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Teacher and Teaching

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Teacher, teaching and teacher education are closely linked. Their interrelation and interconnectedness is almost axiomatic. Besides, this volume of the Survey of Research in Education does not have a separate chapter for Teacher Education. The three are, therefore, considered under one head, although, for operational ease, they have different sections.

Reading through the summary details of the identified studies, it seemed logical to put together studies with similar/common themes. This resulted in further classifying the studies into sub-groups of some areas. Thus, studies on teachers were divided into 11 and teaching into 8 sub-groups. Teacher Education was firstly broadly divided into 2- pre-service and in-service, and then further divided into 5 sub-groups each. A few studies have been placed under more than one sub-group.

Studies on which this trend is based can be classified as follows:

.TEACHER

Role

There are thirteen studies, which have some bearing on the various roles of teachers of different levels and categories.

Administrative: At primary school level, Rao et al (1997) studied teachers' role in influencing enrolment and attendance and found that teachers' interaction with pupils, parents and elders had positive impact; Arikewuyo (1999) found that Head teachers in Nigeria preferred the democratic managerial style as contained in McGregor's theory Y over the autocratic style of theory X. Patil (1994) studied the administrative role and behaviour of secondary school headmasters; Sundararajan, et al (1993), the decision-making patterns of the heads of schools in Tamil Nadu. Sundararajan and Nelliappan (1994) studied problems under seven

Teacher		Teaching		Teacher Education	
Area	No.	Area	No.	Area	No.
1. Role	13	1. Methods	23	**A. Pre-service:**	
2. Characteristics	30	2. Models	18	1. Admissions	3
3. Competence	8	3. Affective Domain	2	2. Programmes	18
4. Effectiveness	19	4. Educational Technology	24	3. Teacher Trainees/Educators	16
5. Aptitude	1	5. Teaching/Learning Problems	4	4. Affective Domain	4
6. Motivation	7	6. Competency	7	5. Outcome/Output	9
7. Attitude	15	7. Curriculum	4	**B. In-service:**	
8. Satisfaction	17	8. Strategies/Approaches	15	6. Programmes and their Evaluation	22
9. Stress	6			7. Training Needs	14
10. Mental Health	2			8. Higher Education–Academic Staff Colleges	5
11. Problems	6			9. Miscellaneous	7
Total : (319)	**124**		**97**		**98**

heads(like pupils, facilities, parents etc) impeding effective role performance by higher secondary male/female, government/ private higher secondary schools. Kulkarni (1997) involved 84 students and 168 teachers of higher secondary schools in Kolhapur to study teachers' role and behaviour in classroom management during teaching. Baruah (1997) made an interesting study of role conflict and its relation with job satisfaction of secondary school women teachers in Assam, while Balakrishnaveni (1996) examined the domestic and professional role conflict of women teachers using Likert type scale. Kumar (2000) made a similar study of secondary school married women teachers investigating the relationship between personal and school-based variables and found them negatively related to their role conflict but positively related to job stress.

Correlates: Shamsuddin (1996) studied the effect of socio-economic background of teachers on their work. He found that most of the male secondary school teachers belonged to the lower or middle class, while majority of women teachers came from upper middle class and some from higher class. Gupta (1993), investigating the relationships between sex, age, teaching level and overall role conflict comparatively in university, secondary and primary teachers found more role conflict among males than female teachers, more among middle aged than younger and older teachers and more among secondary, than primary and university teachers. Barkat and Parveen (1999) interestingly compared 50 female bank managers and 50 female university teachers in terms of organisational role stress, and found that the former scored significantly higher than the latter on all the ten dimensions of the role stress. Achalamba and Kumar (1993) examined the relationship between locus of control and organisational role stress among college teachers- professional/non-professional, male/ female and young/old, using Udai Pareek's Organisational Role Stress Scale and Rotter's I.E. Locus of Control Scale.

Teacher Characteristics

Thirty research studies have been placed in this category.

Psychological: Kumardas (1995) explored relationship between cognitive and affective characteristics and clinical supervision of under-graduate student nurses by nursing teachers. Chopra (1996) compared the psychological profile of educationally backward and advanced states with respect to attitude toward teaching, job satisfaction and various personality characteristics and found significant differences. Singh and Khalwania (1994) surveyed the educational level of government primary school teachers in Patiala, while Sharma (1992) compared Harijan and non-Harijan school teachers of Bundelkhand with regard to self-concept, job satisfaction and personality characteristics. Balasubramanian (1993) attempted to identify the personality traits of teachers, which influence their communication patterns. Singh et al. (2000) studied the personality patterns of urban and rural female high school teachers and reported that rural teachers are more truthful, non-violent, contend, unavaricious, restrained from theft, complacent and atheist. Roy (1994) used Cattell's PF questionnaire to determine relationship among 16 personality factors among teachers of 4 metropolitan cities.

Self-concept: Sabesan and Raghavan (1995) used the Rosenburg Self-Esteem Scale to compare self-esteem between male/female, arts/science secondary school teachers. Williams and Gnanadevan (2000) found out the self-concept of teachers undergoing M.Ed. course through Distance Education in Annamalai University.

Behaviour Pattern: Among the three studies on teachers' behaviour patterns, Hasan and Paragariha (1995) examined whether Extreme Response style serves as an indicator of (Jenkins) type 'A' behaviour pattern of male primary school teachers; Balasubramanian (1995) analysed teaching behaviour of Class XI English teachers and its effect on pupils' achievement in English; Singh ((1997) studied the relationship between non-verbal creative thinking and behaviour ratios of science teachers trained through micro-teaching technique.

Teachers' Perceptions: There are five studies regarding teachers' perceptions on some variables.

Singh and Kumar (1996) studied the perception of primary teachers about their profession, reason for choosing teaching as a career, their socio-economic and professional status and promotional avenues; Misra, Singh and Singh (1993) made a study of the arts/science and male/female teachers' concept of national integration. Singh (1992) researched in the personality factors of secondary school teachers and their attitude towards modernisation; Sharma (1994) probed into teachers' awareness of Mathematics as a discipline while Singh and Agarwal (2001) aimed at finding the awareness of teachers of different disciplines about Educational Technology. Mathur and Khurana (1996) studied teachers' perception of school climate and its relationship with self-actualisation.

Students' Perceptions: Student's perceptions about teachers have received attention from 4 researchers.

Patel (1996) analysed the opinion of male/female, rural/urban, science/general 4293 students regarding teaching behaviour of their teachers. Srivastava (1993) used the Teacher Acceptance Scale to find out how male/female students accept their teachers of different subjects. Srivastava (1995) studied whether students' teacher acceptance is affected by their rural or urban residence, Ujjawalrani et al. (1994) studied why boys and girls of ages 10-15 liked or disliked their teachers.

Awardee Teachers: Jain (1993) made a biographical study of the characteristics of National Awardee Teachers with special reference to personal, social and professional variables. Das (1997) made a case study of a national awardee primary school headmaster of Orissa regarding his personality profile, background and behaviour.

Burn-out: Burn-out of teachers appears to be a favourable area of research. Rama (1997) made a study of the impact of 'burn-out' on teacher efficiency and school effectiveness; Puravi (1998) tried to find out the relationship between the organisational climate and teacher burn-out at primary school level. Aggarwal (1997) found out some significant correlates of burn-out among college teachers in terms of emotional exhaustion, depersonalisation and personal accomplishment. Kailaslingam teacher educators in Karnataka. Kudva (2000)

attempted to find out relationship of three components of burn-out with five professional aspects. Sharma and Gupta (1993) made a study of the relation between adjustment and burn-out of secondary school teachers of Chandigarh.

Competence

Correlates: There are eight studies concerned with empowerment and competencies of teachers related with their motivation, learning motivation, satisfaction and such other variables.

Panda (2000) identified parameters including development of competencies of primary school teacher empowerment. Joshi and Parija (2000) undertook to find out the personality traits in B.Ed. teachers and their relationship with teaching competency. Thiagrajan et al. (1993) studied the relationship between teaching competency of secondary teachers as perceived by the students and students' achievement in economics with reference to demographic variables and sex. Naseema and Ayishabi (1995) attempted to find out whether job satisfaction can predict perceived teaching competence of physical science teachers in secondary schools of Kerala. Kukreti (1994) worked to find out the motivational factors of a teaching job which are correlates of competent teaching and which differentiate competent and incompetent teachers. Bhattacharya (2000) established that intrinsic motivation is essential for elevating level of teaching competence and improving attitude towards teaching profession of primary teachers. Rajput and Agarwal (1998) investigated whether the heads and teachers of primary schools in Delhi were aware of the concept and the extent to which they practised Continuous and Comprehensive Evaluation. Singhal and Mohanty (1999) examined the effects of teacher and school type on teacher empowerment variables of competency, expectations and teaching orientations in tribal, non-tribal and mixed primary schools and the relation of these to the learning achievement of children.

