A STUDY OF TEACHERS' EFFICACY BELIEFS AND THEIR MOTIVATIONAL CHARACTERISTICS

IFTIKHAR AHMAD

NATIONAL INSTITUTE OF PSYCHOLOGY
QUAID-E-AZAM UNIVERSITY
ISLAMABAD

CERTIFICATE

Certified that Ph.D. Dissertation "A study of Teachers' Efficacy Beliefs and their Motivational Characteristics", prepared by IFTIKHAR AHMAD has been approved for submission to Quaid-e-Azam University, Islamabad.

(Dr. Muhammad Pervez)
Professor & Supervisor

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IFTIKHAR AHMAD

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CANDIDATE: IFTIKHAR AHMAD

SUPERVISOR: Dr. Muhammad Pervez

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IFTIKHAR AHMAD

_____

Supervisor

_____

Director
National Institute of Psychology

External Examiners

1._____

2._____

ABSTRACT

This study focused on the beliefs of teachers that comprised 'teacher efficacy' and explored meanings of the construct of teacher efficacy in terms of various cognitive motivational constructs and teacher characteristics contended as predictive of teacher efficacy. Urdu version of the Teacher Efficacy Scale (TES) and a set of indigenous questionnaires; Task Motivation Style (TMS), Beliefs about Intelligence as Incremental Quality (BIIQ), and Ability-Effort attribution matrix were administered to 227 mostly inservice teachers. Confirmatory factor analysis upheld *teaching efficacy* (TE) and *personal efficacy* (PE) as discrete factors operative in TES similar to the findings of several Western studies. Pearson correlations between the motivation constructs/measures; TMS, BIIQ, Ability-Effort attribution, and TE/PE aspects of efficacy supported the construct validity of TES. predictive model conceptualized with BIIQ and TMS as core exogenous variables, Ability-Effort attribution as context/intervening variable and TE/PE as effect variable was tested through multiple regression and path analysis techniques. Task motivation (B_2 = .623, p<.001), and incremental concept of intelligence (B_1 = .252, p<.05), strongly predicted TE (p<.01). However, PE could be predicted less significantly (p<.05) and in other than the expected pattern by the same variables. A perception of intelligence as a fixed non-incremental entity and *ability* attribution as causal of student achievement were found to underlie PE depicting it to be a rather weak motivational attitude. However, Anova statistic supported significant interaction effect of TE by PE on task motivation F (3,223) = 19.30, p<.001, incremental concept of intelligence F(3,223) = 2.84, p<.05, ability attribution for failure, F (3,223) = 9.95 p<.01, and alternately effort attribution for success

F (3,223) = 2.56, p<.004. Under TE by PE interactive conditions, high PE, high TE teachers' mean rating for students' 'ability' as causal of their success and 'effort' as causal of their failure was found to be significantly lower, and in reverse direction than that of low (lo PE, lo TE and lo PE, hi TE) efficacy groups of teachers, respectively. Thus high TE by PE conditions/profile reflected motivationally adaptive outlook (in terms of their beliefs in intelligence to increase with effort and salience of task-orientation in teaching) as teacher; low TE by low PE profile teachers were deficient in these characteristics. We found a high PE attitude in the presence of high TE conditions as potentially motivating the teachers, but high PE under low TE conditions as less motivating. In this context of profile analysis, studies that combine PE and TE score may be misleading. This study recommends as interaction application of PE by TE dimensions since the two co-responde. Antecedent teacher characteristics; gender and experience were not found to be related to teacher efficacy, however Science vs. Arts teacher dichotomy was related to teacher efficacy scores ($rpbi$ = .151, t = 2.31, p<.05). Science teachers had higher TE score than Arts teachers. The findings bear important implications for teacher education directly and for school education indirectly in Pakistan. In this context it is suggested that belief re-cognition intervention as a part of teacher education programme (as internal motivation force), and a target teacher-performance reinforcement contingency (an external reason) may be applied as a two-pronged strategy to mediate teaching practices in Pakistan for raising student outcome and rationalizing teachers' sense of efficacy. Beliefs as 'personal-knowledge' together with 'professional-pedagogical knowledge' drive classroom actions. Prospective teachers thus may preferably be screened for their beliefs and frames of mind or/and their training must catter to aligning and fostering such beliefs and cognitions as support their teaching intervention with a goal and effect.

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As man believes, so he is.

All actions that we take in life, except for instinctive acts, are based on certain conscious and unconscious beliefs and presuppositions. We need to understand the relationship between our actions and beliefs.

Bhagaved Gita

FOREWORD

Schools as social institution have been under intense criticism in this part of the world in the last two decades as a result of greater consciousness that has emerged in people about low quantity as well as quality of education. Researchers have investigated teacher effectiveness in response to this consciousness from several perspectives. An area of research interest that emerged in this regard is known as 'Teacher Thinking'. The present investigation falls in this area with a psychological perspective. Our focus is on the study of thoughts and beliefs of teachers about their selves, environment, students, as well as about the nature of human ability or intelligence. These beliefs as most relevant variables to school achievement behaviour influence teachers' efficacy including their goal orientation and motivation in teaching.

As a cognitive-affective expost facto psychological study in the realm of teacher motivation research in Pakistan, it employs certain indigenous as well as other measures to investigate teachers' cognition of their efficacy and to find relationship between teachers' conceptions about intelligence and their goal orientation in teaching-work. There is a two-fold theoretical interest in our analysis of the construct of 'teacher efficacy' (a) assessing its cross cultural relevance to school settings and population of teachers in Pakistan and (b) conceiving and testing a model to predict it. Educational implications of this work are discussed from the point of view of psychological theory, motivational profile of the teachers of this sample, and the application of the findings of the study for teacher education programmes in Pakistan.

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Chapter 1

INTRODUCTION

Background of the study

Schools as social institution have been under intense criticism in the last two decades in Pakistan. Declining standards are a perennial problem. Success rate in Matriculation is near 65 % only. At higher secondary school level, i.e.11-12th year of education, it drops further to 35 % and bulk of the students get pass grade, which is neither success nor failure. The quality of learning is worse. Pakistan has an estimated literacy rate of about 35 % which is disputed by the non-official agencies in view of lack of proper survey and statistics. Government spends about only 2.2 % of its GNP on education which is one of the lowest in the South East Asia. We have insufficient and inefficient schools which is a politico-social issue. What is still worse is the poor outcome of the existing schools and the teachers in the public sector. There is no system or organization in the public or in the private sector however to supervise or oversee the schools.

A common belief prevails among teachers that something is inherently wrong with education in the public sector yet they have not spoted the wrong precisely. They are very general, vague and nonspecific but want nothing less than changing "the whole system". No school reforms have come out from the teachers' body or from the state to address the issue so far, though there is a persistent clamouring for the same from both sides. On self view basis, teachers view the schools as ineffective and widely socialize themselves to these beliefs. A morbid acculturation has thus developed in our school teachers, a sense of helplessness and resultantly a motive to avoid work. This social-psychological situation can't be ignored while addressing the problem of poor outcome of our schools.

Point of Study

From educational psychological perspective, we sense that teachers' feeling and beliefs, and the school culture/conditions are the major causes of the problems of the schools. We focus in this study on the psychological aspects of teacher effectiveness or what has come to be called *teacher efficacy* by educational psychologists and researchers, and provide explanation of the problems of schools from this perspective. For instance 50% of the pupils drop out before completing first five years of schooling. Sociological reasons have been advanced to justify this cummulative loss, we however feel this is directly due to inefficacy of the teachers to retain them in schools. We predict that the inefficacy is attitudinal more than one about skills and competencies. UNESCO report for, Asia and Pacific Educational Innovations and Development (APEID), for the year 1990 states in a chapter on Pakistan education programmes, that "there is lack of commitment among many of the teachers and there exists no regular programme to motivate them or to create a sense of professionalism in them" (p. 137). Why train teachers if they turn out to be non committal. We believe commitment stems from sense of efficacy and confidence. Take an other issue, that of non-availability of trained teachers which is being advocated as another cause of poor performance of the schools. Again this is an isolated and discrete explanation. It is needless to say that a teaching job in the public school requires a teacher education certificate for regular appointment and majority of the teachers in the government school are 'trained' and have a certificate to this effect.

However, the current teacher education programmes have no component what-so-ever to enable the participants commit to the school and be motivated teachers.

Our understanding is that school teachers in Pakistan suffer from entertaining a very low profile of themselves in their attitudinal beliefs and notions including a poor percept of their efficacy that has resulted in work avoidance motive in them. If process of education ultimately aims at changing pupils' beliefs and attitude, one wonders whether teacher education programmes were geared to this requirement in their time?

Teachers' beliefs about their students and the school are discovered or formed over the years from their own experience in a school. Teachers widely socialize themselves to these beliefs in a community of school teachers and engrain them in their "personal theories" or belief system. Some of the beliefs or personal theories that one usually hears in their non-formal discourse are:

- Pupils learn directly from their teachers; they are too young to learn on their own.
- Some pupils simply do not have reading and math skills.
- This is not exactly the answer I taught.
- Knowledge increases with the pessage of time but IQ does not for it is fixed by birth.
- Learning is remembering well.
- Ability is a supreme quality, hardwork is secondary.
- Children learn the way you tech them.

- Pupils must be controlled from the beginning or they get spoiled.

- There is usually one correct answer for each question.

- There is a dual system here, the private and the government schools for the rich and the poor, respectively. The duality is unfair and unacceptable, the former must go.

- Students follow their parents' level and line of achievement (a limiting or background factor).

Obviously the above notions are contradictory to pedagogical education they might have formally had during the preservice. Beliefs sound more true than anything else and as facts of personal knowledge they powerfully influence the way teachers approach teaching. They develop a sense of efficacy accordingly; poor or high. If they believe in the power of education to change people, think that abilities can be acquired and enhanced, find that there are many ways to learn and understand the same thing, hold that there are still better answers to the same question, and question why background factors or limitations can't be overcomed, they will have an ensuing sense of efficacy as teachers and have high expectations for their pupils. Beliefs as teachers' ways of thinking influence their classroom practices. Problems in teaching and teacher education are in fact attitudinal problems. According to a view point, teachers who suffer from a sense of lack of efficacy are worse than those who lack skills about teaching.

In this study, our focus is on thoughts and beliefs of teachers about their own selves, students, and the work-environment as well as the motives underlying the same as potential determiner of teacher and school efficacy . We take these beliefs as most relevant to school behavior of both the teacher and the taught who together influence the school outcome. Different aspects of *teacher efficacy beliefs* and their motivational correlates is the subject of this study. The above orientation is meant to provide perspective to the problem addressed in this research study.

Significance of the Study

The recurring call for educational reforms to raise standard of education, teacher effectiveness, and curriculum review led to research studies employing traditional educational variables like knowledge, skills, school results, and competencies of teachers etc. Unlike these the present study addresses the problem from the psychological dimension, an area unexplored so far in Pakistan. In this context, this investigation is a bid to explore the salience of teachers' thought processes; their expectations, attribution pattern, and motivational styles as psychological dimensions of teacher effectiveness that can potentially mediate school/student outcome, and reforms including in-service and preservice training efforts. Sarason (1990) held that future educational reform that fail to acknowledge the importance of teacher efficacy may be precisely destined for failure. One can't disregard the social psychological conditions that influence a teacher's sense

of efficacy. However, teacher education programmes in Pakistan exclusively emphasize on cognitive skills and competencies, overlooking the affective dimension of teacher behaviour comprising beliefs and values that influence the way teachers perceive, organize and react to different situations or stimuli in the school environment. We expect that this investigation will increase our awareness of the idea that it is not enough to have just skills and knowledge to be effective teachers, the goals teachers pursue in teaching and the beliefs underlying them are equally important in their impact on quality of teaching and learning in the classroom. These goals can be analyzed, and realigned where needed, through intervention in teacher education programmes.

The emergence of this study was stimulated by a growing interest in the West regarding the newly emerging field of teacher cognition that has emphasized the significance of the nature of teacher's work goals which influence their classroom practices. Such a theoretical focus is salient to this investigation. There is a dual significance of this study:

I) Theoretically, it explores some psychological constructs and theories; efficacy beliefs (e.g. Bandura, 1972, 1977, 1982, 1986)), teachers' implicit theories or conceptions about the nature of human intelligence (e.g. Dweck, 1986; Dweck & Leggett, 1988)), teacher's attribution style for student achievement (e.g.Weiner, 1974, 1979) and task versus ego-orientation explanation of teachers work motivation (e.g. Ames, 1984, Nicholls, 1978, 1983; Nicholls and Ames, 1990). A prediction-model is (Fig. 3)

proposed for the study of the construct of teacher efficacy in terms of these motivational concepts and theories is of central interest in this investigation. There have been few studies about the intermediary role of teachers' attributional style as motivational factor mediating teachers' goal orientation. Likewise there are fewer studies about the goal theory applied to teaching than to (students') learning behaviour. This study investigates these areas in conceptionalzing teacher efficacy in social-cognitive frame-work. Ascertaining the relevance and generality of these cognitive motivational concepts, on a sample of teachers from Pakistan is deemed to add cross-cultured understanding of these concepts.

(II) Practically, investigation of thought processes, goals, and characteristic teaching-preferences of the local teachers can potentially guide us in teacher development efforts. Teacher training intervention of psychological contents and orientation can be launched that may bring an attitudinal change or 're-cognition' in teachers empowering them to be an efficient change agents in the schools and in the community.

LITERATURE REVIEW

Teachers' belief system is evolved through their concept of life and society in general and the role of education regarding these. Further, their beliefs are specifically related to their own schooling as a pupil, their teaching experiences and the nature and quality of teacher socialization they have had as a teacher in a school. Teachers' beliefs and attitudes drive their classroom actions (Richardson, 1996).

Beliefs as Mental Frames for Teaching Practices

Several notions relevant to teaching and education including efficacy beliefs, nature of teachers' personal theories and conceptions of intelligence, their work orientation, concept of student and school characteristics etc., and whatever sense teachers make of their world of work can all be termed as teachers' beliefs and attitude system. Education is always designed to result in the formation of certain beliefs and attitudes in the learner. Teacher education also largely aims at formation of desirable beliefs for teacher empowerment and effective teacher performance. An understanding of the teachers' beliefs is therefore an important area in teacher education. Literature on teacher education reveals that beliefs reflect teachers' ways of thinking and classroom practices (Elliott, 1989; Hollingsworth, 1989, Sparks, 1988).

