D and i|d ratios. The coefficient of correlation with I|D ratio was .15 and with i|d ratio .17. (iii) The correlation coefficient of reflective trait with I|D ratio was —.16 (significant at .05 level). (iv) Sociable trait was significantly (at .05 level) related to student initiation. The correlation between the two variables was —.15. (v) Reflective trait and attitude towards democratic classroom procedures were found to be the best predictors of I|D ratio, which was predicted to the extent of four percent. (vi) In the prediction of i|d ratio, attitude towards democratic classroom procedures, reflective trait, attitude towards management and sociable trait were found to be the best predictors. They predicted i|d ratio to the extent of eight percent. (vii) Teacher behaviour of accepting students' ideas could not be predicted significantly by any of the predictor variables. (viii) Sociable trait was found to be the best predictor of student initiation. It predicted student initiation to the extent of 2.25 percent. (ix) T|S ratio could not be predicted significantly by any of the fifteen predictor variables. (x) Direct and indirect teachers did not differ significantly from each other on the seven personality traits, implying that personality does not affect teacher behaviour.

The research tools used as measures of success were, (i) preservice measure of success—the Central Institute of Education Scholar's Record Card, Part B (Practical work), (ii) inservice measures of success—principals' ratings and pupils' rankings of teachers and (iii) case studies of selected teachers. As a correlational study, the main statistic used was product moment correlation. The principals' ratings and pupils' rankings of teachers were converted into numerical values and standard scores, respectively, to make them comparable to the scores on the CIE Scholar's Record Card.

The study revealed that (i) regarding teacher effectiveness, there was a greater agreement between persons who had similar background of educational and professional experiences than between those who differed in these respects; (ii) the training college staff and the school principals had more in common with each other in judging the teachers than either group had with the secondary school pupils; (iii) the teachers' role as 'director of learning' appeared to be a more tangible criterion than any other in the determination of teacher effectiveness; (iv) in determining teacher effectiveness, pooled judgements were likely to yield better results than individual assessments: (v) other factors besides classroom teaching seemed to exert powerful influence on the school principals in their assessment of teachers; (vi) there was no characteristic pattern of difference between successful male and female teachers; and (vii) none of the devices used was adequate to measure teacher effectiveness.

557. *ROY, BINA, Relationship between the Measures of Success of Teachers as Students under Training and as Teachers in Schools, Ph.D. Edu., Del. U., 1965.*

The present investigation was an attempt to study the relationship of success of teachers when they were students under training in an institute of education in Delhi and when they were in service in local secondary schools. The purpose was also to make an appraisal of the teacher education programme followed in the institution. Other objectives of the study were, (i) to find out the sex difference in teaching success as indicated by the assessment given by the training college staff during the period of their training, (ii) to find out, if any discrepancy existed between the training college assessments and (a) principals' ratings, and (b) pupils' rankings, and between the principals' ratings and pupils' ratings of teachers with respect to teacher effectiveness.

558. *ROY, B., Changing Teacher Behaviour through Feedback, NCERT, New Delhi, 1970.*

The objectives of this research were (i) to identify some ideal classroom behaviours of teachers for using them as feedback strategies and (ii) to tryout and establish the most effective strategy of feedback for changing teachers' classroom behaviours.

The study was confined to the teachers of social studies, elementary mathematics, general science and languages like Hindi, English and Sanskrit of grade VI of middle schools. Sixteen schools were selected from Bikaner, Rajasthan. A total of fiftyfour teachers, both male and female, was included in the study. The questionnaires for teachers' self rating (TSR), teachers' peer rating (TPR) and pupils' observations of the learning atmosphere (POLA) were prepared. Flanders' ten category system was used to provide feedback from the external observer. Twenty items were included in TSR, TPR and

POLA. Twelve items of the questionnaires were taken from the study reported by Gage, Runkel and Chatterjee (1963) and eight items were added to make the list of twenty items. The response mechanism varied in these questionnaires. Feedback proformas were prepared to send them to teachers.