Teacher Effectiveness

The 19 studies classified under this heading dealt with teacher effectiveness in relation to creativity, organisational behaviour, effects on

children, adjustment, specific subjects and its problems. They include:

Correlates: Rao (1995) evaluated the effectiveness of primary and secondary level teachers with different potentials of creativity and inter-personal relationships; Singh (1993) examined the male/female, rural/urban teachers' effectiveness in relation to their adjustment. Abraham (1994) attempted to study the relationship between college teachers' effectiveness, job satisfaction and length of service, while Krishnan and Singh (1995) investigated into the main and interactive effects of sex, locale and socio-economic status of higher secondary teachers' effectiveness. Gupta (1995) made a correlational study of U.P. secondary school teachers' job satisfaction and teaching effectiveness; while Indira (1997) looked into the relationship between teacher effectiveness, work orientation and stress of lecturers in Degree and Junior Colleges of Andhra Pradesh. Anand (1998) made a study of motivation for teacher effectiveness at primary level.

Organisational Climate: Raut (1995) studied organisational effectiveness in relation to leadership behaviour, role performance and conflict management strategies of degree college Principals, and teachers' work satisfaction. Raja and Thiagrajan (1998) studied teacher-effectiveness and School Organisational Climate of boy's higher secondary school in Tuticorin. Pandey (1994) looked into the impact of the interpersonal relationship between the Head and the teachers on the public examination results; Katara and Bharadwaj (1999) analysed classroom situations of primary schools to improve teacher effectiveness.

Subjects: Gupta (1996) assessed the performance of primary teachers in mathematics and language. Babu and Gnanaguru (1997) determined the relationship between teacher effectiveness and involvement in teaching of commerce of higher secondary school teachers in respect of locality, sex and qualification.

Pupils: Velmani (1990) found out the effects of teachers' classroom interaction patterns of pupils' creativity, and academic achievement; Gupta (1993) sought whether teachers' influence direct or indirect has any impact upon mental health of his pupils.

Specific Groups: Biswas and De (1995) probed into effectiveness of secondary teachers in Tripura in relation to sex (M/F), location (rural/urban), management (government and private), types (boys, girls, and co-educational) and organisational climate of schools. Sugirtham and Krishnan (1995) measured the teacher effectiveness of girls' higher secondary schools in Tuticorin. Sujatha (1995) examined the effectiveness of tribal teachers working in single teacher schools in tribal areas of Andhra Pradesh covering the aspects of teacher absenteeism, quality of teaching-learning and teacher community interaction. Reddy (1993) studied the effectiveness of Adult Education instructors and attempted to identify its determinants–the socio-demographic and psychological variables.

Aptitude

There is a single study on aptitude for teaching in which Pandya (1993) used his self constructed and standardised Teacher Aptitude Test to measure teaching aptitude of secondary school teachers of Gujarat in the context of some psycho-social variables like sex, area, vocational aspirations, leadership, emotional stability, radicalism/conservatism and socio-economic status.

Teachers' Motivation

During 1993-2000, ten studies can be classified under this head.

Factors: Mittal (1994) explored the level of motivation to the work of secondary school teachers of Delhi and some of the important factors associated with their high and low work motivation, viz., job satisfaction, personality factors, school organisational climate and pupil likings. Mohan Raju (1992) made a study of factors, which contribute to stimulate and sustain the commitment of senior secondary school teachers of Delhi to the teaching profession. Gupta and Pande (1999) found the commitment level of polytechnic teachers and strategies to enhance it.

Competence: Kukreti (1994) made a correlation study of job-motivation and teacher competency; Bhattacharya (2000) studied

relation between intrinsic motivation and teaching competence at primary level, and Anand (1998) studied motivation for teacher effectiveness at primary level.

Job Satisfaction: Godiyal and Srivastava (1995) studied work involvement, job involvement and job satisfaction of male primary teachers of Garhwal.

Special Education: Paranjpe (1993) attempted to assess the Quality Working Life in the educational setting of special education teachers and relationship between QWL perception, job satisfaction, job involvement and work involvement. Paranjpe (1994) further studied the importance of various needs and their fulfilment as related to QWL perception of special education teachers.

Morale: Savadamuthu (1992) studied the relationship between the morale of teachers and the morale of students of different sex, location, type of schools etc.

Teachers' Attitude

Sixteen researchers have focused on teachers' attitudes.

Towards Teaching: Annamalai (2000) measured the attitude of teachers towards teaching by using Ahluwalia's scale. Reddy and Babu (1994) analysed the attitude of residential and non-residential school teachers towards teaching. Dubey and Ghai (1993) compared the scientific attitude of college teachers with teachers of Saraswati Bal Mandir and found no difference among them, or between M/F and science/humanities teachers.

Towards School Subjects: Roli (1995) examined the awareness and attitude of teachers and students of high schools towards environmental education in Jabalpur. Sundarajan and Williams (1993) using a Likert type scale measured teachers' attitude towards vocational education in the higher secondary schools. Goel and Manak (1994) compared the attitude of teachers, parents and demographers towards Population Education. Deousher (1994) studied the knowledge, attitude and beliefs of secondary school teachers and students of Bundelkhand towards Population Education.

Societal Concerns: Singh (1992) studied relationship of teachers' personality factors with their attitude towards modernisation. Lalnunmawii (1997) made an in-depth analysis of the attitude of university male and female teachers towards contemporary socio-political issues such as religion in politics, population, terrorism and communalism. Rani (1997) centred her study upon the men and women college teachers' militancy, morale and academic alienation, hypothesised to be the resultant of socio-political ecology as perceived by them.

In-service Programmes: Das(1999) studied the teachers' attitude towards the orientation programme of Academic Staff College, Gauhati University. Shah and Agarwal (1994) focused her study on the attitude of secondary school teachers towards computer assisted instruction and computer education in relation to sex, organisation and experience.

Effectiveness: Uma Devi and Venkataramaiah (1996) attempted to know the effect of age, qualification, experience and place of residence of rural elementary school teachers on teacher efficiency and attitude. Venugopal (1995) studied the influence of teacher attitude towards pupils and expectation from individual pupil on their achievement. Pandey and Maikhuri (1999) examined the 'attitude towards teaching profession' of effective and ineffective secondary school teachers of Garhwal. Shakuntala and Sabapathy (1999) studied the relationship between adjustment of secondary school teachers with their interest in and attitude towards teaching.

Satisfaction—including Job Satisfaction

Job satisfaction of teachers seems to be a popular area among researchers as 22 studies can be listed under it. Some have considered its determinants, some consequents and some relationships.

Correlates: Naseema (1994) studied Teaching Competence of secondary school physical science teachers in relation to their satisfaction of teaching the subject. Naseema and Ayishabi (1995) studied satisfaction as a predictor of perceived teaching competence. Sinha and Prabhat (1993) examined the relationship of job satisfaction with ego strength of secondary school teachers. Sudhira (1994) investigated teacher job satisfaction and job

stress of secondary school physical education teachers. Annamalai Abraham (1999) studied job satisfaction and teacher effectiveness of college teachers. Godiyal and Srivastava (1995) made a study of teachers' work involvement, job involvement and their job satisfaction. Baruah studied role conflict and its correlation with job satisfaction of secondary school women teachers in Dibrugarh. Gupta (1995) made a correlational study of job satisfaction and their teaching effectiveness. Annamalai (1999) studied job satisfaction of school teachers in relation to certain selected variables, viz., (i) attitude towards administration and teaching and (ii) adjustment. Bhatt (1997) made a correlational study of job stress, job involvement and job satisfaction. Chandraiah (1994) attempted to study job satisfaction of college teachers as an effect of Age. Dixit (1993) aimed to analyse the effect of sex on different factors – intrinsic (physical and psychological) and extrinsic (salary etc. benefits) – of job satisfaction among primary teachers. Shahapur et al. (1996) looked into the satisfaction of different need areas (physical, social, esteem, autonomy and self-actualisation) in relation to the two styles of leadership (initiating structure and consideration) among college teachers in Mysore. Kulsun (1998) wanted to identify whether job satisfaction of school teachers varies with their perception of school organisational climate or not.

Various Groups: Begum (1994) examined the relationship of job satisfaction of Kerala college teachers with some socio-demographic and personality variables. Das and Panda (1995) aimed at finding out the job satisfaction of college and higher secondary teachers in terms of their sex and experience. Ausekar (1996) compared the job satisfaction among teachers working in government and private secondary schools. Thaker (1996) designed to know whether the government and non-government secondary school Principals differ in their job satisfaction. Thaker (1996) studied the relationship between the Saurashtra secondary school Principals' job satisfaction and gender, age, experience, qualification, marital status, type of schools, residential area and geographical locale. Reddy and Babu (1995) analysed the level of job satisfaction of male and female teachers of residential and non-residential schools. Jyothi

and Reddy (1998) attempted to study the professional satisfaction of teachers working in the schools for the hearing impaired in Andhra Pradesh. Ratanappa (1998) studied the personal and professional satisfaction of women teachers of schools, colleges and universities in Andhra Pradesh.