Where do teachers' beliefs come from?

Given their salience, the sources where beliefs stem may well be identified. As beliefs are groups of constructs that include conceptions, perspectives, perceptions, orientations, theories and stances, teachers' beliefs come from their (a) personal life experiences (including intellectual aspects of life, socio-economic factors, upbringing, etc. (b) schooling (own experiences as student), and (c) formal pedagogical knowledge and teaching experiences (including their socialization with colleagues and students, and classroom experiences in specific school: city-rural, private-public community characteristics etc.). These contexts exert powerful influence in developing beliefs and knowledge in teachers. Hollingsworth (1989) states that changes that occur as preservice effort include both acquisition of new beliefs as well modification of previous ones.

Why beliefs are important in teaching?

Existing knowledge, beliefs, and pre-occupations shape what students learn and how they learn. Ben-Peretz (1990) summarizing research conducted in Israel suggested that more dogmatic students did not change towards a progressive orientation to education, whereas the less dogmatic did. Korthagen (1988) found that students who came to reflective teacher education programme with a reflective orientation did well in the programme, others either dropped or changed their orientation. These studies underscore the role that beliefs play, hence the need for matching preservice teachers' beliefs or frames of mind with the

philosophy and approach of a specific teacher education programme for meaningful participation. A programme may have a built-in system of changing participants' beliefs in line with the objectives of a specific teacher education course. Richardson (1996) summarizing several studies on teachers' belief change observed:

> Recent studies of the effects of in-service programme on teachers' changes in beliefs are quite encouraging, due to the nature of the staff development programmes themselves that focus on teachers' beliefs and life histories (p.112) .... the conclusion from these studies is that staff development that focuses, in part, on teachers' beliefs is important in changing instructional practices. This view is buttressed by several studies (Rich, 1990, Sparks, 1988) that found that teachers participating in staff development programme that advocated and taught about a particular teaching method accepted the new practices only if their beliefs matched the underlying assumptions of the new teaching method (p.113).

School context of Teacher Efficacy

To Elliott (1989) school is a critical context for teachers in determining their efficacy. Conceptualization of teacher effectiveness is thus subject to specific school culture: its

settings and clientele, and is another strong predictor of teachers' work. Collaborative and supportive school culture provides opportunities for participation in school affairs and enhances teachers' sense of efficacy; school climate of the other dimension may even waste the effect of teacher preparation programme. The extent to which teachers change because of preservice education and subsequent actual teaching experiences, and develop a sense of self efficacy is subject to participants' initial psychological orientation and beliefs as well as the school settings or conditions one encountered as teacher (Lashley, 1992). Experiences in the context of specific school system: its culture, students, colleagial values and support, and administrators' style of leadership etc. i.e. school conditions, are of great significance to the development of teacher efficacy beliefs. The two; beliefs and school culture, in the recent conceptions, have an interactive relationship and jointly determine teacher efficacy (Brousseau, Book, & Byers, 1988).

Teacher Efficacy Beliefs

Teachers' beliefs and the nature thereof influence their self concept as teacher. This has been termed as 'teacher efficacy' by educational psychologists. As a construct grounded in psychology teacher efficacy has been extensively investigated by psychologists as well as educational researchers. It is defined as a belief in one's ability as teacher to perform actions that influence conditions leading to student learning. The construct of teacher efficacy came from Bundura's (1977, 1986) concept of *self efficacy*. Berman and McLaughlin (1977) found that the most important characteristic determining effectiveness of teachers as

change agents was their sense of efficacy --- a belief that teacher can help even the most difficult or unmotivated student. There is evidence that teacher efficacy accounts for individual differences in teacher outcome (Brophy & Avertson, 1977), and it is related to such significant variables as student achievement and teacher performance (Armor, 1976), student motivation (Midgley, Feldlaufer & Eccles (1989), and teacher's innovative approach in classroom work(Berman & McLaughlin, 1977). In their explanation of the concept of teacher efficacy, Brophy and Avertson (1977) reported that effective teachers tended to have (a) a higher outcome expectation of their students, and (b) assumed personal responsibility for making sure that the students learned, and when teachers faced any difficulty, they discovered appropriate teaching methods rather than believing that students could not learn. Goodnow (1980) similarly claimed that a teacher's willingness to stay with a student in a failure situation is indicative of teacher's confidence in his or her ability to teach. Research studies have treated *teacher efficacy* as a state that has been found as consistently relevant to teaching and learning situation, and has reliably predicted teaching practices and learning outcome (Woolfolk , Rosoff, & Hoy, 1990).

The construct

Researchers turn to Bandura's (1977) cognitive social learning theory to conceptualize teacher efficacy. The construct comprises two independent dimensions; *self efficacy expectation* -- a belief that one has the skill and ability to complete a future action, and

out-come expectation -- a belief that the influence of external conditions including those of the family back ground, home environment, 1Q, and school etc. can be controlled. The two dimensions concern distinct cognitions about efficacy; the former is an ability referenced belief (e.g. "I can do . . ."), the latter is a belief of being a helpless teacher in the face of external limitations (e.g. "I can't help the dull students"). *Out come* and *self efficacy* beliefs are differentiated because people can believe that certain behaviour will produce some outcome but if they do not believe they can perform the necessary activities to bring about that outcome, they will not initiate the relevant behaviour or persist in it. These two factors have been named self or *personal efficacy* (PE) and *teaching efficacy* (TE) respectively, in the educational research literature. TE refers to a belief that teacher population is able to bring about a change in student behaviour despite out of school constraints. In other words, it is a belief that students are teachable; "A teacher is very limited in what he/she can achieve because a student's home environment has a large influence on his/her achievement" -- TE. PE refers to a teacher's belief that he or she is capable of bringing about some educational out-come, "If I try really hard, I can get through even the most difficult students " -- PE. Both, the confidence one has that his/her behaviour will lead to outcome, together with the confidence in one's ability to perform the behaviour determines teacher action and efficacy.

The measurement.

Generally a two facet model of teacher efficacy has been explored. Ashton and Webb (1982),and Gibson and Dembo (1984) were among the first researchers who conceptionalized

teacher efficacy within the framework of Bandura's social cognitive theory and devised a scale to measure it. Gibson and Dembo extending the work of Ashton and Webb developed a 30 item Likert type Teacher Efficacy Scale. Factor analysis revealed the scale as having two factors or dimensions that were named personal efficacy (PE) and teaching efficacy (TE). They posit that the factor labeled personal efficacy was similar to Bandura's *efficacy expectation* dimension and the one labeled teaching efficacy was similar to his *outcome expectation* concept. PE and TE dimensions of efficacy are two independent/un-correlated sub-scales, embedded in TES which is a standard measure having extensive evidence of its reliability and validity. They reported that a short version of TES, comprising 16 items (9 PE & 7 TE items), has reliability similar to the full length scale (Gibson & Dembo, 1984). Like several Western researches, TES has been used in this study as a standard measure. More details regarding TES as a measure adapted in this study will follow in the Method section.

Generality of the concept.

Bandura's concept of self efficacy (belief that one can achieve the desired outcome in a particular situation) carried generality across variety of tasks and situations. Limiting ourselves to teaching and schools for instance, it has been found that personal or self efficacy has a determining influence on the performance of academic staff (Hill, Smith&Mann 1987; Gist, Schwoerer & Rosen 1989) as well as on students' grades (Tylor, Locke & Gist 1984), and discriminates teachers in less effective schools from those in more effective schools (Brooker & Lozette, 1979). Teachers' tendency to refer students for special services has also

been found to relate to their sense of efficacy; low efficacy teachers refer difficult students to school counselors more often than high efficacy teachers (Soodak & Podell, 1993). A common finding is that people whose perceived self efficacy is strong pursue relatively high performance, are not put off easily, and persist in difficult assignments; those with weak self efficacy easily give up, and uncertainty undermines their concentration (Bandura, 1982; Gusky 1988; Woolfolk 1990). TES as a measure of teacher efficacy has been used in a variety of samples and bears potential for generalizeable findings across different samples. This study aims to contribute in this regard.

Teacher Characteristics and Teacher Efficacy

Teacher characteristics such as teaching experience, gender, and academic subject/discipline have also been reported in the research literature as having an impact on teacher efficacy. (Greenwood, Olejnick & Parkey, 1990; Putman, Lambert & Paterson, 1990). A linkage between these variables/characteristics and teacher efficacy follows below:

I. Science versus Arts subject is a traditional dichotomy among school disciplines. Since the structure of discipline of science and mathematics follows a well specified sequence of knowledge and distinct teaching techniques, the sources of difficulties of the students in sciences are clearly known to the teachers unlike the subjects of liberal arts or humanities. Putman, Lambert, and Paterson (1990) suggested that teaching outcome were pretty predictable in the subjects of science and mathematics because teachers have ample feedback information about their performance in the classroom which guide their sense of efficacy. In the subjects of arts and humanities, because of

the specific nature of these academic subjects, explicitly clear feedback from the students is not available to the teachers and partly because of this they have generally a relatively poor sense of teacher efficacy. Ross, Cousins and Gaddala (1996) however found the results to be lying in the other direction; that is, english, social studies and art teachers were more favourably influenced than mathematics and science teachers. They interpreted that "humanistic subjects characterized by greater emotionalism probably led to momentum that served the continuity from one day to the next" (p.17).

II. Teacher efficacy increases with preservice teaching experience (Hoy & Woolfolk, 1990) and past experiences serve basis for future expectation and outcome expectancy. Soodak and Podell (1993) also posit a developmental view of teacher efficacy suggesting that as teachers gain more experience, their sense of efficacy becomes more salient. Some studies however report a decline in sense of teacher efficacy as teachers gain more experience and discover their area of difficulties with their students. For example Dembo and Gibson (1985) report a decline in general efficacy teaching efficacy after 5-10 years' teaching practice. Newmann, Rutter and Smith (1989) suggest that school context (i.e. aspects of school that help teachers' accomplish their task) mediates teachers' evaluation of their experience and is a predictor of efficacy.

III. The third antecedent variable is gender. Women are reported to have higher efficacy as teacher than men (Greenwood, Olejnick and Parkey, 1988). The difference is attributed to gender as phenotypic characteristic. Teaching at school is generally taken

as a female line of work due to women's greater inclination in nurturance and development of children. Researchers following social learning theory may however disagree on this point on the premise that sense of efficacy is situation specific and since educational environment and school settings remain the same or similar across boys' and girls' schools, no difference will arise on this score. Identical school conditions are contended to override the impact of gender related temperamental factors, if any.

Teachers' Goal Orientation -- an Efficacy Predictor.

A rational view is that efficacy in teaching is instrumental in bringing about better student achievement. Do efficacious teachers engage learners in studies more effectively than less efficacious ones? Nicholls and Miller (1983) think that a teacher's concept of ability directly influences his/her role as an efficacious teacher and a potential change agent in the classroom. Nicholls posites that ability is construed in two different ways by different people. Some believe that it is a mutable and increasable quality which can be developed overtime through effort and learning experiences, e.g. "Smartness is something that you can increase as much as you want". Others view that intelligence is a fixed or predetermined trait which is unaffected by industry or zeal, hence effort can't be a guarantor of success, e.g. "you may learn new things but how smart you are remains pretty much the same". Since incremental view of ability implies that it can be increased through effort and learning,

teachers with such beliefs are likely to be effortfull in their work with students and would have stronger self efficacy beliefs as teachers than those who entertain a fixed concept of ability and are less hopeful of change in student outcome as a consequence of teaching and education. People believe in one of the two views because of the nature of their lief experiences, schooling or just as a folk sense.

Beliefs about malleability of human ability or intelligence bear on the goals teachers pursue in teaching. The fixed capacity concept limits the effect of effort on achievement. Weiner, Russell and Lerman (1978) and Elliot and Dweck (1988) stress on beliefs regarding the controllability of human ability as the source determining one's goals and effortfullness in work. They hold that in learning and teaching situation individuals pursue either *learning* goals or *performances* goals corresponding to their conceptualization of ability as an incremental quality or a fixed trait. Dweck claims that these goals are discrete and have different implications for assessing effective educational settings. *Learning* goals are conceptualized as an interest in mastering the task, acquiring new skills and becoming more capable through effort and experience. Persons with such goals seek challenges that provide opportunities for developing new competencies. They try harder, review their strategies and persist in case of difficulties. Such goals foster learning. *Performance* goals on the other hand, are described as a desire to look competent, and compare one's performance with that of others in order to demonstrate one's ability to others. Persons with these goals preferably go for immediate results and tend to register or document their performance rather than pursue long term mastery tasks. Prediction of behaviour thus depends on our understanding

of peoples' goals. Nicholls, Cheung, Lauer and Patashnick (1989), report that students' goals in studies are influenced by their teachers' goals in teaching. The latter influence the former by orienting them to different learning approaches/strategies.

Researches following goal theory in the educational settings conceive two contrasting achievement patterns alternatively labeled *task-involvement* and *ego-involvement* (Nicholls, 1978, 1984), *learning* and *performance* goals (Dweck, 1986), and *mastery* and *performance* goals (Ames & Archer, 1988). Conceptually, learning, task-involvement, and mastery goals can be distinguished from performance and ego-involving goals as they (a) represent different conceptions of success hence different reasons for approaching and engaging in achievement activity, and (b) involve different ways of thinking about oneself, one's task and task-outcome based on different conceptions of ability. Task-ego perspective of goal theory is in currency in the contemporary motivational research.