The following were the findings of the study. In all the four feedback strategies, the percentage of improvement was fairly high, it was above sixty percent; this percentage belonged to the teachers and subsequent changes took place in their behaviour as a result of feedback. Some teachers, however, did not change at all. The change strategies were effective in case of some of the items of teacher behaviour. The results of the pupils' observations and the teachers' self-ratings were in the first two positions, while exteenal observations and peers' ratings were among the last two positions. It was found that the pupils' observation and teachers' self-rating feedback were most important things in the teaching-learning situation. Those teachers who cared for the likes or dislikes of the pupils and who introspected or retrospected the teaching-learning situation, had better chances of being successful in their profession. The observations and peer-ratings data did not help much in professional growth.

559. SAMANTAROY, G. K., A Study of Teacher Attitude and its Relationship with Teaching Efficiency, Ph.D. Edu., Sam. U., 1971.

The purpose of this study was to investigate into the possible nature of relationship among teacher attitude, teacher adjustment and teaching efficiency. The hypotheses laid down for testing were (a) teacher attitude and teacher adjustment are positively correlated; (b) teacher attitude influences teaching efficiency; and (c) teacher adjustment influences teaching efficiency.

A sample of 320 graduate teachers — 268 men and 52 women — of the secondary schools of Orissa State was selected by stratified random sampling technique. Location wise breakup of the sample showed 149 urban teachers and 171 rural teachers. The tools used in the investigation for measuring the variables were: (i) the Teacher Attitude Scale, (ii) the Score Card, and (iii) the Bell's Adjustment Inventory. The teacher attitude scale developed by the investigator was a battery of five 21-item scales, each measuring a particular attitude continuum and the total scale measuring an overall attitude of the teachers. The attitude objects chosen for the scale were (i) the teaching profession, (ii) the educational administration, (iii) the pupils, (iv) the subject of teaching and (v) the community. The validity and the reliability coefficients were found to be reasonably high, i.e., .57 and .83, respectively. The Score Card used in the study for measuring teaching efficiency was developed earlier by the investigator following a model suggested by the Cooperative Study of Secondary School Standards, Washington. The Bell's Adjustment Inventory was used for measuring teacher adjustment in different areas. The measures of central tendency and variability were computed for necessary interpretation. By splitting the entire sample into different subsamples, six contrasts were built in and a subsample analysis was conducted testing the significance of difference between the means and variances of each of the contrasts in respect of each of the three scales.

The correlation coefficient between the two variables, viz., teacher attitude and teacher adjustment, was computed. The Pearson's r turned out to be .49 and was found to be significant. The data obtained were plotted in two different scattergrams, viz., the Teacher Attitude Scale versus the Score Card, and the Adjustment Inventory versus the Score Card. In the former, the contour of the points was found to be more or less circular and in the latter, it was of an irregular shape. When a test of linearity of relationship for each of the contrasts was made, it indicated a significant departure from linearity. Further investigation was conducted to see, if an exponential or a logarithmic curve would fit in the data. But no linear relationship between the two variables of each of the contrasts was found. Therefore, to arrive at a definite conclusion about the two other hypotheses, a non-parametric test was conducted. For the first contrast, the data were arranged into a 3x3 contingency table and for the second into a 3x4 table. When the chi-square test was applied to each of these, for the first, the chi-square value turned out to be 10.77 and for the second, 14.57. These values were found to be greater than the tabulated values of chi-square for four and six degrees of freedom, respectively, at the .05 level of significance. The chi-square test showed that there existed some degree of positive relationship between the variables—teacher attitude and teaching efficiency, thereby showing that superior efficiency goes with favourable attitude, and vice versa. It also showed a positive relationship between the variables, viz., teacher adjustment and teaching efficiency thereby showing that superior efficiency goes with good adjustment, and vice versa.

560. *SANTHANAM, M. R., A Study of the Patterns of Teacher Influence in Some Selected Schools, Ph.D. Edu., MSU, 1972.*

The investigator sought to study the patterns of teacher behaviour in relation to (i) age, (ii) recency of training, (iii) experience, (iv) sex, (v) marital status of the teacher, and also (vi) the subject matter being taught by him. The study framed six hypotheses for verification: (i) age of the teacher exerts an overall negative effect on his indirect influence, (ii) recency of training of the teacher bears an overall negative effect on his indirect influence, (iii) experience of the teacher bears an overall negative effect on his indirect influence, (iv) women teachers are more indirect in their influence than men teachers, (v) unmarried teachers are more indirect in their influence than married teachers, and (vi) teachers differ in their influence patterns when the subject taught by them is altered.