Stress

Ten studies are classified under this head, four of which belong to other categories too.

Ushashree (1993) identified major sources of stress among primary and secondary schools of Andhra Pradesh, examined the extent of stress and burn-out, intensity of their reactions to stress, surveyed their coping styles and relationship with job satisfaction. Gyanani (1998) studied the impact of organisational climate on stress and strain among the teachers working in higher education institutions. Saini and Das (1999) studied the relationship of secondary school female teachers' stress in personal and occupational life. Paratkar (1994) made a psychosocial study of role stress among primary, secondary and university teachers, Bankat and Parveen (1999) compared organisational role stress among bank managers and university teachers. Mishra (1991) studied relationship between organisational climate in school, teachers' stress and burn-out in relation to teacher's personality. Sudhira (1994) studied job satisfaction and job stress of secondary school physical education teachers. Indira (1997) investigated stress and work orientation in relation to teacher effectiveness. Bhatt (1997) made a correlational study of job stress, job involvement and job satisfaction of teachers. Sindhe (1997) worked to identify demographic and familial correlates of anxiety and general perceived stress among teachers.

Mental Health

Determinants and Areas: Sharma (1995) attempted to study changes brought about by the influence of recent life experiences on mental health of school teachers. Kamau and Gupta (1994) constructed a mental health scale for teachers with 50 items, identified 5 areas, viz., personal well-being, anxiety, disabling

symptoms, capacity for constructive relationships and coping with the ordinary demands and stress of life.

Problems

Problem Areas: Sharma and Pareek (1995) looked into the managerial, disciplinary, financial, personal and academic problems faced by students, teachers and Principals of Navodaya Vidyalayas of Rajasthan. Chopra (1998) made a study of the working conditions of rural and urban primary schools in Haryana. Mathoo (1993) attempted to identify the problems of teachers in single/two teacher primary schools in Bihar, Madhya Pradesh and Rajasthan. Jangira, Singh and Yadav (1995) focused their study, with a sample of 7 states, on the state government teacher policy, covering recruitment procedure, demand and supply of teachers, posting and transfer, proportion of male/female and problems faced in primary schools. Santwani (1997) compared the perceptions regarding professionalism and professional problems of women teachers in higher education with those of women professionals in medicine, law, administration and media. Chauhan (1993) made an interesting study with a sample of successful persons in the field of education, who rose to great heights from very low levels regarding their motivation and meaning – personal and vocational – in their lives covering their life aims, stress, motivation etc.

TEACHING

Method of Teaching

There are 23 studies under this sub-group.

Lecture and other Methods: Sansanwal and Suri (1995) compared the effectiveness of lecture method, programmed learning material and lecture-cum-programmed learning material in terms of achievement in organic chemistry of Class XI students. Mukherjee (1994) made a study about learning from lectures–the cognitive demands and learning strategies of B.A. students of English literature, History and Economics. Adsool and Desai (1997) compared the teaching methodology employed by teachers

before and after the use of Teachers' Handbook. Sharma (1994) focussed his study on teaching Class VII Social Science (Geography and Civics) through the techniques of brainstorming, problem solving, project and conventional method for engendering higher order taxonomic objectives of application, analysis, synthesis and evaluation. Kumar's (1997) study on innovations in teaching methodology for higher order learning elaborates special features and effectiveness of the video tele-teaching course conducted by I.I.T., Delhi in collaboration with IGNOU and ISRO in March, 1996.

Languages: Mukherjee (1993) developed a strategy to teach English through concept organisation approach; Khalique (1995) investigated the methods of teaching English in secondary schools of Aurangabad. Padmaja (1996) compared the English teaching-learning of pre-university course of Karnataka and Intermediate of Andhra Pradesh, with reference to materials, methods and modes of evaluation. Joshi, Mehta and Zaveri (1997) investigated the use of games as interactive methods of reinforcing literary skills among adult women under post-literary campaign. Agarwala (1999) explored the relative effectiveness of word-supply and sentence-repeat methods in the modification of oral reading errors of primary school children. Paliwal (1994) compared the traditional and communicative approaches for developing communicative competence in secondary school students. Phadke (1997) experimented to assess and improve the knowledge of primary school pupils about Marathi idioms and phrases (concept, form and use).

Mathematics: Dayal (1996) made a study of addition strategies adopted by children of Grades I and II at different levels of number concept maturation. Bussama (1993) examined the effect of stimulation technique in the teaching of mathematics (topic-matrices) to 12/13 year old students. Dash (1996) focussed his study on the effects of instructional strategy, using self-learning activity sheets, on the problem solving behaviour of Class III children leading to mastery level performance. Sinha (1993) examined the role played by angular method in improving Class VI students' skill in simple addition.

Science: Jadhao and Parida (1996) tried to make the teaching of physics concepts (of force, work and energy) easier and more interesting at the lower primary level. Kaushal (1997) made an attempt to study the management and teaching of science lessons using both narrative and coded information in large classrooms in primary schools of Delhi. Saxena (1996) studied the difficulties faced by a teacher in teaching 'shadow and eclipses' to Class V children with a view to suggest effective methods. Rajyalakshmi (1996) investigated the relationship between cognitive preference styles in biology and creativity among high school students. Rajan (1996) compared the effect of three modes of analogy presentation—verbal, pictorial and computed simulation in Chemistry on Class IX students' learning.

Special Education: Sharma (1994) studied the attitude and effect of teacher's educational intervention in improving academic achievement of children with learning disabilities. Pillay (1995) investigated the effect of an Individualised Training Programme on the development of communication, motor and socio-emotional skills in the mentally retarded.

Models of Teaching

Models of teaching, with 18 studies, is a popular area among researchers.

Concept Attainment Model: Joshi and Patra (1993) made an experimental study to assess the impact of Concept Attainment Model on general mental ability of secondary school Social Science students. Mukherjee (1993) looked into the teaching of English composition through concept organisation approach. Shrivastava (1995) examined the efficacy of Concept Attainment Model in the teaching of English grammar to Class VII students. Saxena (1994) identified prevailing alternative frameworks among senior secondary and under-graduate students of physics, with a view to develop a suitable strategy using concept mapping. Ayishabi (1996) compared the effect of Concept Attainment Model and traditional method in the teaching of Zoology at the plus-two level. Kaur and Kaur (2000) studied the effectiveness of Concept Attainment

Model for teaching of concepts in Economics in Class XI.

Information Processing Model: Gupta (1995) made a study of relative effectiveness of some Information Processing Models of teaching on mental process and attitude towards Science in Class IX. Mishra (1998) investigated the learning style patterns in relation to information processing modes and multiple talents of university students of different disciplines. Saminathan (1999) evaluated the effect of information processing approach on developing problem-solving ability in Physics in Class XI.

Inductive Thinking Model: Singh (1994) compared Inductive Thinking Model with traditional method of teaching economics to Class XI students. Patil (1995) made a comparative study of the effectiveness of Inductive Thinking Model and Concept Attainment Model for teaching Marathi grammar to Class VII students.

Inquiry Training Model: Swamy (1995) evaluated the effect of Inquiry Training Model of teaching science on science process skills, creativity and curiosity of secondary school students. Alam (1997) looked into the effectiveness of Inductive Thinking and Inquiry Training Models for teaching Biology to secondary school students. Kumar and Kaur (1998) evaluated the effectiveness of Inquiry Training Model in the development of process skills in Geography in relation to cognitive style and personality types.

Advance Organiser Model: Panda (1994) studied the effect of advance organiser and set induction on learning and transfer among Class IX students. Patnaik and Mohanan (1993) investigated the effectiveness of the Advance Organiser Model on the attainment of History concepts by Class VII students.

Miscellaneous: Balasubramanian (1999) studied the effect of cognitive modelling on learning mathematics. Chaudhari and others (1999) made a study of the effect of synectics model, gaining strategy and traditional method upon self-concept, creativity and achievement of Class VI students. Bhattacharya (1985) compared the effectiveness of various models for teaching Geography in relation to institutional resources.

Affective Domain

Hymavathi (1993) attempted evolving a teaching model for developing the affective aspects of children as envisaged in National Policy on Education. Godbole (1994) took up a project to know the effectiveness of story telling in personality development of primary school children.

Educational Technology

The 24 studies under this head cover the role of various technology areas–multi-media, audio-video, tele-teaching, programmed instruction and computer assisted instruction.