Central to task-involvement goal is a belief that effort and outcome covary. Such a belief pattern maintains achievement directed behaviour over time (Weiner, 1979). Focusing on internal value of learning, people engage in active learning and apply effective problem solving strategies mediated by the belief that effort will lead to success and a sense of mastery (Nicholls, 1984). Central to ego-involvement goals, on the contrary, is a belief that ability brings success and sense of self worth lies only in doing better than others with little

effort (Ames & Ames, 1984) In such a context, one's performance testifying one's public worth (due to inherent ability) becomes the main target and learning becomes a goal for social recognition rather than personal satisfaction or achievement. Failure thus means a sense of lagging behind others, a sense of shame, a loss of ego, and a negative attitude towards learning. To save ego, people sometimes use superficial or short term learning strategies such as memorizing and rehearsing to make quick, and easy public performance (Nolen, 1988; Ryan & Grolnick, 1986). Task-involvement and ego-involvement are two types of psychological work approaches indicative of specific goals. Teachers may have a 'task- orientation' or an 'ego-orientation' as goals in teaching work. These goals differentiate among teachers and influence their choice of teaching practices.

Schools emphasize ability and ego-involve pupils

Nicholls (1978, 1980) argues that schools socialize pupils to different motivational orientation or goals, and teachers are instrumental in promoting such goals in students as ego or task involve them in school work. He observes that classrooms generally promote normative comparison among students. A sizable number of students normatively/statistically find a place for themselves below the average mark, and perceive themselves as inferior to others in ability. Such a perception gets them ego-involved. This perception is induced and enforced in learning and teaching situations increasingly as pupils ascend grades in school. By the end of high school, pupils agreeably fix themselves as an average, below average, or above average student in terms of their ability relative to that of others.

Nicholls and Miller (1983) observe that at the elementary stage school children do not have a differentiated sense of ability; thus if a student fails in a task or performs below the mark, it is taken as a work that has been incompletely or inappropriately done and can be tried again to improve it. The young learners do not feel any embarrassment in redoing it or having done it wrong in the first attempt, since young children generally conceive of ability in a self-referenced manner and not in comparison to others. However, they become gradually ego-involved when they get such cues from teachers as impress on their mind the concept of differentiated ability and a sense of being a student of higher or lower ability than their peers. The system of normative rating which is excercised vigorously in high school reinforces such a viewpoint that urges pupils to outperform others mainly to demonstrate their ability. Students, thus learn to compete for a position as an end in itself and in this way get away from the task. This provides for their getting ego involved and becoming self defensive in learning. On the contrary, if students focus on the task and do it without wondering whether or not they are able or competent, they would be task involved and interested in work without being preoccupied about its outcome.

According to Nicholls (1984) whether people are ego-involved or task-involved indicates different goals they are pursuing in learning and teaching situation. Different percepts of ability, however, give rise to these different goals in achievement situation (Dweck, 1986): Fixed view of ability fosters ego goals, malleable view promotes task goals. Schools typically promote ego rather than task goals, classroom outcomes are therefore largely ego

centered (Ames, 1984; Nicholls et al. 1989; Butler 1988). There is a focus on self, ability and performances of others when competition or social comparison is salient rather on task, effort and learning. Ruble (1985) held that most students in general, and low achievers in particular concentrate on social comparison and get themselves ego involved if left to their own. He contended that competition fosters ego defensiveness, ability consciousness and sense of self worth among students that has negative motivational consequences. Alternatively, a cooperative learning context allows interest and choice in task and fosters learning as a goal in itself.

Kukla (1978), Maehr and Nicholls (1980) suggest another dimension about goal orientation; different goal orientation evokes different concerns about one's achievement motivation. For example, a task-focused situation creates a concern for making more effort to enhance one's achievement. There is an urge for learning, acquiring self competence and mastery in the task at hand. The ego-focused situation rules out the utility of effort, undermines initiative in learning, creates sense of helplessness and debilitates motivation in work. There is evidence to hold that teachers who advocate and pursue learning goals for their students orient them to task-involving instructional and evaluation practices and those who pursue performance goals get them ego-involved (Maehr & Nicholls, 1980). Since in task involvement, one desires to have mastery of the task and improve on the past knowledge primarily through effort and interest in the task itself, pupils of all ability level benefit from the task involvement strategy. The concern here lies in increasing one's mastery of the task rather

than one's position relative to that of others. Ego involved persons take mental capacity as means to socially outweigh others and think of effort as indicating deficiency in ability or competence. With this view, students in the lower rung of achievement, considering themselves helpless in being inherently weak in ability, are the worst hit as ego-involved persons.

Classroom learning environment and school goals

In a centennial theoretical review of research on achievement motivation, Ames (1992) emphasized the role of classroom learning environment as a determinant of school goals. She identified three classroom learning environment or 'structures' namely, *task, evaluation,* and *authority* that influence motivation and various cognitive and affective outcome in students as explained below. First, if *classroom tasks* involve variety and diversity, convey relevance and meaningfulness of the content or skill, and offer personal challenge or sense of control over learning situation, it will create intrinsic interest in the students regarding the task and cut down their focus on social comparison or ability concepts. Second, the product oriented *evaluation/*recognition of performance which is prevalent in most of the schools emphasizes errorless work and social comparison (e.g. public display of results, ability grouping practices etc.) that have negative effect on students. Evaluation is so pervasive in schools that what is not likely to be valuated is not considered worth learning and is not learned or focused at all. Third, behaviour orientation

towards autonomy --- degree to which teachers involve students in decision making (e.g. giving them options to express their self interests in classroom tasks, allowing students a say in determining methods and pace of learning, making them autonomous and responsible for making their own decisions) reduces salience of differentiated ability. This perception of control affects students' task engagement and quality of learning when teachers are seen as emphasizing independent thinking in solving a task. Pupils are more likely to place value on self directed learning and using affective learning strategies under such conditions.

Ames concludes that classroom processes and teachers' preferred mode of instructional practices, evaluation techniques, and decision making in day to day classroom routines differentiate goal orientation of the classrooms. In one study for example, Ames, Maehr, Fisher, Archer, and Hall (1989) found that when pre-service teachers were given instructions to orient the students toward mastery or performance goals, they endorsed a wide range of instructional strategies that were consistent with their own goal orientation. Their beliefs about the efficacy of specific instructional practices were influenced by whether they would focus on inadequacies in student interests or inadequacies in skills and knowledge as the reason for poor performance.

To change classroom 'structures or environment requires changing teachers' goals for pupils' learning or their broader views about school learning (Good, Grouws, Mason,

Slavings & Cramer 1990; Nicholls, et al 1989; Paris & Newmann, 1990). A qualitative approach to teacher motivation would be how they think about students in relation to learning activities and the process of learning itself. Recent research has focused on how classroom environments are mediated by teachers' goals in terms of specific informational cues emitted during classroom practices as influence students' cognition. Ames's (1992) APP centennial feature on "Classrooms: Goals, Structures, and Student Motivation" is an excellent exposition on this subject. A meaningful conclusion in this regard would be that teachers may either task involve pupils in learning, or ego-involve them, depends on the goals they pursue themselves as professionals and want their pupils to pursue as learner. He or she will either induce pupils to pursue the goal of completing the task with mastery or want them to show a quantum of performance as may place them somewhere in the respectable rung of hierarchy among the competing students. Teachers thus show individual differences in their teaching goals.

The preceeding review implies that teachers who value mastery of the task would apply such instructional strategies as promote in students a need for learning and self improvement in their present level of learning without getting into public comparison for their achievements as the major objective. Such teachers would remain optimistic about pupil's ability to overcome difficulties with effort and persistence. Those who ego involve their students would tend to value comparative position as an end in itself, foster interpersonal competition among students, impress upon themselves as well as others that their good performance is

due to their ability, and in case of failure would regard themselves inadequate and worthless compared to others.

Beliefs mediate teaching goals/practices

As teacher efficacy beliefs underlie goals in teaching, teachers with higher teaching efficacy (*TE*) score (indicative of beliefs that students are teachable and particular teaching actions lead to student success) would involve their students in learning the task whatever student constraints; those low on *TE* are likely to ego-involve students and do more so if they are low on *PE* as well. Such a teacher is likely to attribute students' failing or low performance to their ability avoiding thereby his or her own responsibility for the student outcome. The former can be called "actor" and the latter are acting the role of merely an "observer" in the teaching process using Jone's and Nisbett's (1972) terminology. On the contrary, persons who have confidence in their abilities to teach and who believe that student learning can be influenced by teachers, choose task-involving strategies and persist longer in their effort than those who have low expectations about their ability to influence student learning. To put it in other words, the stronger the teachers' beliefs about themselves as capable teachers (PE) and about students as teachable folk (TE), the greater and more persistent they would be in their task-engagement and teaching efforts. It tantamounts to saying that teaching goals can be predicted from efficacy beliefs. The two jointly cause efficacy perception.

Teachers' expectations and attributions for student achievement -- another efficacy predictor

It is said that efficacious teachers have high expectations from their students. Bernard Weiner's (1974) attributional theory is relevant to understanding student and teacher' expectances and student outcome. It documents how teachers' attributional pattern accounts for the student achievement. Attributions, as perceived causes, are viewed as efforts "to make sense" of one's own experiences as well as those of others. The theory holds that causal attributions mediate one's performance or behaviour. In the school context teachers' attribution explain what teachers think of their students and what goal they have in thinking so.

Parallel to this, social cognitive theory, with its emphasis on cognitive processes, posits that peoples' expectation are crucial determinants of their behaviour, and these expectations are a function of the immediate *situation* or setting to be dealt with (Bandura, 1986). In other words, perception of the situation or setting, influencing our expectations, determines our actions as teachers. For instance a government school system in our context, with its given characteristics, e.g. the system, its clientele etc., emits clues and their perceived consequences to the teachers and the students that influence their respective expectations and behaviour. The basis on which individuals judge their competence may vary with the circumstances (Nicholls, 1980, 1984). To conclude,both expectancies reflective of situations, and attributional pattern reflective of attributor's perception, mediates performance i.e.

teaching outcome in the case of teachers. The nature and pattern of attribution in individual cases, however, makes a difference in its motivating effect. Attribution theory elaborates that some individuals perceive events in the world within their personal control, whereas others think events are not amenable to their personal control. A luck or ability oriented person would expect little shifts in outcome expectancy considering luck or ability as beyond ones' control than an effort oriented person. Weiner identifies a three dimensional system of classification of causes generally applied in an academic achievement situation:

I. Locus Causes for success or failure may be internal or external to a person. For instance ability, effort and interest are personal or internal factor; and task difficulty, luck, home/school conditions, and interference or help from others are situational or external factors.

II. Stability Some causes are long lasting and stable such as ability, habitual laziness and beauty, whereas other are inconsistent or likely to change over time such as luck, mood, effort and task-difficulty. The stability of attribution according to Weiner, determines how one is expecting future outcome. For example, if one attains success, perceived causes of which are stable such as ability, then success will be anticipated (for future) with great certainty. Stability dimension is closely related to expectancy level.

III Controllability A cause can be brought under one's control or it cannot be. Some causes such as effort, and attention are believed to be controllable and one can be held responsible for these; others such as 'ability' or 'luck' are beyond one's volitional control and one is usually not held responsible for them.

Four causes emerged dominant in Weiner's investigation in educational settings are as follow:

Causes	Dimensions		
	Locus	Stability	Controllability
ABILITY	internal,	stable,	uncontrollable,
EFFORT	internal,	unstable,	controllable,
LUCK	external,	unstable,	uncontrollable
TASK DIFFICULTY	external,	unstable,	controllable,

Cognitive motivational theories of Weiner, Bandura, Nicholls and Covington converge in pointing out that perception or attribution of ability and effort are the main factors which influence as determinants of achievement motivation.

Attributional analyses serve an understanding of the cognitive functioning of one's 'thought--action sequence and allows predication of teachers' motivation in educational settings. Weiner (1974) contended that attributions emitted through teachers' expectations of students' achievement are causal or mediating factors of student achievement. These are also indicative of different goals teachers pursue in certain settings/classroom situation. Attribution of failure to (low) ability, which is generally perceived as stable and

uncontrollable cause, indicates ego-goals and undermine motivation: Attribution of failure to (insufficient) effort, an unstable and controllable cause, indicates task-goal and a view that learning, can be improved with more effort and work.

Salience of ability and effort attribution in achievement settings.

A good deal of research work on achievement motivation has been found on ability-effort factors. Stipek and Daniels (1988), and Ames (1984) regarded these factors to be affected by classroom environment, teaching practices, and student performance feedback. The interplay of ability and effort factors is crucial and central to the understanding of achievement motivation. Nicholls and Ames (1990) stress on the negative effects of ability in generating a competitive reward structure in a classroom that threatenis self worth of average and below average students, and debilitates their motivation and efforts. In competition, some people necessarily remain below average as others rise above the average mark, the presence of high achievement of some students causes sense of low academic achievement in others. Teachers employing ability-focused practices create conditions in the classroom (e.g. emphasizing examination-award, seating students in the classroom according to their marks/position), as provide differentiated social treatment to students of different levels of ability, making them ego-involved. This makes the weak loose further in competition.

In competitive environments, success is defined as doing better than others. In such a setting, the goal of the student is to demonstrate superior capacity, hence ability rather than effort is stressed and valued. As ability is generally defined as a fixed capacity, effort is considered as inconsequential and unimportant. Several researchers have converged on the conclusion that competition and rivalry have negative motivational consequences (Ames, 1978; Covington & Beery, 1976; Covington & Omelich, 1979; Nicholls, 1984). A conclusion therefore emerges that competitive school environment or settings valuing ability make the strong ones to demonstrate competence to others and detract the weak students from achievement strivings.

To wind up, Bandura, Nicholls and Weiner's views on work goals are relevant to achievement settings and expectancies, and beliefs underlying these have been found to predict perceived "teacher efficacy" in several studies. The indigenous effect of school culture as a context factors has its unique influence as much as individual differences in one's perceived sense of efficacy, mediated by one's previous beliefs and experiences in a sample/class of persons. The two areas serve as focus of the present study. The objectives and hypotheses of the study, that follow in the next section, are gleaned largely from this survey of literature.

AIMS AND OBJECTIVES OF THE STUDY

Virginia Richardson (1996) contributing a chapter on "The role of attitudes and beliefs in learning to teach" in the Handbook of Teaching and Teacher Education observed;

> since mid 1980s, research on teaching and teacher education has shifted from a focus on teacher behaviour and skills to an emphasis on teacher cognition; thought processes, disposition, knowledge and beliefs. It has led to numerous studies that examined changes in beliefs and attitudes in teacher socialization and teaching experiences within the context of school, (p.114).