The study was conducted with two samples. The first sample consisted of 174 secondary teachers of Gujarat. The first five hypotheses relating to the independent variables of age, experience, recency of training, sex and marital status of the teachers were tested with the help of this sample. Each teacher was observed twice which resulted in (174x2) 348 classroom observations. The second sample consisted of thirtytwo primary and upper primary school teachers of Madras city. Each teacher was observed twice for half an hour for each of the six subjects taught by him. This amounted to 384 (32x2x6) classroom observations. The whole sample thus consisted of 732 observations of half an hour duration each. The classroom observations were done with the help of Flanders Interaction Analysis Category System (FIACS), following all the directions given in Flanders' Manual. Matrices (10x10) were prepared. Besides I|D and i|d, many other indices from the matrices were worked out. These primary indices were statistically treated with the help of correlation, partial correlation, analysis of variance and t test in order to test the hypotheses.

The following were the principal findings: (i) The first three hypotheses were not retained since age, recency of training and experience of the teacher did not seem to affect teacher influence in terms of i|d and I|D. (ii) The male teachers, on an average, were more indirect than the female teachers on the criterion of i|d, but not on the criterion of I|D. (iii) the unmarried teachers, on an average, were more indirect than the married teachers on the criterion of i|d, but not on the criterion of I|D. (iv) The teachers differed significantly in their influence patterns (in terms of both I|D and i|d) when the subject taught by them was altered.

561. *SHARMA, R. A., A Study of the Relationship of Predictors of Teacher-Effectiveness at Elementary Level and Follow-up after one Year of Training, D.Phil. Edu., Mee. U., 1971.*

The investigation aimed at studying the relationship between characteristics possessed by teachers and teacher effectiveness with a view to predicting teacher success.

Teacher characteristics were selected on the basis of (i) teacher aptitude test scores, (ii) academic grades, (iii) teaching experience, (iv) socio-economic status and (v) sex. Teacher effectiveness was evaluated on the basis of (i) U.P. Departmental Examination marks in theory and practice during the training course (as presage criterion), (ii) the personality rating scores of trainees (as presage criterion) and (iii) supervisors' ratings of classroom teaching during training period (as process criterion). To estimate the relationship between teacher characteristics and teacher effectiveness after one year of training, a follow-up study was conducted which included (i) personality rating scores by headmasters (as presage criterion), (ii) classroom rating scores by colleagues and the investigator (as process criterion), (iii) pass percentage of the students taught by the teacher (as product criterion), (iv) evaluation through self-perception (as the presage criterion), (v) the Minnesota Teacher Attitude Inventory scores (as the presage criterion) and (vi) observation data of classroom verbal interaction by Flanders Category System. A representative sample consisting of 700 teachers (269 female and 431 male) obtained from normal government schools of Uttar Pradesh was used in the study. The research tools used for the study were: (i) a rating scale for measuring teacher effectiveness, (ii) a rating scale for measuring teachers' personality, (iii) the Teaching Aptitude Test developed by Pandey, (iv) a classroom teaching evaluation form, (v) an inventory of self-appraisal for teachers, (vi) teacher information sheet, (vii) the Minnesota Teacher Attitude Inventory and (viii) observation data sheet. Multiple correlation technique, using Aitken's method of pivotal condensation was used to analyse the data. Multiple regression equations were obtained for the criterion variables, viz., (i) personality rating scores, (ii) classroom rating scores and (iii) the final theory examination marks.

It was found that the variables accounted for seventeen, twenty and twenty percent of variance of the three criterion variables, respectively. The sex variable, as a predictor, was found to be relevant for predicting personality aspects, but not necessarily for classroom ratings. As regards classroom verbal interaction analysis, it was found that the teacher talk seemed to have negative correlation with scores on the Teaching Aptitude Test and academic grades, whereas the teacher indirect influence seemed to have a high positive association with scores on the Teaching Aptitude Test and academic grades and at the same time pupil talk seemed to have a high association with academic grades and scores on the Teaching Aptitude Test and little association with age and socio-economic status. On the whole, the combination of five predictors, i.e., teaching aptitude, academic grades, socio-economic status, teaching experience and age, in order of their arrangement, appeared to be sound predictor of teacher effectiveness.