Multi-media: Deshmukh (1997) made a study in the use of educational technology for teaching mathematical concepts to Class V. Kulkarni and Kamat (1997) experimented with the use of suitable educational technology in the teaching of Marathi as first language in Class V. Surwase and Chincholkar (1997) did the same in the teaching of Geography. Patel (1998) assessed the impact of Operational Research Technique of Network Analysis on learning Science in Class XI. Reddy and Ramar (1995) developed multi-media modules for Mathematics for low achievers of Class VIII and compared its effectiveness with traditional approach. Raina (1995) attempted to find out the various types of instructional media being used in the teaching of history in schools. Reddy and Ramar (1997) examined the effectiveness of multi-media instructional strategy in teaching Science to slow learners of Class VIII.

UGC Classroom: Sahoo and Goel (1995) studied the UGC countrywide classroom with specific reference to ETV programmes in terms of their content presentation and effectiveness with and without talkback. Singh (1994) evaluated the effectiveness of UGC countrywide programmes on models of teaching with talkback and with interactive mode.

Audio: Balasubramanian and Yoganandam (1994) studied the effectiveness of pre-recorded audio-cassette as a supplementary device in teaching English pronunciation to school children. Ilangovan (1998) studied the effectiveness of audio-video intervention in developing listening comprehension in English at higher secondary stage.

Video: Enigo (1997) compared effectiveness of instructor controlled interactive video with conventional non-interactive video and lecture method in modifying the cognitive behaviour among farmers. Purushothaman and Stella (1994) studied the effectiveness of teacher controlled interactive video for group instruction to teacher trainees at secondary education. Neera Chetanlal (1998) engaged in the production and validation of video teaching-learning material in Home Science for senior secondary students of Delhi. Kumar made a study of the special features and effectiveness of the video tele-teaching course for degree level engineering institutions.

Computer Assisted Instruction: Mahajan (1994) studied the effectiveness of computer-assisted instructions for teaching singular and plural to Class II. Rangraj (1997) attempted to study the effectiveness of computer assisted instruction in teaching Physics at higher secondary stage. Balasubramanian (2001) attempted to establish the relative effectiveness of Tutorial Drill and Practice and Simulation as different modes of computer based instruction of Physics at higher secondary stage. Agarwal (1995) made a comparative study of conceptual understanding by programmed instruction and computer assisted instruction.

Programmed Instruction: Thaker (1994) investigated the effectiveness of linear programmed material and branching programmed material in teaching economics to Class XI in relation to achievement, motivation, birth order, parents' level. Sarma (1997) made an experimental study of the effect of programmed learning in teaching Sanskrit Karakas at + 2 level. Shah and Agrawal (1993) studied the effectiveness of programmed learning material presented through text and through computer. Agarwal and Mohanty (1998) made a meta-analytical study of the effectiveness of multi-media programmed learning and traditional methods of teaching.

Piagetian: Goel and Vasthava (1995) compared the effectiveness of Piagetian teaching model through live demonstration, direct video and interactive mode.

Systems Approach: Akhtar (1994) aimed at application of system approach in classroom

instruction and measured the effectiveness of self-learning material for higher secondary students.

Teaching/Learning Problems

Srivastava (1995) investigated the problems of Urdu medium school students in learning English. Rajgopalan (1995) studied Piaget's Formal Reasoning in Science among school pupils and its relationship with some variables like IQ, gender, age. Joshi (1997) made a study of individualised language programme for expressive language disorders in case of children who are developmentally delayed in language. Pradhan and Mistry (1996) studied the teaching-learning process in primary schools and the nature of teacher-student interactions, which are responsible for good or poor results.

Teaching Competency

Gupta and Kaur (1993) made a factorial study of Teaching Competency. Shamala (1997) attempted a conceptual model for enhancing teaching competency through integration of art education for effective language teaching at the primary stage. Panda (1996) assessed the effect of competency-based instruction in achieving MLL competencies in Grade IV in Oriya medium primary schools. Mishra (1996) compared the traditional vs. competency-based teaching in environmental studies in primary classes. Mohan (1998) made a factorial study to identify the factors involved in effectiveness of teaching. Sharma and Kumar (1993) assessed the relative importance of teaching skill from the view of secondary school teachers. Khuntia (1996) evaluated competency-based teaching-learning in mother tongue in primary schools.

Curriculum

Padmaja (1996) made a comparative study of materials, methods and evaluation modes in English language teaching in university/intermediate levels. Baskaran (1995) undertook development of a remedial instructional package to reduce the errors in sentence structure committed by the students in written English at the higher secondary level. Mohapatra and

Das (1996) made a study of the vocabulary required by Class III students to achieve mastery in EVS II as per MLL. Trehan (1994) evaluated relative effectiveness of individualised and group instructional modules for teaching biosciences to Class IX. Rao (1993) designed a need-based course in the teaching of English for the under-graduate students of an Open University.

Strategies/Approaches

Fifteen studies under this head cover miscellaneous areas.

Class size: Das (1996) attempted formulation of intervention strategies for effective management of large size classes at elementary level. Gupta, Sharma and Malviya (1997) developed strategies and materials for primary schools with two teachers teaching in multigrade setting.

MLL approach: Patrick (1995) assessed the effectiveness of two feedback corrective procedures used in mastery learning strategy in terms of Class IX students' achievement and retention in chemistry. Kaul, Dadhich and Soni (1995) prepared a pre-primary level process-based readiness programme for primary level Mathematics. Panda (1996) studied the effect of activity-based instruction in achieving MLL competencies in Grade IV of Oriya medium schools. Paranjpe (1996) surveyed teachers' perception of reforming classroom instructional practices in small size primary schools. Padhi (1996) studied the effect of competency-based activity centred approach to teaching for MLL in environmental studies. Kothari (1997) experimented with MLL-based approach to teach Mathematics.

School Subjects: Chel (1997) made a pilot study of 'seeing is believing' principles in teaching Mathematics at the secondary level. Dave (1996) made an inquiry into the effectiveness of the communicative, the structural and the conventional approaches to English language teaching at secondary level. Husain (1995) examined the role of translation as a learning strategy in English as a second language. Deshpande and Bhat (1994) researched the effectiveness of mastery learning strategies across socio-economic levels in terms of VIII standard students' chemistry achievement

and modification of their self-concept. Agarwal (1998) made a study of the effect of teaching strategies in relation to creativity on conceptual learning of Class XI students of commerce.

Miscellaneous: Kumar (1998) evaluated the distance education system of Andhra Pradesh in realising the goals of higher education. Singh (1993) studied the perceived reinforcement oriented teaching strategy effecting creativity among Class VIII pupils.

TEACHER EDUCATION

(A) Pre-service

Admissions

Shukla (1995) made a comparative study of state level selection procedure of admission to the B.Ed. courses institutions in Rajasthan and Madhya Pradesh, on the basis of a survey of the opinions of teacher educators, B.Ed. students and administrators. Kaur and Kaur (2000) intended to investigate the relationship between the entrance test scores as predictors and achievement of teacher trainees of correspondence courses of Punjab University, Patiala. Pant, Bhatnagar and Prakash (1998) made a review of the researches about the validity of Admission Criteria used in Counsellors' Training programmes.

Programmes

Kumar (1996) compared the curricula of teacher education programmes at secondary level in South Indian states with that in Regional Colleges of Education and found them inadequate and unrevised for a long time. Srivastava and Aggarwal (1999) studied the existing pattern of secondary pre-service teacher education in the country, analysed its various components, developed an improved model and prepared guidelines to restructure the internship programme. Mani (1993) evolved a programme of teacher education at +2 stage, on the basis of responses to questionnaires on different aspects from teacher educators; Behari (1998) analysed secondary pre-service teacher education curriculum in the context of requisite abilities for selective teaching.

Agarwal (1998) developed an outline curriculum about population problems for higher secondary school (B.Ed.) teacher trainees on the basis of an assessment of awareness among Hindu, Muslim, Sikh and Christian communities about over-population in India and their attitude towards population education.

Courses: Grewal (2000) identified the knowledge bases for learning to teach and quality of primary teacher education. Damayanti (1994) engaged in the preparation and try-out of a course in English of the trainees of primary training colleges in Gujarat. Patnaik and Basavayya (1997) developed a training package in Environmental Studies II for primary teacher trainers. Basavayya and Patnaik (1997) developed a training package in Mathematics for primary teacher trainers. Mohan (1998) prepared a Model of Constructivist Pre-service science teacher education.

Process: Rao (1997) intended to identify the effectiveness of student teaching through self-evaluation. Nagpal (1999) made a study to appraise the existing human resource development climate in improving quality management of DIET's in 5 northern states. Mohanasundaram (2000) prepared suggestions about the introduction of communication interaction, multi-media packages, educational telecast and web-based learning activities to make teacher education programmes more effective.