The 'shift' may well be initiated in Pakistan also, in view of poor performance of existing educational system. An investigation of the teachers' belief system may be focused as an area for analysis and intervention to improve teaching outcome. The area of beliefs is wide indeed. This study is limited to teachers' efficacy beliefs only about (a) their ability and skills to teach, and (b) their perception that pupils are teachable despite their background conditions. The two aspects comprise the construct of *Teacher Efficacy*. In this context following are the broad aims of the study. Specific objectives emerge therefrom.

Aims

First, exploring teachers' beliefs, specially those about their efficacy as teachers is a potentially useful, unique, and an unexplored area of research in Pakistan which is believed by us to provide an understanding about the poor outcome of schools. Inspired by the growth in studies of teacher cognition abroad, we herein attend to the call of Gibson and Dembo (1984), the leading researchers in the area of teacher efficacy, that "research needs to be undertaken on different samples for cross validation of the construct of teacher efficacy", (p. 579).

Second, we follow a normative, quantitative approach in this study aiming at representative and generalizable research outcome and consciously drift from the dominant trend (in the Western researches) of employing qualitative methods such as teachers' narrative, personal histories, metaphors, concept-maps etc. in the relativistic and clinical framework.

Third, we follow a certain framework in this study. We are guided by cognitive motivational perspectives relevant to achievement and learning/teaching situation, and the social learning theory in conceptualization of *teacher efficacy beliefs.* A model for predicting teacher efficacy beliefs was framed and tested accordingly. A related interest was to explore efficacy beliefs in the context of Pakistani school settings and teacher population. Indigenous questionnaires were used relevant to school culture and teaching practices and notions common in Pakistan.

Objectives

(i) To ascertain meanings of the construct of *teacher efficacy* in terms of (a) cognitive motivational constructs/theories and (b) teacher characteristics, to empirically demonstrate the linkages between these variables/constructs and *teacher efficacy*.

(ii) To ascertain factorial structure of Teacher Efficacy Scale (TES) as a cultural measure on a sample of teachers in Pakistan.

(iii) To conceive and test potential predictors of internal (PE) and external (TE) aspects of TES.

(iv) To ascertain belief pattern, teaching goals, and areas of attitudinal and belief change for improving quality of instructions and classroom practices.

(v) To conceptualize teacher efficacy in a viable model that can meaningfully guide teacher-education programme and change effort in schools, in Pakistan.

Research Questions

1. To what extent Teacher Efficacy Scale (TES), when applied to a sample of teachers in Pakistan reveals structure and meanings similar to that found in the West?

2. How the construct of teacher efficacy is related to (a) teachers' conceptions of intelligence, (b) their goals in teaching, and (c) their style of causal attribution for students' success and failure? And how powerfully these concepts can predict perceived teacher efficacy.

3. Whether certain demographic teacher-characteristics such as gender, experience and subject (discipline of teaching) are associated, as antecedent characteristics, with one's perceived teacher efficacy?

4. Whether levels of teacher efficacy can be conceived in interaction terms (e.g. high TE, high PE vs. say low TE, low PE) and predicted from teachers' instructional goals, concepts of ability and attribution pattern for student achievement.

5. What motivational characteristics and beliefs this sample of teachers possesses and how does their profile reflect on their work/school settings? What affective/cognitive intervention does it suggest for teacher education in Pakistan?

Queries 2-4 will unfold the meanings of the construct of teacher efficacy and its relationship to motivational approaches in teaching in terms of stipulated variables/constructs, and teacher characteristics. Questions 1 and 5 refer to ascertaining validity of TES for use in Pakistan, and drawing a profile of Pakistani teachers by TES.

Definition of the Concepts/Variables

Teacher efficacy: We define teacher efficacy in a manner consistent with Bandura's conceptualization from the field of cognitive social psychology. It is a cognition involving two aspects; the perception that one has the ability to successfully perform a job --- *self or personal efficacy* (PE), and expectation that a fruitful outcome of their work is certain --- *teaching efficacy* (TE). Performance is influenced both, by beliefs in one's capability to do a job and beliefs that a desirable or hoped for outcome will be achieved. Further, if an individual believes he or she is capable to perform a task (PE), one may not persist in it unless it is believed that the performance will bring forth the desired outcome (TE).

Concept of ability or intelligence: There is a view that intelligence or ability is a malleable quality in contrast to another view that it is a predetermined or fixed entity that can not be enhanced by effort or training. People subscribe to one or the other conception. The latter is conducive to teaching and learning, the former is not.

Task motivation style: According to Nicholls, there are two psychological states of work motivation; having an interest in the task to learn and master it(intrinsic desire), or alternatively to perform a task in order to document one's competence (good grades) and gain a favourable judgment from others extrinsic reason.. The two motives or goals guide objectives and practices of learning and teaching differently, determining consequently the

quality of education. Task-involvement promotes genuine interest in the work itself, whereas ego-involvement indicates egoistic focus on achievement in comparison to others.

Effort-ability attribution: Teachers' attribution of effort or ability as causal of students' success or failure is a characteristic of teachers' cognition in achievement context. Teachers who attribute effort (a volitional/controllable and internal factor) to students' achievement are optimistic about student outcome; those who attribute it to ability (generally perceived as a given or predetermined quality) do not hope a change in the students' performance. The attribution is deemed to be a characteristic of the situation (a given school system including the quality of teachers and students therein) as well as the perception of the person.

Statement of the Problem

How the structure and meanings of the construct of teacher efficacy is explained in terms of cognitive motivation theories (i.e. concept of ability, goal orientation and attribution styles of teachers) and teacher characteristics in Pakistan, and what attitudinal and belief change does it suggest as reforms in teacher preparation programmes?

Statements of the Hypotheses

1. Responses from teachers in Pakistan on Teacher Efficacy Scale of Gibson and Dembo will yield similar structure and meanings as that reported in the Western researches, and the construct of teacher efficacy measured with TES will bear theoretically meaningful relationship to (a) teachers' concept of ability, (b) their motivational (task versus ego involvement) approach in the context of teaching and learning, and (c) their attributional pattern for explaining student achievement.

2. Respondents scoring high on one or both dimensions of teacher efficacy are predicted to score significantly higher than other respondents, on their beliefs in intelligence as an incremental quality (BIIQ), task-oriented motivation style (TMS), and *effort* than *ability* attribution for student achievement.

3. Teachers' concept of intelligence as an incremental quality (X_1), and their task motivation (X_2) are linearly related to teacher efficacy beliefs (Y) and serve as major influencing factors of teacher efficacy, mediated by teachers' effort vs. ability attribution pattern for students' achievement. Teachers with high perceived efficacy score will ascribe *effort* more than *ability* percept to students' success/failure; those with low perceived efficacy will ascribe in the inverse direction.

4. Teacher characteristics; *experience*, and *subject-discipline* (Science/Arts subjects) will significantly influence teacher efficacy as antecedent variables, in favour of the experienced and science teachers. *Gender* is predicted not to contribute toward teacher efficacy because of the comparatively stronger effect of school conditions and teacher socialization factor which is identical or common in boys' as well as girls' schools.

5. Teachers will tend to believe more in the efficacy of *ability* than *effort* for student outcome and will poorly endorse incremental concept of intelligence, reflecting teacher thought and school culture in Pakistan. They will be moderately task-involved.

Rationale for research hypotheses We expect to find meaningful relationship among various motivational constructs including that of teacher efficacy on the basis of psychological theory. We understand that these constructs and theories will explain motivational factors underlying teacher efficacy beliefs in the context of teacher population in Pakistan, identify dysfunctional belief pattern, and guide reforms. Our prediction that teaching experience will contribute to teacher efficacy beliefs and gender difference will be of no effect was guided by social learning theory. Everyday observations of teachers' action and decision

making underlie our prediction of teachers' attitudinal and belief profile. An understanding of the culture of mostly lower-middle class teachers employed in government school settings warrant this set of predictions about them.

Since most of the research hypotheses are relational and large-sample based, representative and empirical design is employed for this investigation. Details on this subject are given in the Method section.

Chapter 2

METHOD

Development of Instruments

Teacher Efficacy Scale

Bandura (1997) cautioned that efficacy is relevant to specific tasks, therefore, it must be specifically rather than globally assessed. Gibson and Dembo (1984) developed 30 items Teacher Efficacy Scale (TES) accordingly (appendix-i). It has two factor scales, teaching efficacy (TE) and personal efficacy (PE) which refer to efficacy beliefs specific to teaching. Short version of TES containing 16 items, as reported by Gibson and Dembo, has same reliability as the full length scale. Since the national language of our subjects was Urdu, TES comprising 16 items of the short version and 2 other items that pertained to the adequacy of the preservice training, were translated to be used in this study as a measure of teacher efficacy. Our version thus included 10 items of PE and 8 items of TE scales.

Translation procedure. First, a team of three english language teachers translated the items. Each one worked independently and thereafter discussed their work. The translation was next handed over to another group of three Urdu language teachers who first smoothed the Urdu script and then cross-examined it with the English text for ensuring the equivalence of the target script with the original contents. Second, Urdu translation was served on 12 student-teachers of B.Ed. class who had a B.A. degree with enlgish as a subject, to back-translate it into english. Each student worked independently and thereafter consolidated their work in two committees of six members each.

Third, the leader of the two committees and the three enlgish teachers who initially translated the text were entrusted the task of comparing the source and the target scripts and decide upon a firm Urdu version. They followed the guide lines laid down by Brislin , Lonner and Thorndĭke (1973) and Butcher and Pancheri (1976) and kept the context of the statement as well as its membership to the scale in focus. Conceptual equivalence was duly considered to provide common meanings and legitimate comparisons between the two versions. Fourth, Urdu version was field-tested on 43 student-teachers of B.Ed. Class. Half the students were given English version and the other half were given Urdu version in two separate groups and sessions. Next day the students were given the questionnaire in the other version than they took on the previous day. The students had completed their two months of preservice teaching practice around that time and were about to pass out.

Item equivalence. Subjects' responses on both the versions were tabulated and compared to gauge the metric equivalence (Table 1). If the frequency of response on the Urdu and English version was discrepant by 10 percent (more than 5 responses), it was considered as significant disequivalence. Two such statements were no. 23 and 25. Both had been idiomatically phrased, e.g. "If parents would do more with their children, I could do more"; and "If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly". Urdu translation of these items was further deliberated upon and improved.

Scalar equivalence. Metric equivalence between english and urdu version, in terms of mean scores, was acceptable. Mean score on urdu version was moderately higher on both PE and TE items, than on english version (Table 1). Urdu version thus facilitated scores.

Table 1
Frequency of Responses on E = English, U = Urdu Version of TES (N=43)

PE	sa		a		da		sda		
item no	E	U	E	U	E	U	E	U	
1	22	24	18	16	1	1	2	2	
7	17	19	16	16	7	6	3	2	
12	18	21	13	15	9	4	3	3	
14	22	20	14	17	3	3	4	3	
15	20	25	15	18	5	2	3	0	
19	17	21	15	16	9	4	4	2	
21	15	20	12	15	9	5	7	3	
24	16	17	15	17	7	4	5	5	
25	14	20	13	15	9	6	7	2	
29	21	23	11	11	6	5	5	4	
Total	161		141		64		43		M=28.79
		210		156		40		26	M=32.69

(table continues)

TE	sa		a		da		sda		
item no	E	U	E	U	E	U	E	U	
2	17	16	15	13	7	9	4	7	
4	22	18	10	8	6	9	5	8	
6	24	19	9	8	5	10	5	9	
16	18	13	18	17	5	8	2	5	
17	19	21	9	10	10	8	5	4	
23	18	24	11	8	5	6	9	3	
27	16	15	13	15	5	7	9	6	
30	18	22	11	9	8	7	6	5	
Total	152		96		51		45		M = 15.74
		148		89		64		47	M = 16.37

sa = strongly agree, a = agree, da = disagree, sda = strongly disagree.
PE and TE items were scored by level of agreement and disagreement, respectively, to arrive at mean values.
Item no above refer to statement no of 30 items TES, appendix-i.

TES was used in this study on a four point scale, *strongly disagrees* = 1, *disagree* = 2, *agree* = 3 and *strongly agree* = 4, for the PE items, and in the reverse direction for TE items. The respondents rated how much each stated behavior or idea was representative of their typical behaviour as teacher.

Reliability and validity. Cronbach alpha coefficients for this sample was .71 for PE and .65 for TE on Urdu version. TE and PE scores were found uncorrelated (r = - .087), which means that the scores for the two scales did not depend on each other. In view of these analyses Urdu version of TES was deemed to be a good-enough tool to be used in this research study.

Beliefs about intelligence as Incremental Quality questionnaire

One of the consituant variables of teacher efficacy is beliefs about the nature of ability or intelligence . This conceptualization is based on literature on motivation. The contention is that an incremental concept of intelligence is a positive and progressive belief which helps an educator to be more confident about his/her role as teacher. The opposite belief about the nature of intelligence is counterproductive in education and undermines a teachers' belief in the efficacy of effort to bring about achievement in students. Surveying relevant literature on teachers' personal theories and notions on academics as related to intelligence, and theories of motivation related to ability, a set of 38 items were phrased in Urdu that sampled both the views about the nature of intelligence. Examples: "A less capable student can not succeed, no matter how hardworking he/she is", Students' memory power can be increased with training".

Scale construction. Items were scrutinized by two expert judges who had knowledge of both measurement and personality theory. A set of 29 items was selected that were administered to B.Ed class of 43 student teachers. They responded to each statement/item by agreeing or disagreeing with it. Four items which were non-discriminating, i.e. predominantly loaded on agree/disagree category, or negatively correlated with the scale were removed. Item/total analysis of the responses was carried out for the remaining 25 items to eliminate the weak ones. Finally 15 items were retained in the scale that had high to moderate index of internal consistency. Table 2 indicates the items, and their homogeneity in terms of rbis which ranges between .29 to .61. The average rbis value of the items is .41 in this sample. Eight items were keyed for '*disagree*' whereas seven were keyed for '*agree*' response to make a balanced scale.