562. *SHARMA, S., Relationship between Patterns of Teacher Classroom Behaviour and Pupils' Attainment in terms of Instructional Objectives, Ph.D. Edu., MSU, 1972.*

The major objective of the study was to find out the relative effectiveness of four different patterns of teacher classroom behaviour, viz., (i) narration, (ii) open questions, (iii) narrow questions and (iv) narrow questions with feedback, upon pupils' attainment in terms of the instructional objectives of knowledge, comprehension and application. The following were the hypotheses tested: (i) there will be no difference in the pupil attainment in terms of knowledge objective, when the pupils are being taught through either of the four patterns; (ii) there will be relatively low pupil attainment in terms of comprehension and application objectives, when the pupils are being taught through pattern I as compared to the other three patterns, and (iii) there will be comparatively high pupil attainment in terms of application objective when the pupils are being taught through pattern II.

Three female teachers of the same age and experience were trained to produce the four patterns of behaviour. The sample consisted of 416 boys and 557 girls of fortyeight classes of grade VII of Municipal Corporation schools of Baroda city. They were randomly assigned to different treatments—twelve classes for each. A pretest and post-test design with four replications was used to see the effect of four treatments applied by three teachers. A unit on 'Aryans' from the course content of grade VIII was taught during all the treatments. The Flanders Interaction Analysis Category System was used for the purpose of training the teachers to produce the desired patterns. The Desai-Bhatt Verbal Group Test of Intelligence was used for finding out the IQ of the pupils. The Achievement Test in History for grade VII, constructed and standardised by Jhaveri, was used for the pretest. The post-treatment attainment test was constructed on the basis of the three instructional objectives. Special lesson plans were prepared for the four selected patterns of teacher behaviour. Descriptive statistics, product-moment correlations, three-way analysis of variance and analysis of covariance were used in the study for analysing and interpreting the data.

The findings of the study were: (i) pattern III (involving narrow questions) was found to be more effective as compared to the other three patterns with respect to pupil attainment in terms of knowledge objective; (ii) though pattern I (involving narration) showed comparatively low pupil attainment in terms of comprehension objective, none of the patterns showed any differential effect on the pupil attainment in terms of comprehension objective; (iii) pattern III (involving narrow questions) was found to be the most effective pattern as regards the pupil attainment in terms of comprehension objective; and (iv) pattern II (involving open questions) did not show any effect upon pupil attainment in terms of application objective, rather none of the patterns produced any differential effect in achieving this objective.

563. *SINGH, M., A Study of the Teacher Trainees' Performance in relation to certain Intellectual Abilities, Ph.D. Psy., Pan. U., 1970.*

This study aimed at locating certain intellectual and non-intellectual variables related to the performance in school papers and teaching skill of the postgraduate teacher trainees of the Punjab.

The subjects for the first phase were drawn from a teachers' college in the district of Ludhiana. The sample comprised sixtytwo trainees with rural background and eightytwo with urban background. Age of the sample ranged upto thirtysix years with a mean age of 23.42. The study was conducted in three stages. The first stage of the investigation was exploratory in nature, using intellectual and non-intellectual variables. The results, thus obtained, were used to develop regression equation to predict

the performance of the teacher trainees to be consequently selected. In the second stage, two prediction studies were conducted one for boys (N=59) and another for girls (N=68). In the third stage, factor analysis was carried out to find the factorial structure of the intellectual and non-intellectual abilities of the teacher trainees. Research tools used in this investigation included: (i) Factor B Cattell's 16 PF Inventory; (ii) the Raven's Progressive Matrices; (iii) the Maudsley Personality Inventory; (iv) the Indian adaptation of Allport A-S Reaction Study; (v) Hindi version of the Cattell's 16 PF Form (Ka); (vi) the Allport-Vernon-Lindzey Study of Values (adapted version); and (vii) a scale for measuring attitude towards teaching profession, prepared by the investigator.