Activities: Rao (1996) attempted to find out the effectiveness of drama activity as a tool in teaching-learning process used by secondary teacher trainees. Dubey and Panda (1993) experimented with developing story-telling ability among nursery student teachers effectiveness of stimulus variation. Kanna (1998) made a study of educational technology inputs in B.Ed. curriculum in Tamil Nadu. Singh (1997) compared the correlation between the scores of non-verbal creative thinking and the behaviour ratios of science student teachers trained through micro-teaching technique and traditional technique. Kamalam (1996) attempted capacity building of teachers in educating the mildly mentally retarded primary school children.

Teacher Trainees/Educators

Competence: Lalitha (1994) examined creativity in relation to teaching competence of B.Ed. teacher trainees of Bangalore University. Patil and Deshmukh (1993) studied the relationship between Aptitude in teaching and teaching efficiency of B.Ed. pupil teachers. Desai and Deshpande (1996) examined the interactive effect of sources of feedback and student teacher neurotic personality on student-teacher competence. Nightingale and Santhanakrishnan (1995) studied the reflective attitude of B.Ed. student teachers, M.S.University, Tirunelvelli. Gaikwad (1993) investigated the effect of mastery over theory and planning skills on B.Ed. teacher trainees' classroom teaching and his pupils' achievement.

Reddy, Reddy and Geetanath (1999) made a study of creativity of teacher trainees of DIETs. Bhatacharya (1998) aimed to determine the levels of adjustment and teaching competence of girl student teachers of science and non-science streams. Sangamitra (2001) looks at the relation of the performance of teacher trainees with her introversion-extroversion personality type and also leadership style. Parmar (1998) studied relationship between beliefs about intelligence, self-efficacy and educational goals of secondary education teacher trainees.

Mohan (1997) examined the teaching effectiveness of B.Ed. physical science teacher-trainers using explanatory causal model involving attitude, interest and academic achievement.

Context Variables: Sabharwal (1999) identified context variables, viz. of general mental ability, scholastic achievement, attitude, anxiety that can predict performance of student teachers in the theory, practical and total internal assessment. Swain (1996) studied differential factors in academic success of science and humanities teacher trainees of B.Ed. course. Gyanani (1998) studied the effect of classroom climate, leadership behaviour and expectations on B.Ed. student teachers' scholastic achievement.

Student-Teacher Reactions: Joshi (1994) studied the reactions of B.Ed. trainees towards some innovations in teacher education programmes like orientation, flexibility, planning of learning, distribution of content according to

their capacity, peer teaching self study, discussions, relationships, attitude etc. Jani (1998) studied secondary teacher trainees (B.Ed) preconceptions of teaching- comprehension of their ideas about good teaching with those of secondary school teachers, their expectations about future teaching performance and their explanations for their predictions. Rao and Baig (1998) evaluated the level of awareness and attitude of secondary teacher educators in the colleges of education in the southern region.

Affective Domain

Mishra and Panda (1996) attempted to see the effect of B.Ed. and C.T. teacher training programmes on men and women teachers' personality, feeling of stress and burn-out. Sundarajan, Govindrajan and Rajsekhar (1994) studied B.Ed. student teachers adjustment and its relationship with their self-concept. Santhanakrishna and Vijaya (1995) tried to find out the reflective attitude of B.Ed. students. Anil and Joseph (2000) attempted to find out the interest in teaching of the B.Ed. teacher trainees in Kannur University.

Outcome/Output

Impact: Patted (1993) examined the impact of B.Ed. programme on educational perceptions of student teachers and relative contributions of the components of the programme on changes in those perceptions. Mishra and Panda (1996) studied the relative influence of B.Ed. and C.T. teacher training programme on teachers' personality, feeling of stress and burn-out. Sarma (1995) studied Class V students' perception of the teaching performance effectiveness of teacher trainees. Vasanthi and Anandhi (1997) made a study of some factors–intelligence, anxiety, self-concept, attitude towards teaching and motivation, affecting teacher effectiveness of student teachers. Venkataiah (1997) studied the impact of inputs provided in DIETs such as adequacy of staff, student services, facilities, cocurricular activities and practice-teaching, on teaching competency of student teachers. Bhat and Bawane (1997) made an attempt to identify the nature and extent of discrepancy that exists between the expected and actual development of

competencies as outcomes of the primary teacher education programmes. Swamy (1995) assessed the impact of a programme of critical thinking skills on the achievement of B.Ed. student teachers of Bangalore City. Singh (1997) made a comparative study of the effect of micro-teaching and traditional training on changes in Teacher Behaviour.

Verma and Chabra (1996) studied the extent to which the primary school mathematics teachers employ the competencies, knowledge and skills acquired during teacher education programmes in actual school situations in teaching of mathematics. Dubey and Panda (1993) attempted developing story telling ability and nursery student teachers as an effect of stimulus variation.

(B) In-service

Programmes and Their Evaluation

Evaluation: Elahi (1996) made a critical study of in-service teacher education programmes of SCERT, Delhi. Gafoor (1996) made a critical study of the functioning and work efficiency of DIETs, assessing the material, human resources and the efficacy of various training programmes of DIETs.

Teacher Empowerment: Anand (1996) developed a motivational package to promote teacher effectiveness at primary level. Khader (1996) addressed the problems of classroom transaction based on child centred activity-based approaches in multigrade and non-multigrade schools to discern the training inputs for empowering primary teachers for effective classroom transaction. Srivastava (1996) assessed the teacher training programmes under DPEP as a strategy for capacity building in 19 districts of Madhya Pradesh and 5 of Maharashtra. Rao (1997) made a study of the Adilabad agency experiment in activity method, which made an intervention to provide access to primary schools and provide quality education. Rath and Kumar (1997) focused on the schooling process indicators, which influence the students' achievement and implications for teacher empowerment. Agarkar and Gambhir (1996) attempted to study the feasibility of using primary school teachers as resource persons and to develop a need-based

in-service teacher education programme in municipal corporation schools of Sholapur with the objective of improving classroom interaction processes. Agarwal and Kamlesrao (1997) made an appraisal study of the quality of in-service training programmes in relation to coverage of content and transactional studies and ascertain the extent of transmission loss in the programmes. Srivastava (1997) attempted to analyse the DPEP teacher training components and their effectiveness and to identify problems in their implementation. Arora and Singh (1997) attempted to appraise the training designs developed by different DPEP states for primary teachers. Reddy (1999) attempted to study the impact of in-service programmes of DIET for primary school teachers with emphasis on theme specific programmes of MLL.

Capacity Building: Swarnlekha (1997) investigated the inadequacies existing in the primary school pupils in problem-solving ability and the effect of teacher empowerment on improving pupils' performance. Agarkar (1997) outlined the design, salient findings and implications of a programme to improve teaching of science and mathematics in rural secondary schools. Pushpanadham (1997) made an experiment to discover the teacher potential through participatory research, as part of capacity building programme for primary school teachers.

Techniques: Singhal and Sharma (1996) examined the effect of training teachers in achieving subject specific competencies in primary classes on their self-efficacy and competence. Dutta (1998) attempted to study into the modification of teaching behaviour of upper primary science teachers through verbal interaction analysis feedback and its effect on scholastic achievement of pupils of Class VII in Delhi schools. Ahuja, Walia and Agarwal (1994) experimented with a video film show as a Model for refresher training at the grassroots i.e., of Anganwari workers.

Special Education: Geetha (1998) focused on developing a remedial package and evaluating its efficacy in augmenting primary school teachers' skill in helping dyscalculic children i.e. children with difficulties in arithmetic. Julka (1998) examined the various issues and concerns and the role of regular and special

teachers related to the successful education of visually impaired children in mainstream schools.

Modalities: Yadav (1994) investigated the comparative cost effectiveness of three population education training modalities, viz., Face-to-Face Interaction Mode, Self-learning Individual Mode and Self-learning Paired Mode. Sharma (1999) examined the efficacy of methodology resources and organisation of the training programme of volunteers in the total literary campaign.

Training Needs

Primary: Singh and Kumar (1996) attempted to study the training needs of primary school teachers. Mohapatra (1996) aimed at identifying intervention areas for improving teaching of EVS-II. Bhattacharjee (1997) prepared a conceptual model of teacher empowerment at primary level: Contextual issues, emerging paradigms and parameters. Laxmi Narayan (1997) studied to know the impact of Andhra Pradesh Primary Education Project in-service training on teacher empowerment with special reference to professional skills of primary teachers. Mishra (1997) attempted to study the effect of the module to empower the primary school teachers in developing local specific competencies based curriculum. Gupta, Sharma and Bhattacharjee (1997) made an assessment of the training needs of primary school teachers in language and mathematics in DPEP districts of Assam. Grewal, Grewal and Jagwani (1996) attempted the development and validation of needs assessment survey technique for the identification of training needs of primary school teachers in a district.