Table 2
Item Analysis for BIIQ variables (N=43)

		rbis
1.	It makes a difference in their ability if students change their teacher or school.	.52
2.	A less capable student can't succeed no matter how hardworking he/she is.	.40
3.	Training rather than aptitude can make one a success in any field.	.35
4.	You may learn many new things but your competence can increase to a limited extent.	.38
5.	Interest in studies is not an inherent quality of a student; it is the outcome of hardwork in studies.	.30
6.	Mental capability is determined by nature, one can not increase it with effort.	.47
7.	Students' achievement is mostly due to hardwork and persistence than due to intelligence.	56
8.	Some persons are born with greater qualities while others have less.	.36
9.	I believe potential is inherently determined, it can not be increased through schooling.	48
10.	Most of the human abilities are gifted by nature rather than acquired.	.44
11.	Students can increase their ability with effort as much as they want.	.45
12.	People remain less smart largely because of their limited experiences.	.31
13.	Students' memory power can be increased with training.	.29
14.	Knowledge can be increased, intelligence can't be..	.46
15.	The problem with weak students is that their mental growth is held up and they cannot progress further.	.33

Note. BIIQ was conceived and administered in Urdu. Appendix ii Table 2 contains English transcript of BIIQ but the data shown for each item is one that was obtained on Urdu version.
Key:
Agree: 1, 3, 5, 7, 11, 12, 13
Disagree: 2, 4, 6, 8, 9, 10, 14, 15

Reliability and validity. KR 20 index of the 15 items scale is .73. Odd-even reliability index with this sample of 43 student teachers is .65 which is acceptable for a short measure of the size of BIIQ.

BIIQ scores moderately correlated (r = .392 p<.01) with the Urdu version of TE scale. Its correlation with PE scale was only .115.

Task Motivation Style Questionnaire

Another indigenous measure used in this study was a 20 items task motivation style (TMS) questionnaire drawn on Nicholls' (1978) goal perspective theory which is most relevant to academic achievement situations. Task-involvement versus ego-involvement as two motivational states are theoretically related to other psychological variables of this study such as teacher efficacy beliefs, teachers' implicit theories of intelligence, and teachers' attributional style for student outcome. It is proposed as a predictor of teacher efficacy in this study. TMS questionnaire items tap classroom instructional and evaluation techniques, and other classroom routines that characterize a teacher's approach as task or ego centered in school matters; example-I, "I advise my students to carry out their school work without caring how others are doing it"--- task-involvement, example-II, "I am satisfied with only those students whose work is absolutely error less" --- ego-involvement. Items of TMS represent strategies generic to the process of learning and teaching. Agree or disagree responses to the statements of the questionnaire, indicative of teacher's actual or preferred style, ideology or notion about teaching practices, reflect on one's task or ego/self focused orientation in teaching.

Scale development. Initially a set of 40 items was administered, after an expert scrutiny of items vis-a-vis the construct of the measure, to 84 preservice M.A. (Education) student-teachers. Items which were found to be weakly correlated with the total score or which were overly desirable/preponderant on agree or disagree response and were thus non-discriminating were removed from the analysis. The remaining 34 items were set into two separate, ego or task related lots and were item-analysed in terms of their item total correlation (*rbis*) within the respective task or ego set of items. Table 4 indicates English translation of the top 10 items of each of the two sets with their *rbis* values on Urdu version. The task and ego sets of items were significantly correlated r = -.624. A strong negative association between the two opposite halves i.e. task and ego dimensions, upheld the validity of the task vs. ego construct. It shows that the items were conceptually similar and could be scored on a task-to-ego continuum. Task items were thus scored as "agree" and ego items as "disagree", (example I and II, respectively). The obtained score, thus, indicated strength of task-achievement relative to ego-achievement goals. For instance a score of 10 or higher on a scale of 20 items indicated a relative preponderance of task-orientation over ego-orientation, and a score of less than 10 indicated vice versa.

Reliability and validity. K-R 20 estimate of TMS was .719. Pearson correlation of .- 624 indicated that task and ego dimensions of motivation were opposite. This upheld the validity of task vs. ego motivation construct.

TMS score of this sample of 84 students were related to their marks obtained in MA Education programme. data summarized below shows that task orientation was related to level of achievement.

Groups	Marks obtained	TMS *n*	TMS *M*	TMS *SD*
1	65% & above (Ist division)	41	15.12	2.85
2	51% -- 64 % (2nd division)	24	12.95	3.55
3	44% -- 50% (3rd division)	19	11.70	2.20

Note. Mean TMS score of group I is significantly higher ($p<.01$) than that of group 2 or 3.

Table 3

rbis values of Task Motivation Style (TMS)items (N = 84)

		rbis
1.	A student's position in the class among other students is not so important, what is more important is how much his/her work is correct or incorrect.	.32
2.	It is better not to write any comments on the students' work books, a tickmark or cross is enough.	.26
3.	The weak students should be given relatively easy sums in the classroom.	.39
4.	It is better for students to cooperate rather than compete with each other in studies.	.37

(table continues)

		rbis
5.	I appreciate students for their effort in course work more than their marks.	.27
6.	I like the students who are quick in work.	.46
7.	It is all right for student to feel satisfied if they get good marks in studies, but still consider themselves weak students.	.26
8.	I am lenient in marking the assignments of weak students.	.32
9.	I allow students to consult each other and seek help while doing classwork.	.30
10.	The only and the best indicator for a good teacher is his or her class result.	.33
11.	I ask weak students to participate with other students, in the classwork and I do not mind even if it takes more time and the courses remain incomplete.	.35
12.	I frankly announce in the class that such and such students are weak and others are good in studies.	.27
13.	I am satisfied with only those students whose work is absolutely errorless.	.29
14.	I evaluate a student's progress by comparing his/her current performance with the previous one, rather than comparing him/her with other students.	.27
15.	I advise my students to carry out their work without caring how other are doing it.	.32
16.	Students should be grouped in the class on the basis of their ability and marks rather than just randomly.	.41
17.	Some students are interested in getting good marks, whereas some others want higher marks than others. I value the former more.	.34

(table continues)

		rbis
18.	I usually warn the students that it will be difficult for barely average students to proceed with the studies in high school.	.36
19.	If somebody fails despite hardwork, it is simply shameful.	.25
20.	Students study extra hours, not for self interest but to impress others by expecting high marks.	.26

Note. Task item nos 1, 3, 4, 5, 8, 9, 11, 14, 15, 17 are keyed 'agree', Ego item nos 2, 6, 7, 10, 12, 13, 16, 18, 19, 20. are keyed 'disagree'.

Attribution questionnaire

A set of three items was constructed to ascertain teachers' attribution style about students' (a) success, (b) failure, and (c) achievement; through ability, effort, luck, and task - difficulty factors on a 4-point scale (*very important* = 4 to *least important* = 1). These factors were used and interpreted within the framework of Weiner's system of attribution analysis. subjects rate each of the four factors, in their relative importance as causal of students' success, failure, and achievement, separately. The items are:

(1) What causes students' failure in studies?

(2) What factors contribute towards their success in studies?

(3) What factors mostly contribute in student achievement?

Background Information Blank

A background information blank was also served on the respondents to obtain relevant demographic information.

Respondents

Respondents for this study comprised 156 men and 71 women enrolled in Master of Education (M.Ed.) programme. Of these 227 prospective teachers, 87 were enrolled in College of Education for Men Lahore (CEML), and 140 in the Institute of Education and Research (IER) Lahore. Half the respondents undergoing M.Ed. programme at CEML were, by requirement of admission policy, science or mathematics teachers, and the other half were language, social studies or arts teachers and had studied these subjects at graduate level. IER which followed liberal admission requirements had enrolled 95 students in Arts as against only 45 in science and mathematics. Of all, there were 46 respondents who had no formal teaching experience while the rest were in teaching service in government schools. All the respondents had obtained bachelors' degree in education (B.Ed.) which is a precondition for enrolling in M.Ed. programme. Further details of the respondents are presented below:

Table 4
Sociological characteristics of the respondent teachers ($N = 227$)

Experience		IER				CEML	
		Science		Arts		Science	Arts
		Women	Men	Women	Men	Men	Men
i)	NIL or less than one year	9	8	17	12	-	-
ii)	1-5 years ($M = 3$ years)	7	5	10	7	29	19
iii)	Above 5 years ($M = 9$ years)	6	10	22	27	14	25
	Total	45		95		43	44

Note. Figures indicate number of respondents. Average experience is 5.3 years.
M = Mean

Data-collection

Questionnaires were administered to respondent teachers in their respective classrooms and institutions in their regular class periods in the following order:

(a) Task Motivation Style (TMS) Questionnaire

(b) Beliefs about Intelligence as Incremental Quality (BIIQ) Questionnaire

(c) Teacher Efficacy Scale (TES)

(d) Attribution Questionnaire (AQ)

(e) Information Blank

The first two questionnaires were administered on the first day. The session began with describing the purpose of the data collection, and a brief introduction of the TMS questionnaire. Respondent teachers then worked on their own pace to complete the questionnaire. They were briefed similarly on the second questionnaire namely BIIQ. At the end of the session, the respondents were told to expect two more questionnaires on the next day. On the next day appropriate instructions were given for TES and AQ. In this regard, respondents were briefed on how to use Likert type scale and its categories of responses as used in TES and AQ. Again subjects worked on their own pace. Finally, they filled up the Information Blank.

The questionnaire technique for eliciting data pertaining to cognition and beliefs was used. As an ex-post facto study pertaining to teachers' beliefs, conceptions, and their motivational styles, it employed quantitative measures to collect cross-sectional data of school teachers at

one point of time; that is our measure of independent and dependent variables was taken at the same time. A reasonably large sample as used in this quantitative and representative study will very likely yield generalizable conclusions.

Research Design and Analysis Procedures

1- Factor analysis was carried out on TES data using principal component analysis to ascertain the factorial constellation emerging in this sample. It was compared with similar analyses undertaken in the West for cross-cultural understanding assessing generality of the construct of teacher efficacy.

2- The study largely employed correlational and linear multiple regression procedures in investigating the concept of *teacher efficacy* on Pakistani data in the framework of various motivational constructs and theories referred earlier. Interaction effects between TE and PE aspects of teacher efficacy were studied through cross-table technique.

3- A path framework was suggested for TE and PE dimensions of teacher efficacy as illustrated in Fig.3. Linkages or paths between predicting variables and teacher efficacy (TE/PE effect variables) were drawn on theoretical basis and tested through Simon-Blalock method followed by path analytic interpretation of multiple regression analysis. Path analysis allows for an estimation of the relative contribution (both direct and indirect) of all determining factors specified in the path diagram to

variation in each dependent variable of interest (Anderson & Evans, 1974; Kerlinger & Pedhazer, 1973; Werts & Linn, 1970). Relational hypotheses pertaining to the suggested model were assessed by comparison of standard beta weights for the predictor variables towards the effect variables and magnitude of R^2 for various sets of regression equations. The path model (Fig.3) is tested as follow; concept of intelligence--BIIQ-- (X_1) is hypothesized to influence all variables in the sequence, task motivation style--TMS--(X_2) is another exogenous variable which mediates influence of X_1 on TE/PE (aspects of teacher efficacy/the dependent variable); next *effort* attribution (X_3) and alternatively *ability* attribution (X_4) is set as context/intervening variable, effecting all prior variables, on TE/PE.

4. As a basically correlational study, it focuses on the validity or truthfulness of data from two aspects: First, measurement validity aspect/construct validation is carried out by means of factor analyses and correlational/comparative analyses etc. (a) to find meanings of the construct of teacher efficacy and its correlates in this/Pakistan data, and (b) to compare it with the Western researches for cross-validation and construct generality purposes. Second, statistical inference validity aspects were taken care of through various statistical inference tests such as *F* test, *t* ratio, *Scheffe* test , R^2 etc. to estimate the significance of the probability of results. The statistical analyses match hypotheses which are mostly relational. The research design lacks sophisticated linkage analyses due to non-availability of computer softwares such as LISERAL 6 or 8 pakages and know-how for using the same. Findings are reported in the next section.

Chapter 3

RESULTS

Validation of Teacher Efficacy Construct

Teacher efficacy construct followed Bandura's concept of self efficacy, and was measured through Teacher Efficacy Scale. The construct was validated on Urdu version of the scale on a sample of teachers from Pakistan through internal analyses procedures e.g. factor analysis, inter-correlation with other construct/measures components as detailed below:

Factor analysis

Responses to TES from teachers in Pakistan were put to Principal components factor analysis.(Table 5). Eigen values greater than 1.00 supported a two factor solution and accounted for 36 percent of the variance (Table 5). Factors 1 and 2 which comprised 31 % of the total variance were found to be nearly uncorrelated (r = -.114), with each other. Factor 3 which was a little short of obtaining eigen value of 1, had a positive correlation with Factor 1 (r = .336), and a modest negative correlation (r - .206) with Factor 2. Item loadings obtained by Gibson and Dembo (1984) are also shown in Table 5 for cross-cultural comparison. They obtained a two factor solution using a sample of 208 elementary school teachers. Our sample, however, comprised high school teachers.

Eight items that emerged under Factor 2 in the current data were originally placed in Factor 2 in Gibson and Dembo's study and were labelled as TE factor scale. The items pertained to the beliefs that teaching can overcome the influence of home (e.g. "A teacher is very limited in what he or she can achieve because a student's home environment has a large influence on his or her achievement". The exception was item 27 which cross-loaded on Factor 1 with a

negative sign (e.g. "The influences of a student's home experiences can be overcome by good teaching"). One explanation can be that some subjects might have focused on "home experiences" --- the external aspect, while others focused on "good teaching" --- the self aspect, part of the statement.