The results of the first phase of the study showed that the significant predictors of performance in theory papers were two indices of intelligence, two indices of early academic achievement, dimensions on the Allport A-S Reaction Study, the factors measured by Cattell's 16 PF Inventory and interest in aesthetics. The study showed that none of the above mentioned predictors could predict all the criteria effectively. The regression equation analysis, however, showed that the improvement in forecasting efficiency in theory papers was much more when the prediction was done on the basis of the combination of intellectual and non-intellectual factors than when the prediction done by taking these factors separately. The gain of twenty-three percent efficiency in the prediction of performance, with this approach, was much higher than that of the probable efficiency of five percent obtained through unsystematic interviews. The predictors for performance in teaching skill were measures of ascendance, extraversion, intelligence and early academic achievement. The second stage of the study was meant for cross validating the regression equations for the criterion variables. The Pearson's 'r' between predicted and obtained scores in theory papers was .44 for men and .56 for women, both were significant at .01 level. For teaching skill, the values of 'r' for women and men were .10 and .16, respectively which were not significant. The principal component analysis followed by varimax rotation resulted in twelve factors. The first factor clearly brought together "Pathological Primaries". The other extracted factors were "Academic Achievement" and "Extraversion versus Introversion". No attempts were made to name factors IV and V although these factors were having high loadings on Aesthetic Interest, Factor E of 16 PF, Factor M of 16 PF, Religious Interest (—), Factor F of 16 PF (+), Factor L of 16 PF (—), Factor I of 16 PF (—) and Factor A of 16 PF (+). Sixth factor shared its loadings with Intelligence (+), Factor A of 16 PF (—) and Factor Q2 of 16 PF (+). Factor VII shared its loadings with Economic Interest (—), Religious Interest (+) and Factor Q1 of 16 PF (—). Factor VIII shared its loadings with Intelligence (—), Factor B of 16 PF (—), Factor G of 16 PF (—) and Factor L of 16 PF (—). Factor IX shared its loadings with Theoretical Interest (+), Aesthetic Interest (—), Political Interest (—) and Factor A of 16 PF (—). Factor X was named as 'Self-control'. Factor XI shared its loadings with Political Interest (+) and Factor N of 16 PF(+). Factor XII shared its loadings with Economic Interest (+), Social Interest (—), Attitudes towards teaching (—) and Factor F of 16 PF(—). To sum up, factors IV, VII, IX, XI and XII described personality characteristics of persons with dominant Aesthetic, Religious, Theoretical, Political and Economic Interests. Factors VI and VIII described characteristics related to non-verbal and verbal intelligence.

564. *SURAJ, BALRAM, An Assessment of Intellectual Efficiency and Self-Acceptance of Teacher Trainees as related to their Skill in Teaching, Ph.D. Psy., Pan. U., 1965.*

The purpose of the study was to find out the relationship existing between teacher trainees' intellectual efficiency, self-acceptance and teaching skill.

The study was conducted on a sample of 400 students (200 males and 200 females) attending teacher training programmes at the graduate level in the Punjab. The California Psychological Inventory which gives Intellectual Efficiency (IE) and Self-Acceptance (SA) scores, and Teacher Quality Rating Form which gives twelve subscores of teacher's qualities were administered to the subjects. The reliability coefficients of IE and SA were .89 and .86, respectively. The mean reliability coefficient of twelve subscores of the rating form was .87 (N=50). The teaching skill (TS) test was not pretested, but its dependability was established by finding correlations between the three evaluative markings of teaching skill of teacher trainees from the previous five sessions. The mean reliability coefficients varied from .74 to .85 (N varying from 158 to 193).

The study revealed the following: (i) The sex differences in the three relationships (IE-TS), (SA-TS) and (IE-SA) were significant at .01 level. (ii) The coefficient of correlation between IE and SA of the sample was comparable with the coefficient of correla-

tion of the original California Psychological Inventory. (iii) It was found that the coefficient of correlation was significant between IE and TS with respect to predictive value. The predictive value of IE for determining teaching skill was found to be much more than that of SA. The forecasting efficiency of the test was fiftyseven percent while that of SA test was fortyfive percent. The coefficient of determination suggested that most of the variance in TS could be attributed to or associated with variance in teaching effectiveness (TE) and only a little of it to the variance in SA. (iv) The regression equation yielded the predictive value of teaching effectiveness (TE), given a trainee's score on IE and/or SA. Multiple R of this value of TE, was .87 for males and .86 for females. (v) Beta coefficients proved that when the variabilities of the tests were all equal and the scoring units were comparable, IE had proportionately greater influence than SA in determining teaching efficiency and the proportion of independent contribution of IE and SA to TS was approximately 5:1.