Pre-primary: Hiran and Dave (1994) developed training guidelines for pre-primary teachers of Udaipur, regarding care and education of children in early childhood years.

Training Models: Agarwal (1996) made a comparative study of teacher training models under SOPT and DPEP programmes. Paranjpe (1997) focused on INSET as a partnership for teacher empowerment. Sharma (1994) made an attempt to implement a Teachers Educational Intervention Programme for teachers of learning disabled elementary school children from urban and rural areas of Andhra Pradesh.

Distance Education: Sharma (2001) presented the findings of the study conducted with a focus on status survey of B.Ed. programme through distance mode offered by state open universities and correspondence/distance education institutes. Sharma and Singh (2001) studied the perceptions of B.Ed. trainees of Directorate of Distance Education, M.D.University, Rohtak towards different components of the in-service B.Ed. (D.E.) programme.

Tribal Teachers: Rao (1993) studied the impact of in-service educational programmes on tribal teachers at primary level of Adilabad District in Andhra Pradesh.

Higher Education–Academic Staff Colleges

Sree (1995) attempted to find out the attitudes of Botany and Economics lecturers towards Refresher Courses held at Andhra University, Waltair and the extent to which the objectives of the courses were achieved. Nilavar (1995) evaluated the instructional programme of academic staff colleges in the college teacher programme perspective. Pradhan (1997) made a critical inquiry into the academic staff orientation scheme of UGC, its present status and impact on beneficiaries and functionaries of Academic Staff Colleges. Singh (1994) studied the effectiveness of UGC countrywide classroom programmes on models of teaching with interactive mode and without talkback. Subrahmanyam (1998) made an assessment of the impact of Academic Staff Orientation programmes of the ASCs on the University and College teachers.

Miscellaneous

Al-Mekhlagi (1997) investigated the Yemeni English as second/foreign language student teachers' attitudes and preference to feedback of error correction of written work.

Verma (1997) examined whether discipline differences exist in the learning styles of in-service secondary school teachers in Indian socio-cultural ethos. Ogunkola (2000) investigated the perception of high school teachers towards in-service training programmes in Nigeria.

Taj (1999) explored the concept of teacher

freezing, developed and standardised a Teacher Freezing Scale and studied the effect of teacher freezing on school effectiveness.

Meera and Veliath (1999) assessed the impact of the in-service training course in value education on primary school teachers.

Khader (1997) questioned the prevailing tendency of the trainers and teachers to rely on conventional approaches in performing professional roles and exhorts them to move out of their comfort zone and prepared a model for strategic planning of in-service training inputs for teachers.

Reddy and Srinivas (1997) attempted to study the sources of teacher stress, the nature of its association with teacher effectiveness and to find out the efficacy of behavioural programme to manage stress and improve effectiveness in primary male teachers in the age range 30-40 years.

DISCUSSION AND SUGGESTIONS

Teacher

Hundred and twenty-four studies have been classified under Teachers. These have been further sub-grouped into 11 areas as follows:

Further, 11 studies have been mentioned in 2 sub-groups Motivation with competence (2), and effectiveness 1; Satisfaction with competence 1, with effectiveness 2 and with motivation (1), and Stress with Role (1), with effectiveness (1) and with satisfaction (2).

The studies are spread over different parts of India and are generally location specific. They cover various levels of education–pre-primary to higher and teachers of different subjects. The population studied includes male, female, and areas–rural, urban, tribal, non-tribal. The adult education and special education teachers have also been the subjects of study.

The 13 studies on Teachers' Role have the management and administrative role of teachers inside and outside classroom in relation with correlates like job satisfaction. Other studies have focused on the background of teachers and their roles–managerial and organisational Role (9), Background factors and Role (4); and Role conflicts and Role stress of women teachers–role in family and in schools–have got more attention.

However, there is no in-depth study identifying the teachers' role in the changing society. There is need to define the role functions and tasks of teachers in the fast changing nature of schooling as an effect of privatisation, information technology, globalisation and liberalisation. The fast changing cultural economic and political influences have their impact on the realistic role that teachers have to play. The future research on roles may have such a direction.

Teachers' characteristics are the subject of a large number (30) of studies. They cover Psycho-social/Personality Profile, (7), self-concept (2), Teachers' behaviour (3), teachers' perceptions of desirable characteristics (6), students' perception of teachers characteristics (4), characteristics of some special groups such as national awardees (2) and the burn-out (6).

Burn-out has been a favourite area. It has been researched with its determinants and consequents. Comparisons in personality and other characteristics of urban-rural, manpower, primary, secondary teachers have also been made. Behaviour patterns and their effect on pupils' learning have been studied.

While the studies cover a very broad compass, we need to identify the desirable characteristics in our teachers in relation to changes in their role and functions. Under-standing them will enhance teacher-education

	Area	No. of studies		Area	No. of Studies
1.	Teachers' Role	13	7.	Teacher Attitude	15
2.	Teachers' Characteristics	30	8.	Teacher Satisfaction	17
3.	Teachers' Competence	8	9.	Teacher Stress	6
4.	Teacher Effectiveness	19	10.	Teacher Mental Health	2
5.	Teacher Aptitude	1	11.	Problems Faced	6
6.	Teacher Motivation	7		Total :	124

policies and programmes. We have to be realistic also in this regard–idealistic lists of characteristics expect teachers to be super human.

Studies on competencies which lead to empowerment of teachers and the related variables throw light on the present situation regarding them. Which of them need to be and can be developed and how, should be the concern of researchers.

Studies on teacher effectiveness cover very diverse fields. The 7 studies dealing with its effect on creativity, interpersonal relationships, job satisfaction, work orientation, role performance and such other variables have been useful. Effectiveness has been studied in relation to the organisational climate (4), specific school subjects (2), children (2) and specific groups (2).

They are all status studies and give a general picture of the determinants of the effectiveness of teachers of various stages. Leadership behaviour, interpersonal relationships, conflict management strategies, socio-economic status, job satisfaction and such other variables have rightly been investigated. Yet, a holistic picture has not emerged. The concept of effectiveness is also required to be clarified. The essentials of personal, organisational and socio-emotional environment which may result in making a teacher perform his/her duties effectively should be a constant, continuing concern of researchers.

Aptitude for a teachers' job is a very important topic but it has been researched very little. With a good job analysis of teaching as the base, aptitude for it needs to be incisively examined which will assist in admission to teacher education and recruitment to schools. It would go well as a team project.

Factors of teachers' motivation for work (3 studies), relationship of motivation with competence (3), with job satisfaction (1), with children's morale (1) are quite satisfactory studies. It is good that motivation and need fulfilment of special education teachers have been attended to.

Incentives and motivation are vital areas of study. The various theories of motivation–need satisfaction, social prestige, esteem and status, monetary and non-monetary compensations, and such other variables which intrinsically affect teachers' life and psyche should be the targets of researchers.

Related to motivation is teachers' attitude–towards teaching, towards children, towards various school subjects, societal concerns, towards new subjects like population education, environmental education, towards in-service programmes. These and the relationship of attitude with effectiveness and other variables have been studied sufficiently. Comparison of attitudes of teachers (towards their responsibilities) of private and government schools, male and female, rural/urban, primary, secondary, different school subjects would help us understand better the present school phenomena. Also, the factors that determine the attitude, need to be analysed.

Many researchers have been interested in teachers' job satisfaction: Its determinants, consequents and correlates in terms of sex, competence, effectiveness etc. have been studied and findings give good idea of the phenomenon; comparison between job satisfaction of different types of groups have been presented.

Yet, what is satisfaction, how it is attained, what role the incentive, the work-conditions, the school's socio-emotional climate, the managerial style etc. play in it, will always be rewarding areas of research studies.

Most teachers seem to work under stress. Some factors are external to the institutional situation: 4 studies have attempted to locate sources of stress and 6 of its correlates. Recognising that stress is a hurdle to effectiveness, it may be a priority area to identify how teachers can avoid and cope with stress which is their lot. The effect of growing stress and tensions on teachers' life and work requires carefully designed research.

Stress and mental health are closely related. A useful study has contributed towards measurement of mental health of teachers. The maintenance of mental (as well as physical) health is a sine qua non for effective execution of teacher's duties. Teachers should be cognisant of the concept of mental health, its lack in teachers and the ways of achieving positive health these should be the concern of our research endeavour.

Six researchers have looked into the general, managerial, disciplinary, financial, personal and academic problems faced by teachers: of various types and levels of schools. Teachers' credibility is low and they face plenty of problems from

parents, colleagues, principals etc. Can these be avoided? How? Let us devote some research in this direction.