Factor 1 identified most of the items which Gibson and Dembo found in PE factor scale. However items 1, 12, 24 and 25, in addition, cross-loaded on Factor 3 with us. Two of these, no 1 and 12, (e.g. "when a student does better than usuall, many times it is because I exerted a little extra effort". "When a student is having difficulty with an assignment, I am usually able to adjust it to his or her level") loaded on Factor 3 in Woolfolk and Hoy's study (1993) also, of 182 liberal arts preservice elementary teachers. They interpreted this constellation of items as PE + and interpreted it as teachers' efficacy in correcting student outcome. Taking PE + as marginally interpretable entity, they proceeded with their work on two factor solution following Gibson and Dembo's classification. Woolfolk and Hoy share with Guskey (1988) the explanation that Factor 1 indicated teachers' sense of personal efficacy or ability for teaching and Factor 2 indicated their perception that difficulties outside school could be overcome.

In Soodak and Podell's (1996) study, however, Factor 3 labeled teaching 'outcome expectation' (OE), appeared as a robust factor, with an eigen value of 2.02.

Table 5

Principal Components Solution; Factor loadings for Teacher Efficacy Scale variables.

no.	Items	Gibson & Dembo(1984) Factors		Present Study			Woolfolk &Hoy. (1990) F + 3	Soodak & Podell (1996) F3
		F1 (PE)	F2 (TE)	F1	F2	F3	PE +	OE
1*.	When a student does better than usual, many times it is because I exerted a little extra effort.	.49		.35		.40	.38	.36
2.	The hours in my class have little influence on students compared to the influence of their home environment.		.54		.49			
4.	The amount that a student can learn is primarily related to family background.		.54		.55			
6.	If students aren't disciplined at home, they aren't likely to accept any discipline.		.60		.55			
7*.	I have enough training to deal with almost any learning problem.	.69		.63				
12*	When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.	.46				.58	.69	.76
14*.	When a student gets a better grade than he usually gets, it is usually because I found better ways of teaching that student.	.46		.54				
15*.	When I really try, I can get through to most difficult students.	.53		.60				
16.	A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.		.65		.40			
17	Teachers are not a very powerful influence on student achievement when all factors are considered.		.34		.58			
19*.	When the grades of my students improve it is usually because I found more effective teaching approaches.	.55		.55				.74

(Table continues)

no.	Items	Gibson & Dembo(1984) Factors		Present Study			Woolfolk &Hoy. (1990) F + 3	Soodak & Podell (1996) F3
		F1 (PE)	F2 (TE)	F1	F2	F3	PE +	OE
21*.	If a student masters a new math concept quickly, this might be because I know the necessary steps in teaching that concept.	.61		.55				.64
23.	If parents would do more with their children, I could do more.		.52		.44			
24*.	If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.	.51		.40		35		
25*.	If a student in my class becomes disruptive and noisy. I feel assured that I know same techniques to redirect him quickly.	.49				.52		
27.	The influences of a student's home experiences can be overcome by good teaching.		-.52	-.62	.33			.37
29*.	If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.	.48		.57				
30.	Even a teacher with good teaching abilities may not reach many students.		.45		.53			
	Eigen value	--	--	2.64	1.93	.88		2.02
	Variance	18.2%	10.6%	19.50%	11.88%	4.81%		---
	Cum. percentage	28.8%		31.38%		36.19%		30.70%

Note. no. = Serial number of the statement as it appears in 30 items original *TES.* (Appendix-i). Item appearing with * are placed in *PE* Scale and the rest in *TE* scale by Gibson & Dembo the authors of *TES.*

PE + (factor 3) is not a factor label but reflects Woolfolk and Hoy's interpretation of the factor.

It is relevant to refer to Soodak and Podells' explanation for the emergence of their Factor 3. The preschool and elementary teachers which comprised 74 percent of their sample believed less than high school teachers that positive student outcome (Factor 3 label *outcome efficacy*) was due to their own actions. A table is quoted from Soodak and Podells' (1996) article "Teacher Efficacy: Towards understanding of a multifaceted construct" to illustrate the point.

Difference in teacher efficacy by teaching level in two and three factor situations(Soodak & Podell, 1996).

Factor	Preschool Elementary		Junior High School			
	M	*SD*	*M*	*SD*	*t*	*p*
PE (2 factor solution)	.11	.91	-- .14	1.13	1.70	*NS*
PE (3 factor solution)	.07	.96	-- .01	1.08	0.48	*NS*
OE(3 factor solution)	.13	1.02	-- .32	.95	2.90	.004

Note. PE (2 factor solution) pertains to teacher's belief that he or she possesses teaching skills. OE (3 factor solution) refers to belief that when those skills are implemented (subject to school conditions), they lead to desirable student outcome.

Unlike Soodak and Podell's study of mostly preservice and elementary level teachers, the current data comprised experienced and high school teachers. The difference in sample characteristic probably strengthened Factor 3 in their study. Our sample of high school teachers weakly endorsed Factor 3 (eigne value = .88). Guskey and Passaro (1993) who had employed a similar sample (59 prospective and 283 experienced teachers) also found a two factor solution on an adapted form of *TES* from the research work of Gibson and Dembo (1985). Only four item factor 3 constellation in this study that overlapped with factor 1

(r = .336) was by itself too short to be a reliable measure. We thus confirmed a two factor solution of TES in the current data, following Gibson and Dembo's original classification of PE and TE factors and proceed with further analysis of data accordingly,in this study.

Descriptive statistics

Data obtained from IER and CEML were comparable and the obtained difference between the mean scores of the respondents from the two institutions was not significant on any of the measures (Table 6).

Table 6
Descriptive Statistics on Various Measures by Institution and Subject Discipline (Arts/Science)

		TMS		BIIQ		TE		PE	
Institutions	N	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
SCIENCE									
CEML	43	12.71	2.98	10.04	2.77	18.27	3.19	33.11	2.59
IER	48	12.49	2.26	9.66	1.96	18.07	3.53	32.60	4.27
ARTS									
CEML	44	12.40	1.59	9.11	3.05	17.23	4.67	33.47	3.98
IER	92	12.75	1.92	9.63	2.62	17.07	3.77	33.61	3.58

Note. TMS = Task motivation style BIIQ = Belief in Incremental intelligence,

N=227

Distributions of scores on most of the measures was normal except on PE where mean score of 33 was quite higher than a theorically expected mid score of 25 on a 10 item rating scale (1-4). Some respondents expressed maximum (40 score) self efficacy. The limited range or clustering of obtained scores at the upper end on PE scale could be due to perceived salience of " I can ... " items to the respondent teachers. A tendency for impression management for such items could be responsible for the inflated PE scores. Such a tendency did not seem to be operative for TE statements considering its mean score of 17 for a theoretically possible mid scale value of 20.

Coefficient alpha for TE and PE scale and KR-20 index for TMS and BIIQ questionnaires indicate moderate to acceptable reliabilities (Table 7).

The clustering of PE scores on the upper end probably limited the spread of scores as well as its correlation with BIIQ, TMS and other measures (Table 6). Maximum intercorrelation between PE and any other measure was -.328, PE hence appeared to be the most discrete construct.

Table 7
Descriptive Statistics, Alpha Coefficents, and KR 20 Index of Various Measures

	Constructs/Variables	Items	*M*	*SD*	Range	Reliability
1.	Beliefs about Intelligence as Incremental Quality (BIIQ)	15	9.75	2.57	6-15	.69[k]
			9.91	**1.90**	**5-16**	
2.	Task Motivation Style (TMS)	20	12.79	2.26	8-17	.78[k]
			12.28	**2.10**	**8-16**	
3.	Effort (attribution)	3*	8.67	2.06	5-12	.68[a]
			9.23	**1.98**	**5-12**	
4.	Ability (attribution)	3*	5.65	2.21	0-10	.59[a]
			5.32	**2.04**	**0-9**	
5.	Teaching efficacy (TE)	8*	17.80	3.64	10-26	.65[a]
			17.05	**2.96**	**13-23**	
6.	Personal efficacy (PE)	10*	33.75	3.22	25-38	.71[a]
			35.92	**3.51**	**28-40**	
7.	BIIQ X TMS Interaction		125.83	39.70	54-225	

Note. * is a rating scale 1-4, a = aplha, k = KR-20

N=158 men (87 CEML & 71 IER) unbold type. *N*=69 women (IER), bold type. *N*=227 (Men + Women) for variable 7 statistics.

In view of no difference in the scores between the sexes and between IER and CEML respondents, the data was collapsed for further analyses.

Table 8
Zero order correlation among various motivational constructs/measures

	Constructs	I	II	III	IV	V	VI	VII
I	BIIQ	-	.234	.277*	-.221	.366*	-.328*	.146
II	Task Motivation Style	-	-	.532**	-.252*	.640**	.044	.178
III	Effort (attribution)	-	-	-	-.467*	.380*	.088	.103
IV	Ability (attribution)	-	-	-	-	-.115	.205	.051
V	Teaching Efficacy (TE)	-	-	-	-	-	-.114	.071
VI	Personal Efficacy (PE)	-	-	-	-	-	-	.001
VII	TE X PE							

Note. BIIQ = Beliefs about Intelligence as Incremental Quality

$N = 227$ **p<.01 *p<.05

Intercorrelations amomg constructs/variables

PE and TE dimensions of the Teacher Efficacy Scale (TES) were almost uncorrelated (r = -.114) and independent of each other in the current data. Similar findings weremade in several Western researches (Gibson & Dembo, 1984; Woolfolk & Hoy, 1990). Highly modest correlation between PE and TE scales demonstrated the conceptual discreteness of the two dimensions synonymous to Bandura's conceptualization of 'self efficacy expectations' and 'outcome expectations', respectively.

PE was also uncorrelated with task motivation style (r = .044) but it had a negative correlation (r = -.328) with beliefs about intelligence as an incremental quality. On the other hand TE was moderately correlated with BIIQ (r = .366 $p<.05$) and strongly correlated with TMS (r = .640 $p<.001$). PE has been thus revealed as a unique construct that is consistently unrelated to other concepts but moderately related to ability attribution and negatively but significantly related to BIIQ . It may be recalled that perceived *personal efficacy* (PE) as an internal dimension refers to efficacy abilities and skills.

The other dimension perceived *teaching efficacy* (TE) pertaining to beliefs that environmental constraints can be overcome and students can learn despite their background, family, and IQ limitations, emerged closer to the concept of task motivation style (TMS) than incremental concepts of intelligence (BIIQ). Task motivation and concept of intelligence themselves were moderately correlated (r = .234) indicating that these were factorially distinct but related concepts and would together predict TE more strongly.

It may be recalled that BIIQ and TMS concepts were identified earlier as predictors of TE and PE aspects of teacher efficacy. Some researchers have noted that TE dimension has much in common with teachers' notions of ability/ intelligence (Ashton & Webb, 1986; Eccles & Wigfield, 1985), however the current data indicates that TE dimension has still more to share with task motivation than with ability percept.

Further, TE discriminatingly correlated with *effort* (.380, p<.05) and *ability* (-.115, *ns*) attributional factors. The two factors were themselves significantly negatively correlated (r =. - 467, p<.01)). It is theoretically meaningful to note that a tendency to attribute student achievement to *effort* was positively correlated with TMS, TE, and BIIQ scores (r = .532, p<.01, r = .380, p<.05, and r = .277, p<.05) whereas a focus on attribution to *ability* was negatively associated with all these three constructs (-.252 , p<.05; -.115; & -.221), respectively.

Corelational data for the two dimensions of TES and their relationship with other concepts revealed the following constellation. First, scores on BIIQ, STM and Effort attribution were positively associated with each other as well as with TE. Ability attribution was negatively associated with all of these. Second, PE scores had a positive association with ability attribution, moderate negative association with BIIQ, and almost no correlation with STM and effort attribution. Third, TE and PE were uncorrelated dimensions; and Effort - Ability attribution styles were opposite poles. Fourth, statistical interaction(in terms of PE X TE scores) did not relate to any of these measures showing that values of TE and PE did not depend on each other.

The above findings revealed theoretically meaningful relationships between these constructs. The current data partially supported, the ecological relevance and generality of these motivational constructs across this sample of teachers, because PE scores (a) negatively associated with the incremental concept of intelligence, and (b) associated with *ability* rather than *effort* attribution as causes of students' success or failure, contrary to our prediction.

Interaction of TE by PE levels of efficacy

In exploring an understanding of the construct of teacher efficacy, we found earlier that statistical interaction of PE X TE score values did not relate to any other concepts/measures. Alternatively, interaction of broader PE and TE score brackets or levels was explored to find whether or not specific levels (high/low) of personal and teaching efficacy dimensions interactively influenced strength of TMS, BIIQ, or attribution pattern. An analysis was carried out on these lines.

Level of efficacy and task goals. On theoretical basis it was earlier hypothesized that efficacious teachers as score high on both PE and TE dimensions would score higher on BIIQ as well as TMS than those who score low on one or both the dimensions. It was hence contended that high TE by high PE score levels interaction would be associated with higher BIIQ and TMS scores than at low levels of TE by PE

(lo TE/lo PE) interaction. Tables 9 and 10 present TMS and BIIQ mean scores respectively by levels of TE and PE. Levels of PE or TE were determined by dividing the respondents into high or low groups across the mean split of scores. Four efficacy groups were formed in this way: Hi, Hi, Hi, Lo, Lo, Hi, Lo, Lo.

Table 9
Means and Standard Deviations of TMS Scores by Level of TE and PE

		TE	
		Hi	Lo
PE	Hi	*M* 14.07	*M* 12.59
		SD 1.59	*SD* 1.85
		N 68	*N* 48
	Lo	*M* 11.85	*M* 11.62
		SD 2.77	*SD* 3.12
		N 63	*N* 48

Note. Mean difference is significant, in terms of *t* ratio, between Hi PE, Hi TE and:

Hi PE, Lo TE ($t = 4.12$, $p<.01$)

Lo PE, Hi TE ($t = 4.54$, $p<.01$)

Lo PE, Lo TE ($t = 5.63$, $p<.001$)

ANOVA = F (3,323) = 19.30, $p<.001$, across all the four categories.

Table 10
Means and Standard Deviations of BIIQ Scores by level of TE and PE

		TE	
		Hi	Lo
PE	Hi	*M* 9.22	*M* 9.91
		SD 2.46	*SD* 1.98
		N 68	*N* 48
	Lo	*M* 10.40	*M* 9.83
		SD 2.20	*SD* 2.16
		N 63	*N* 48

Note. Difference between means is significant in terms of *t* ratio for interactive categories: Hi PE, Hi TE v.s Hi TE Lo PE ($t = 2.87$, $p<.01$)
ANOVA = F (3,223), = 2.84, $p<.05$, across the four categories.