Teaching

The 97 studies under teaching have been further sub-divided into 8 sub-groups as follows:

Five studies have attempted to compare lecture method with other methods for teaching different subjects and different classes. They have tried to examine alternative methods in the context of higher level objectives.

Seven studies have investigated, developed and compared different methods in teaching English, communicative competence and Marathi.

Four researchers devoted their studies in using different methods to improve teaching of mathematics to primary school classes.

Teaching of science to primary and high school classes has attracted three and two researchers respectively. Methodology of Teaching has to be based on sound pedagogical principles and concepts. The methods studies treat the matter very superficially. Comparing the pre and post scores with quite often non-probabilistic samples and comparing the experimental method with the 'traditional' and showing differences, not always significant. Such researches do not serve useful purpose. Methods studies should be spread over a length of time, with different types of lessons topics, and with their best possible potential use and control of the teacher factor. Every teacher uses a method in his own way and a no method is universally effective with all teachers. While teacher A may be extremely effective with Lecture, but not with 'Discussion'. Teacher B may be effective otherwise. Those teacher educators, whose main responsibility is methods of teaching a school subject, should be continuously open to experimentation. Their guidance of their students regarding methods should be experimental and research-based. Unfortunately, most of them, in their own research move to other fields–psychology, philosophy, history etc. and thus research in methodology of teaching is insufficient in quantity and quality. The promotion policies are detrimental to this, as 'methods masters' (as they are designated even by those who should know better) do not have avenues for promotions in their own areas. The methodology teacher educators should be encouraged to research in their own specialised field i.e., methodology of teaching.

Joyce's Models of Teaching continue to be popular among Indian researchers as they provide scope for relatively easy, straightforward structured efforts. The 18 studies on Models have within their purview almost all already over–researched models–Concept Attainment (5), Inquiry Training (3), Advance Organises (2) and others (3). The subjects taught by the first two of these Models is Science, while the last three, language and social sciences. Cognitive Modelling and Synectics Model have been used in one study each.

During the last two decades lots of studies on Models have been undertaken and all of them established their effectiveness and superiority over the normal methods of teaching. Yet, in actual real classroom situations, they are seldom used. Even the researchers themselves, forget them once the study is over.

There is need for research on the reasons for this and then on how to use them in every day teaching. The teacher has to be convinced of their efficiency, in terms of time and energy, and of their efficacy in normal classroom teaching situations. This should give research on Models a different orientation–not comparing and establishing that they are better but that they are practical and usable.

	Area	No. of Studies		Area	No. of Studies
1.	Methods of Teaching	23	5.	Teaching/Learning Problems	4
2.	Models of Teaching	18	6.	Teaching Competency	7
3.	Affective Domain	2	7.	Curriculum	4
4.	Educational Technology	24	8.	Strategies, Approaches	15
				Total :	**97**

Teaching for values and personality development is much talked about, but only two concerned with affective domain show that researchers do not consider the area suitable for research. Value-education gets confined to listing of values and to general ideas about its importance or construction of a tool of measurement of values. How every day teaching can contribute towards it all the time needs penetrating analysis and directions. Teaching for realisation of the educational objectives in affective domain should be a priority area for research.

Twenty four studies in application of educational technology in teaching have encompassed multimedia (7), Audio-video (5), Computer Assisted Instruction (4), Programmed Instruction (4) and System Approach (1). Programmed Instruction has been an area for a very long time, but, in practice, it has been very little used. The Distance Education should use it profusely for its self-bearing modules. There is great scope for research in its use. Similarly although Information Technology is considered essential for a 'knowledge' society, its use requires careful expertise. There is need for researchers to come out with effective measures to provide guidance in the use of audio-video, computers, etc. efficiently and effectively.

A few researchers have studied the problems of teaching-learning in some specific situations, like Urdu-medium students learning English, pupils with language disorders or the effect of teacher-student interactions. There is need to look for more such problems of teaching-learning e.g., among first generation learners, disadvantaged groups, bilingual children.

Six studies related to teaching competency have covered both conceptual and behavioural aspects. The concept of competency-based instruction needs continued exploration. More researches in the area with clearly defined specific objectives, and with realistic outlook need to be taken up.

Five researchers have attempted to develop or evaluate the courses, instructional material, teaching and education in different school subjects. Research on Teachers and Teaching can give useful guidance in drawing up meaningful curriculum, courses, material and evaluation. Research on teaching with the clear purpose and design of preparing syllabi is what

needs to be attempted and taken up by methodology and curriculum experts.

Fifteen researchers have examined teaching to large sized classes (1) or multi-grade teaching (1) NCERT's Teacher Empowerment campaign has resulted in researches (6) on MLL approach. Five researchers have rightly studied different strategies of teaching various school subjects. One researcher considered teaching with creativity as an outcome.

'Teaching' remains a fuzzy word and an elusive concept, in spite of philosophers, educationists, psychologists, teachers applying their minds and explaining it in various ways. 'Teaching is what a teacher does' is an escape statement. Teaching in its conceptual and behavioural terms should continue to be reflected upon and researched. Its various dimensions require sharp minds to analyse them properly.

Teacher Education

The 98 studies under Teacher Education can be grouped as follows:

Although, it may appear that the studies have covered all aspects–context, pre-stage, process, product of teacher education–very vital areas have not even been touched. Three studies regarding Admissions have undertaken a good assessment of the policies and procedures at present and provide role guidance for future actions. While admission of the right persons to teacher education courses for the teaching profession is very important, it is surprising that not much research has been done in designing appropriate selection procedures. While admission tests are now widely held at state/university/institutional level, it is surprising that not much researches have taken proper care of the validity of the procedure–of the three studies only one concerns the mainstream B.Ed. course, while the second is about a correspondence course and the third about counsellor programmes. Indepth studies are needed in the area so that only persons with aptitude towards teaching are selected for teacher education courses.

The researchers find it convenient to study several psychosocial, educational and other characteristics of Pre-Service Teacher Educators. Also, effect of some practices in their courses has been investigated.

Pre-Service			In-Service	
Area		No. of studies	Area	No. of studies
1.	Admissions	3	Programmes Evaluation	22
2.	Programmes	18	Training Needs	14
3.	Trainees/Educators	16	Higher Education	5
4.	Affective Domain	4	Miscellaneous	7
5.	Outcome/Output	9		
	Total : **(98)**	**50**		**48**

Yet, no comprehensive picture emerges. Their attitude; commitment towards the teaching profession or their study habits during the programme have not been studied.

Effectiveness of the teacher-education programmes needs to be deeply analysed. The outcome of the programmes has been studied on the basis of only 'perceptions', which are generally not seriously responded to. Rigorous systematic studies about the curriculum, the courses, the practices, the work culture in the institutions should be the concern of research.

The studies in In-service education are mostly in primary education and pertain to the functioning of DIETs, the DPEP programmes and Teacher Empowerment. A few have made deep penetrating studies, but most only touch the issue quite superficially. Even the concept of teacher empowerment has not had adequate clarity.

Distance education should have been studied more thoroughly by the Distance Education institutions themselves. A beginning seems to have been made in studying the In-service programmes in higher education conducted by the Academic Staff Colleges. Their functioning and effect should be studied in greater detail. They conduct Orientation Programmes/Refresher Courses which university teachers attend simply because they are mandatory for promotions.

A survey of the studies under Teacher Education does not present a satisfactory scenario. Teacher education institutions are the live laboratories, which provide plenty of bases in which teacher education and researchers in the Departments of Education should be interested. The structure of teacher education programmes continues unchanged while the nature of schools, the teachers and the teaching gets changed with civilisational, cultural and technological changes in society. The researchers should provide the fundamental

grounds based on their research for effecting the needed changes in teacher education programmes.

OVERVIEW

Individual and Institutional Research: Most of the studies under reference were undertaken for the Ph.D. degree. Degree research has its constraints. It is time-bound, deals with isolated themes, seldom taking a holistic view. The dominant motive is its evaluation and acquiring the Degree and not necessarily generation of knowledge.

Individual research is bound to cover only limited points of any phenomenon. The national organisations, e.g., NCERT, NCTE, UGC should commission and fund national level, holistic, comprehensive themes for research. They may be designed centrally and be conducted by involving, if need be, various individuals/institutions. The trends show some practical steps taken by these organisations to initiate comprehensive research.

High quality research will be promoted by creation of a research culture in our university departments of education, institutions of teacher education and the national institutions. The academics need to be encouraged by providing them with time and funds as needed and by flexibility in workload and work assignments.

Methodology: The methodology of research employed in the studies shows a welcome variety. Survey, descriptive and experimental methods have been used in some cases but most studies are correlational. The mis-interpretation of correlations into cause and effect relationship is quite common. Qualitative methods of research do not seem to find a place with our researchers yet. Reflection, a priori thinking, theory building and ethnographic approach

should be adopted in researches with teachers, teaching and teacher education. They complement and provide substance to empirical studies.