Analysis of data of the respondents in different categories revealed different scores. One way analysis of variance (ANOVA) indicated significant difference of mean scores across Hi PE, Hi TE to Lo PE, Lo TE categories of teachers for TMS F (3,223)= 19.30, $p<.001$, and between Hi PE/Hi TE and Hi TE/Lo PE categories for BIIQ F (3,223) = 2.84, $p<.05$. The hypothesis that respondents scoring consistently low or high on both teaching efficacy as well as personal efficacy dimensions would score in a similar direction on TMS, indicating interaction effect, was supported (see Table 9). It means greater task orientation and persistence associated with stronger beliefs in one's teaching abilities and skills, as well as beliefs that home conditions/limitations can be controlled. A hypothesis of difference was also supported though less strongly for BIIQ in a different direction.

Here a high TE with low PE level category was found to be related to stronger beliefs about ability as an increasable quality than other categories. It may be recalled that PE was negatively associated with BIIQ and positively with ability attribution.

Discreteness of PE and TE (r = .-144) would logically mean that one may be dominant in one and low in the other dimension yet these dimensions have been found to interact from high, high to low, low levels meaningfully indicating that Hi TE, Hi PE interaction is possible. For instance, we found that Hi TE, Hi PE efficacy teachers pursued stronger mastery/task goals (M = 14.07) than lo TE, lo PE teachers (M = 11.62). A similar trend was noted for attribution factors (Table 11) in that ability attribution was salient to lo PE, lo TE group of teacher whereas effort was salient to hi PE, hi TE group. The interaction effect is theoratically still more meaningful in the case of concept of intelligence (BIIQ scores), such that lo PE, hi TE interaction is favourable to BIIQ but hi PE, lo TE interaction is not. A high TE, high PE interaction indicated a task or mastery orientation and a focus on 'effort' ascribed to success. Interestingly, teachers low in PE had lower task motivation irrespective of their level of TE scores, but those low in TE interactive with high PE dimension did exhibit slightly higher task orientation. PE by TE level interaction technique thus revealed what otherwise could not have been ascertained by simple Pearson r (e.g. Task -- PE r = .044).

Level of efficacy and causal attribution patterns. Attribution for achievement, success, and failure, reflects on ones' attitude in learning as Weiner (1979) and Nicholls' (1983) work on student achievement motivation suggests. Drawing on attribution theory, we had anticipated that teachers' attributional pattern for student achievement would be indicative of their level of perceived teacher efficacy. Relationship between level of efficacy and causal attribution for student achievement behaviour was found using the four groups of subjects (as obtained earlier through mean split on TE and PE scores in Table 9 & 10). They were compared on their mean (score) rating for ability, effort, task and luck attribution.

Table 11
Comparison on Mean Attribution Ratings Among Teachers Split on Mid TE by PE Levels

Variables	Hi, Hi (N=68)	Hi, Lo (N=63)	Lo, Hi (N=48)	Lo, Lo (N=48)	F(3,223)
1.Attribution for failure					
ability	1.90 a	1.97 a	2.59 b	2.30 ab	9.85 *
effort	3.17	3.32	3.15	3.28	3.52
task	.12	.52	--	.70	--
luck	--	--	--	--	--
2.Attribution for success					
ability	1.87	1.91	2.27	2.11	2.18
effort	3.53 a	3.32 ac	2.35 b	2.62 bc	13.71*
task	.78	--	--	--	--
luck	--	--	--	--	--
3. Attribution for achievement					
ability	1.13	1.56	1.63	1.45	5.04
effort	3.04	2.81	2.43	2.52	7.12
task	.70	1.06	.90	7.25	4.48
luck	.36	--	.52	.90	--

Note. Hi, Hi = high TE ---- high PE condition; Hi, Lo = high TE ---- low PE condition; Lo, Hi = low TE ---- high PE condition; Lo, Lo = low TE , low PE condition.
Group means with different subscript are significantly different at .10 level on Shefee test.
*p < 05 - = no data, i.e. respondents did not check the corresponding factor.

ANOVA findings showed significant differences in the mean rating of *ability* attribution for students' failure $F(3,223) = 9.95$, $p<.01$ and *effort* for their success $F(3,223) = 2.56$, $p<.04$ in the four groups of teachers. Analysis for *luck* could not be carried out since respondent teachers did not or very rarely checked it as causal for achievement. *Task* was also rarely and inconsistently checked. The results support Weiner's finding that ability -- effort paradigm of attribution is most relevant to achievement situation (Weiner, 1974). Interestingly, we found *ability* and *effort* attribution in systematic order and in reverse direction across Hi, Hi to Lo, Lo categories for categorical and decisive situations like failure and success outcome and not for a relative situation like *achievement*. *Ability* emerged salient in failure circumstances whereas *effort* was perceived as salient to success situation. Mean attribution for ability and effort factor was different for each group in all the three attributional contexts; failure, success and achievement.

Scheffe test, as a post hoc, was run between pairs of means where F test was significant, to sort out the samples(category of subjects)that were from the same or another population. We found that Hi TE, Lo PE, and Lo TE, Hi PE groups were critical to significant differences for mean ability attribution to failure, and effort attribution to success and were thus not from the common population.

(The difference between groups were accepted as significant at .10 level because Scheffe test is more conservative than its counterpart Tukey honestly significant difference test (HSD) applied for groups with equal number of subjects).

The hypothesis of different attribution pattern by teachers of different levels of efficacy was thus supported: That is (a) subjects high or low on both TE and PE dimensions of teacher efficacy scored significantly differently on *ability* perceived as causal of failure, and *effort* as causal in success (b) the difference was still more contrasting between hi TE, lo PE and hi PE, lo TE groups; the latter endorsed ~~favoured~~ ability more than effort, the former followed the opposite trend.

Teacher Efficacy Prediction

A major research interest in this investigation was to evolve a model for predicting teacher efficacy. This query was motivated by our interest as practitioners in teacher education to have an understanding of the concept of teacher efficacy warranted by the local data and indigeneously developed measures reported in the Method section earlier. We believed a correlational analysis would unfold motivational dynamics as well as teachers' thoughts underlying the construct of teacher efficacy to guide us in improving teacher training programme by fostering requisite motivational attitudes and beliefs in teachers. The following analyses were carried out.

Correlational Analysis

Correlational analysis reported in the early part of this section (see Table 8) provided preliminary evidence of relationship of TE and PE aspects with incremental concept of ability and task motivation. The results supported a general finding of the relevant research literature that one's concept of ability and task motivation in work bear on efficacy perception. These findings encouraged us to pursue the plausibility of the proposed model of teacher efficacy with these constructs as core exogenous variables and TE/PE aspects or attitudeas as effect variable.

Simon Blalock Method

Intially, we tested a three variable relationship by Simon-Blalock Method (Fig. 1) on the assumptions that the variables under analysis are (a) related with each other on theoretical grounds, (b) have linear relationship and (c) are non-reciprocal. (Simon, 1957, Blalock, 1985). The method basically uses partial correlation technique.

Our hypothesis that concept of ability (X_1) and task motivation style (X_2) are two potent variables influencing TE and PE aspects of teacher efficacy (Y) is represented in model I tested subsequently through Simon Blalock method (Table 12).

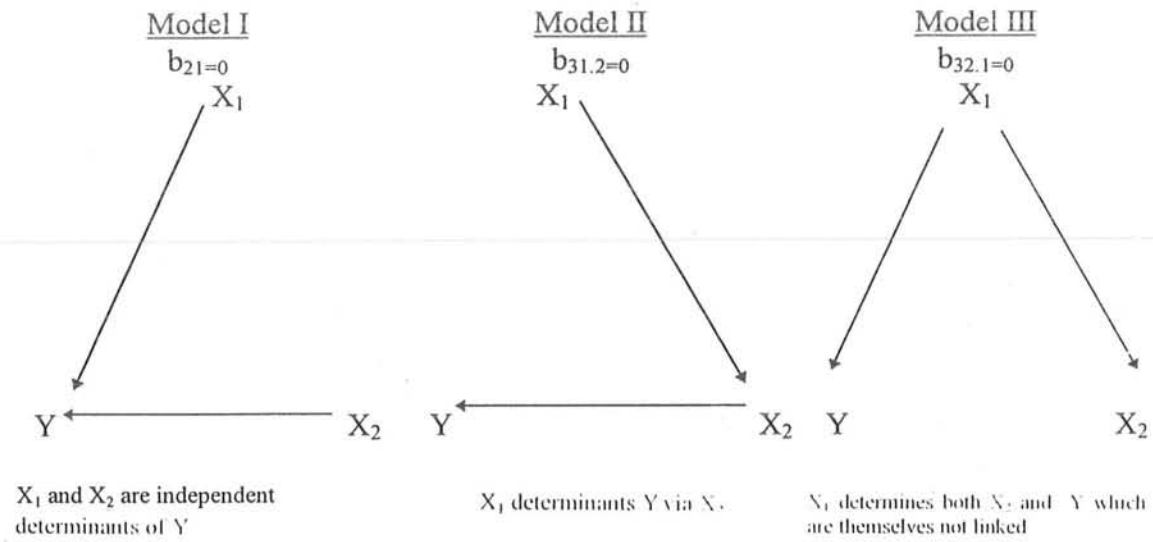

Figure .1 A comparative view of three prediction models conceived in Simon-Blalock paradigm. (The predictions to be tested in the above models are expressed in zero order correlations. Thus, coefficient $b_{21} = o$ implies that $r_{21} = o$; that is no link between the two respective variables is assumed and the corresponding arrows between the variables vanish in diagram of model I. Similarly $b_{31.2} = o$ implies $r_{31.2} = o$, and $b_{32.1} = o$ implies that $r_{32.1} = o$, in model II and III respectively).

Model I suggests that a teacher's concept of intelligence (X_1) and his her task motivation style (X_2) are independent variables of teacher efficacy (Y) and there is no link between X_1 and X_2. If this model were to come true, there would be zero correlation between variables X_1 and X_2.

Model II holds that task motivation (X_2) intervens between X_1 and Y. In other words, there is no direct link between X_1 and Y or that X_1 variable influences Y via X_2 and if X_2 is held constant, $r_{31.2}$ will be equal or closer to zero.

Model III indicates that X_1 directly influences X_2 as well as Y and there will be no assoication or link between X_2 and Y once factor (X_1) is held constant.

The hypothatical predictions and actual/empirical results of the three models are summarized in Table 12.

Table 12
Predictions and Empirical Results for X_1 = BIIQ, X_2 = TMS and X_3 or Y = TE

Model	Prediction	Empirical Results	Zero-order Correlation
I	$r_{21} = 0$	.234	.234
II	$r_{31.2} = 0$	.289	.366
III	$r_{32.1} = 0$	.613	.640

Note. Empirical result for Model I is *r* between X_2 & X_1, that of Model II & III are partial r of corresponding predictions which cancel out the effect of test variable on the independent and dependent variable.

The observed data did not fit model 1 since X_1 and X_2 are not completely independent variables and have at least a moderate association (r = .234). Model III is also rejected since there is robust relationship between X_2 and Y contrary to the prediction of the model. Model II thus appears plausible since controlling the impact of test factor X_2 reduced, though modestly, association between X_1 and Y (*Pr* = .289, *r* = .366). Thus, task-motivation style (X_2) moderated the effect of concept of intelligence (X_1) on teaching efficacy (Y), an instance of indirect influence.

The moderating role of TMS (X_2) was confirmed through applying 'level of analysis procedure' of Edwards and Waters (1981). Association between concept of ability (X_1) and teaching efficacy (Y) was compared at different levels of another core variable, task motivation (X_2). For this purpose, sample was split into two groups near the TMS mean score of 13. Correlation between X_1 and Y for the above mean group was larger, *r* = .298, (2, 118), $p<.05$ than the same for the below mean group *r* = .113 (2,115) = $p<.105$. The magnitude of association varied with the level of task motivation. Low TMS respondents displayed weak association between BIIQ and TE, as compared to the high TMS respondents. It implied that task motivation (X_2) influenced the effect of concept of ability (X_1) on the dependent variable. In other words task motivation is a condition determining the association between TE and BIIQ differently for the two groups. High TMS is a more conducive condition for the incremental concept of ability X_1 to be operative.

Since TMS and BIIQ covary moderately (.234), they are reasonably independent of each other as originally assumed, however, there is some mediation between them from TMS to BIIQ since the former moderately mediates the latter. This is illustrated in the diagram a below:

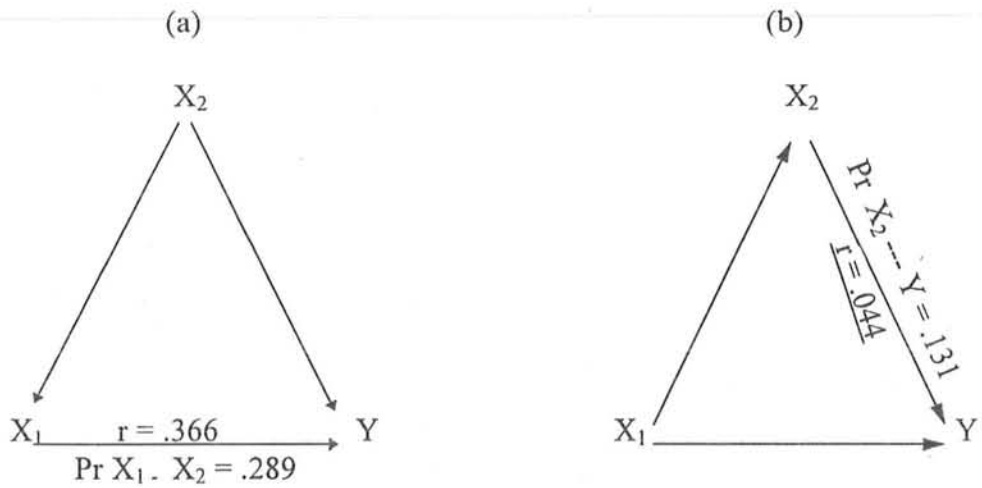

Figure 2. Diagrams showing the direction of influence of core variables on the effect variables.