Tools: Large number of studies remain tool-oriented. A sound Background/Basic theory behind the use of tools is not often visible. Although, large number of standardised American tools, questionnaires, inventories, are still used. There is a welcome tendency to construct and use more and more local specific measurement instruments.

Sampling: Sampling remains an area in which the researchers are not very careful. Population is often ambiguously defined. Claims are made that randomisation has been the method of sampling, but details do not substantiate this claim in many cases. There is a tendency to get data from purposive sampling and attempts are made to justify it. As a result, the findings can rarely be validly generalised.

Analysis: While researchers seem to believe that good research should have quantitative analysis by adequate statistical techniques, they do not seem to be very knowledgeable about their proper use. Quite often, the usual better-known parametric statistics is used, which the nature of the data, does not always warrant- normality of distribution is seldom confirmed. Researchers would do well to equip themselves with the use of non-parametric statistics.

Findings: Findings and conclusions are not always convincing as they are not based only on what the research had indicated. The researchers need to be careful about these and differentiate between their own opinions/impressions and what they have actually found in their studies.

Linkage: Teachers, teaching and teacher education are so closely linked that isolated studies in either, without the other two, do not give us much. Teacher education programmes and institutions initiate the teachers into the profession of teaching. The isolation of teacher-education from schools does not promote either. The teachers quickly forgetting what they learnt during their teacher education, is not a healthy happening. This makes a teacher education programme only a formality of a required certification.

Close knit, broad but deep studies, wherein the teacher as a professional, teaching as a profession and teacher education as a professional course effectively perform their respective but related roles need to be considered, designed and executed by individual researcher and institutional agencies.

An important event in Teacher Education in the country has been the establishment of a statutory body, the National Council of Teacher Education by an Act of Parliament in 1993. It started functioning under a Notification in 1995. It is time that research be conducted to study its functioning, impact of its regulatory and academic responsibilities. It has prepared norms regarding human resources, physical infrastructure, academic input and financial provisions, for teacher education institutions at Pre-primary, Primary, Secondary, both by Distance mode, M.Ed. and various levels of Physical Education. Within a short period, changes have been made in these norms, e.g., originally the widely accepted and enforced 1:10 teacher-student ratio for secondary teacher education institutions got changed to 1:15. These Norms and changes, though made after wide consultations among teacher educators and may be valid are not accepted by everyone. There need to be a research base for such decisions, lest they be taken under pressures from vested interests or by those in authority but ignorant of the real situations.

A large number of B.Ed. colleges have recently been opened with recognition by the NCTE. Many of these institutions have earned notoriety for non-satisfaction of the prescribed norms, large fees from students and low salaries for teachers. One of the prescribed functions of the NCTE is to stop commercialisation in teacher education, which appears to be rampant in new institutions. An all India Study to survey the phenomenon needs to be taken up by concerned researchers.

No research is ever sufficient and final to study and find research-based solutions of the eternal issues in teacher education–components of theory courses, relative weightage of theory and practice, admission procedure, practice-teaching and its supervision, evaluation etc. Such researches may be replicated and undertaken again and again.

The In-service programmes have got a new life with the scheme of Institutes of Advanced Study. They have been in existence now for more than a decade. The programmes and impact may be evaluated with a view to making them genuine agencies of transforming teachers and teaching.

Value education is much talked about but has not seen any input in teacher education programmes. The institutions claim that their practices and atmosphere implicitly and silently create attitudes and values among student teachers. Let this be examined.

The phenomenon of less-educated, low paid, untrained, community-based primary teachers employed under various schemes in different states in the campaign for Education for All need to be looked into. We may not like it, but it is not prudent to shut our eyes to it. It exists and is expanding. There are short-term, periodic, face-to-face and distance in-service education programmes organised for training of these 'para-teachers'. It is high time that researchers look into the whole matter in a holistic manner.

The work ethic in teacher education institutions deserves to be probed. Have even the well-designed good programmes become merely routinised with their spirit lacking?

There are very few follow-up studies of student teachers, when they join schools, after completion of the courses. The real effectiveness of a teacher education programme can be assessed only in the schools. More such studies, though more taxing and complicated, would be of great advantage.

Very few studies have focused on teacher educators. Their socio-economic background has been surveyed in some studies. There is need to look into the motivation, the professional attitude and their behaviour vis-à-vis the student teachers. The effect of time-bound Personal Promotions/Career Promotion schemes in university and college teachers on their sense of responsibility, their attitudes, behaviour, academic culture and accountability needs to be researched thoroughly.

Teachers are a much-maligned group in society these days. Their usual image is–they take leave, as and when they can, they have no commitment to either the profession or the pupils, their morale is low. Much of this may be biased and loose impressionistic, based on the

behaviour of few individuals. It is, therefore, expedient that extensive surveys be made all over the country to find the facts. The role of Teachers' Associations and Teachers' Unions in influencing teachers', so-called, apathy may be investigated, along with their contribution to improvement in teachers' service conditions, status, and empowerment.

Privatisation is being advocated as the panacea for good teaching, teacher seriousness and better schooling and learning. This may not be true generally. Comparative studies of the various inputs, processes and outputs of government and private schools need to be probed. The impact of private exclusive 'public school' proliferation, on equity, knowledge, society, civil life and culture should be analysed by carefully designed studies.

More scholarship is to be devoted to identify the body of competencies unique to the profession of teaching and to the professional role of teachers. The role-conflicts, which seem to affect, particularly women teachers, should be looked at from the angle of women empowerment and gender equity.

The reserved category teachers face problem of deliberate and in-built bias, humiliation and neglect. The condition of the Scheduled Caste, Scheduled Tribes, physically handicapped teachers in the institutions needs special research studies. Studies on the impact of Affirmative Action on their education, career and lives should be taken up by open-minded researchers. In fact, the cultural, religious and political identities of teachers at all levels will provide subjects of study, which influence the whole educational and consequently social dynamics.

A survey study of computer literacy among teachers at all levels may give a dismal data, but should indicate a further need to study the available facilities and use of Information Technology in and by educational institutions and individual teachers for institutional, professional and personal work. Also, whether the facilities that exist, are appropriately used or underused.

The increase in teachers' salaries since 1996, seem to change the life-style of teachers, mainly at university level, Consumerism seem to pervade in their behaviour and ideas. How has this influenced teachers' work ethic, values and attitudes would make an interesting study. It

may be that this relatively improved monetary gain has for the first time removed the feeling of economic deprivation among school teachers, made their daily family life less uncomfortable, given them a sense of self-confidence and self-esteem and may be even vanity and raised the cultural, social and economic ambitions. Let researchers find out. The traditional qualities of an Indian teacher–simplicity, austerity, equity, sobriety and honesty in private life–have they been affected. It is to be dissected whether consumerism, market and television promoting and demanding intolerance and conformity, have alienated the teachers from their own students.

The extent of the influence of foreign funding, more opening to and interaction with foreign ideas, persons, culture and money need to be empirically studied.

Epilogue: There is a need to have a critical look at the making and unmaking of teaching as a profession and teacher education as a discipline. They need not remain sunk in the deluge of empiricism. The dismal empiricist bias in these researches has not taken us far. Also, researcher should get out of limiting itself into small isolated themes, like ant-hills digging deeper and deeper into just one place, witch may be a part of the bigger world. Instead, like a bird, have wider views. With thoughtful reflection, poverty of theory needs to be removed. Reflections on the nature and philosophy of teaching should fertilise the barren land so far as the birth of concepts, models and theories are concerned. The research refered to in this Trend Report seems to have not even used (leave

alone produce) many social, educational, pedagogical and professional concepts, paradigms and theories. The concept of Excellence and quality with regard to teachers, teaching and teacher education needs attention of excellent, reflective scholars.

Measures should be identified for the results of Research being taken seriously by policy makers and administrators. The results of research should be such as would influence or promote action directly or indirectly. Documentation of the research, making them widely and easily available and the use of research accumulated during the last fifty years would profit teacher education, teaching and teachers. It may be that much research has been highly pedantic, limited in scope, tentative and jargon dominated. Yet, there is enough already which can be put to use. Relevant research findings need to be applied to improve programmes and practices. This would give confidence to researchers.

The researchers need to take into account the dysfunctional nature of some educational research. The researchers need to identify crucial problems. For all educational research and more so that dealing with teachers, teaching and teacher education, the schools and the teacher education institutions should be taken as living laboratories. Most research should be conducted in real situations. Teachers and teaching may be surveyed, observed and analysed in these laboratories, where a vast variety of specimens and subjects for experiments are available and are awaiting observation and experimentation.

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