A similar analysis was undertaken for PE dimension, the other effect variable, as indicated below.

Table 13
Prediction and Empirical Results for X_1 = (BIIQ), X_2 = (TMS) and Y or X_3 = (PE)

Model	Prediction	Empirical Results	Zero-order
I	r 21 = 0	.234	.234
II	r 31.2 = 0	-.348	-.328
III	r 32.1 = 0	.131	.044

Model III appears relatively plausible in that its empirical result is close to zero value of hypothetically predicted results. It explains that task motivation (X_2) influences PE but it becomes stronger when X_1 is controlled that had earlier retarded its effect on Y. (see b in Figure 2).

It is concluded that the pattern of influence for the effect variables i.e PE and TE aspects of teacher efficacy are different. Variable X_1 negatively and moderately influenced PE dimension of teacher efficacy whereas variable X_2 influenced TE dimension positively and strongly. The identity of PE and TE aspects of teacher efficacy thus stands psychologically differentiated in terms of motivational factors underlying them. Our hypothesis that concept of ability (X_1) and task motivation will positively influence both TE and PE was supported in favour of the former more strongly than about the latter.

Multiple Regression Analysis

In exploring further linkages, multiple regression analysis was carried out to estimate the relative effect of BIIQ and TMS simultaneously on TE and PE efficacy variables separately. The analysis would predict the extent of efficacy that can be expected on the average with the given level of BIIQ and TMS.

Effects of core variables. In ordering the predictors for PE and TE, we assumed that BIIQ (X_1) would influence all variables, and TMS (X_2) would mediate the effect of BIIQ on TE and PE i.e. BIIQ → TMS → TE and BIIQ → TMS → PE. Results from ordinary regression equation to this effect follow for TE and PE in Table 14 and 15, respectively.

Table 14
Multiple Regression Analysis for Y = TE, X_1 = BIIQ, and X_2 = TMS

Source	*DF*	*SS*	*MS*	*F*-Value	R^2	*R*	*SE* Estm.
Regression	2	212.47	106.23	16.96 $p<.000$	.459	.677	2.53
Error	225	1410.07	6.26				
Total	227	1622.54					
Parameter	Estimate		STD ERR	STD *B*	*T*		Sig.
Intercept	.478		3.137	VALUE	3.436		.000
X_1	.476		.249	.219	1.910		.043
X_2	.972		.198	.576	4.900		.000

Table 15
Multiple Regression Analysis for Y = PE, X_1 = BIIQ, and X_2 = TMS

Source	*DF*	*SS*	*MS*	*F*-Value	R^2	*R*	*SE* Estm.
Regression	2	53.996	26.998	2.168 *p*<.139	.125	.353	3.757
Error	225	2801.25	12.450				
Total	227	2855.24					
Parameter	Estimate		STD ERR	STD *B*	*T*		Sig.
Intercept	37.717		4.707	VALUE	8.012		.000
X_1	-.784		.371	-.327	-2.101		.048
X_2	.200		.298	.104	.671		.366

Inferences from the multiple regression analysis follow as:

1. Variables X_1 and X_2 collectively had a significant effect on TE, F (2, 225), 10.96, p< .000. Effect of TMS was stronger (B_2 = .576, p< .000) and far greater than that of BIIQ (B_1 = .219, p< .043). In the case of PE however only BIIQ had a significant effect on it B_1 = -- .227, p< .048 (Table 12). The simultaneous effect of BIIQ and TMS was not significant on PE F (2, 225) = 2 .168, p< .139).

2. Coefficient of determination R^2 indicates the extent of fit between the model and the data. An R^2 (.459) in the case of TE meant that 46% of the variation in TE was accounted for the combined effect of TMS and BIIQ. The predictor variables and TE reasonably co-varied in this case and task motivation accounted for bulk of the explained variance. However, in the case of PE, R^2 (.125) was too modest an index of fit. Only BIIQ predicted PE modestly and in the negative and opposite than the expected direction B_1 = -.327, p< .048 . Task motivation had no effect on TE, B_2 = .104, *ns*. This configuration reveals how PE as one dimension of teacher efficacy is different from TE, the other.

3. Likewise, multiple correlation R as a measure of linear association between Y and the independent variables X_1 and X_2 combined was found to be far robust in the case of TE (.677) than in the case of PE (.353).

Effort vs. ability attribution as intervening variable. Sense of efficacy is situation/set-up specific (Bandura, 1986). Teachers' experiences in a certain school system/conditions can thus influence their sense of efficacy about their job. There is a preliminary evidence about the co-variation of attribution and level of perceived efficacy (Table 11). Assuming that attribution for student outcome (success/failure) in a given school context influences teachers' perceived efficacy, we added 'effort' (X_3) and 'ability' attribution (X_4) as intervening variable in the regression analysis. The predictive model

thus enlarged appears in Figure 3. The position of *effort* attribution (X_3); and alternately of *ability* attribution (X_4) follows the position of core variables X_1 and X_2 on theoretical grounds (explained in the research design).

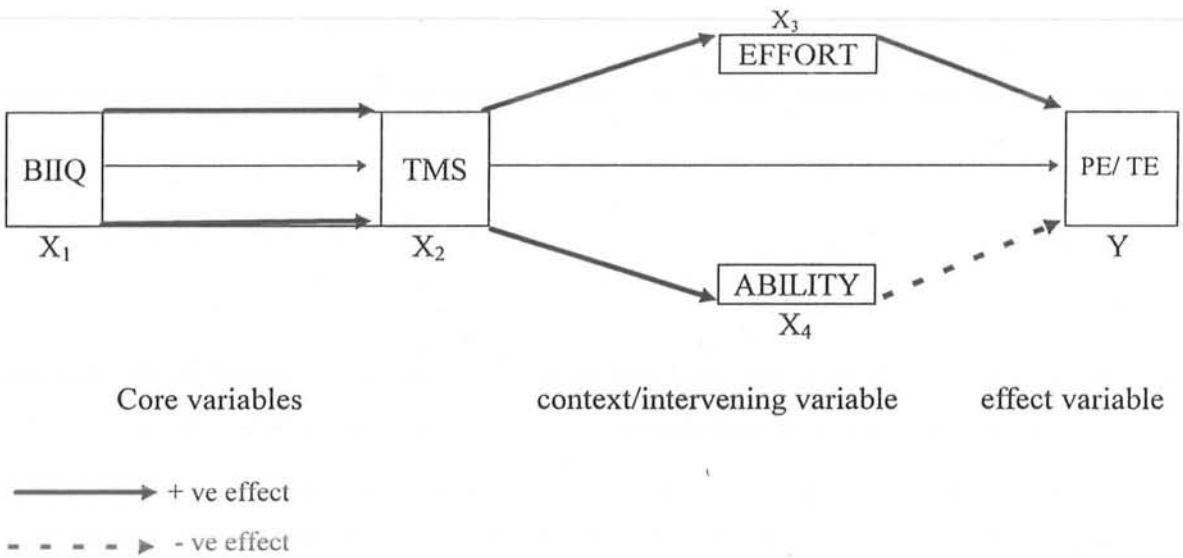

Figure 3. A model of Teacher Efficacy prediction.

Regression coefficients showing (a) relative strength of association of each core/antecedent variables with the dependent variable controlling other variables in the sequence, and (b) sign of the influence indicated that neither *effort* (X_3) nor *ability* attribution (X_4) contributed to the prediction of TE. The intervening variables appeared to be rather unrelated to TE scores. Value of fit (R^2 = .459) with X_1 and X_2 variables only slightly increased to .469 with the addition of intervening variable (Table 14). However, the intervening variable did contribute to the prediction of PE dimension of efficacy substantially (Table 17).

Table 16
Multiple Regression Analysis for Y = TE X_1 = BIIQ, X_2 = TMS, X_3 = Effort Attribution and X_4 = Ability Attribution

Source	*DF*	*SS*	*MS*	*F*-Value	R^2	*R*	*SE* Estm.
Regression	4	217.123	54.281	8.383 $p<.001$	.469	.685 $p<.01$	2.544
Residual	223	1443.861	6.474				
Total	227	1660.984					

Parameter	Estimate	STD ERR	STD *B*	*T*	Sig.
Intercept	-1.174	3.939	VALUE	-.298	.767
X_1	.523	.251	.252	2.016	.048
X_2	1.066	.254	.623	4.196	.000
X_3	.097	.232	.067	.418	677
X_4	.135	.223	.079	.604	.549

Table 17
Multiple Regression Analysis for Y = P E, X_1 = BIIQ, X_2 = TMS, X_3 = Effort Attribution and X_4 = Ability Attribution

Source	*DF*	*SS*	*MS*	*F*-Value	R^2	*R*	*SE* Estm.
Regression	4	89.039	22.259	2.45 $p<.05$	.202	.449	2.802
Residual	223	2025.026	9.080				
Total	227	2114.065					

Parameter	Estimate	STD ERR	STD *B*	*T*	Sig.
Intercept	38.570	5.887	VALUE	6.552	.000
X_1	-.744	.345	-.310	2.156	.047
X_2	.103	.380	.054	.271	.960
X_3	.231	.347	.138	.665	.335
X_4	.576	.281	.288	.2.075	.049

Ability attribution (X_3) loaded on PE significantly B_1 = .288: p< .047 that is, the greater the ability attribution, the higher the self-efficacy perception. The model thus gained predictive strength with the addition of X_4 (R^2 = .202). It may be recalled that the value of R^2 was .125 with two variable X_1 and X_2 model (Table 11). The extended model provided statistically significant prediction for PE F (4,223) = 2.451, p<.05) though not as strongly as in the case of TE.

From the findings of multiple regression analysis we conclude that TMS strongly influenced TE aspect of teacher efficacy, whereas a fixed view of intelligence and ability attribution variables influenced PE. Of *effort* and *ability* attributions as intervening/context variable, only the latter strengthened the effect of cores variable for the PE dimension only. It is in order however to mention that *effort* attribution which is apparently a null contributor towards TE has a strong correlation with it (.532, p<.01). In fact introducing effort (X_3) after TMS (X_2) in the order/sequence of variables left little for the former to affect TE, because of high covariation between the two (r = .532, p<.001). Iqbal (1988) also found effort invoking teaching strategy from the students as an enabling approach and a better way to influence the school system. It underlies a belief in the spirit of effort to overcome learning limitation.

Path Analysis

Correlational and multiple regression analyses facilitated us in understanding path analysis technique to bring out further probable linkages along the proposed path diagram. Fig.3 shows both direct and indirect effects on teacher efficacy. A series of regression equations were carried out to obtain estimates of all the direct effects, expressed as *B* values or path coefficients that indicated strength of association between exogenous variables and endogenous variables, controlling other variables in the path sequence, (Table 18 & Table 19). Indirect, spurious, and total effects were worked out in Table 20 followed by a full illustration as in Fig.4, indicating all the link-paths and their coefficient values including *R* (residual) values. Path *R* attached to each dependent variable accounts for the effect of all unmeasured forces/factors.

Table 18
Direct Effects on TE from Regression Analysis

	Effects on TE	(Intercept) Parameter estimate	*B* estimate	*T*	R^2
Eq. 1		(10.448)			.134
	of BIIQ	.763	.366	2.518**	
Eq. 2		(.478)			.459
	of BIIQ	.476	.219	1.910*	
	of TMS	.972	.576	4.900***	
Eq. 3		(193)			.464
	of BIIQ	.502	.240	1.968*	
	of TMS	.064	.642	4.222***	
	of ability	.133	-.092	-.488	
Eq. 4		(- 1.222)			.466
	of BIIQ	.507	.244	1.999*	
	of TMS	1.006	.606	4.920***	
	of Effort	.195	.091	.911	
Eq. 5		(- 1.174)			.469
	of BIIQ	.523	.251	2.016*	
	of TMS	1.066	.623	4.196***	
	of ability	.097	-.067	.418	
	of Effort	.135	.079	.604	

Note. *B* indicate size of the effect of the corresponding variable on TE, the dependent variable.

$N = 227$. *p<.05 **p<.01 ***p<.001

Table 19
Direct Effects on PE from Regression Analysis

	Effects on PE	(Intercept) Parameter estimate	*B* estimate	*T*	R^2
Eq.1		(39.966)			.103
	of BIIQ	-.705	-.293	1.997*	
Eq. 2		(39.717)			.121
	of BIIQ	-.786	-.327	2.101*	
	of TMS	.200	.104	.671	
Eq. 3		(37.717)			.226
	of BIIQ	-.779	-.324	2.030*	
	of TMS	.160	.083	.557	
	of ability	.548	.274	1.702*	
Eq. 4		(38.448)			.132
	of BIIQ	-.712	-.296	1.875	
	of TMS	.123	.051	.328	
	of Effort	.252	.143	.761	
Eq. 5		(38.570)			.202
	of BIIQ	-.744	-.310	1.917*	
	of TMS	.103	.054	.271	
	of Effort	.231	.138	.665	
	of ability	.576	.288	1.724*	

$N = 227$, $*p<.05$.

Table 20
Decomposition of Direct and Indirect Effects from Path Analysis

	Direct	Indirect	Total	Spurious[K]	Zero-Order r
<u>On Teaching Efficacy (TE)</u>					
		.112[a] (via ability)	.363	-----	
i) of BIIQ	.251				.366
		.139[b] (via effort)	.390	-----	
		.059[c] (via ability)	.564	.076	
ii) of TMS	.623				.640
		.055[d] (via effort)	.678	-.038	
iii) of Ability	.067	-----	.067	-.048	-.115
iv) of Effort	.079	------	.079	.301	.380
<u>On Personal Efficacy (PE)</u>					
		-.041[e] (via ability)	-.351	-----	
i) of BIIQ	-.310				-.328
		-.036[f] (via effort)	-.346	-----	
		-.002[g] (via ability)	.052	-.008	
ii) of TMS	.054				.044
		-.007[h] (via effort)	.047	-.003	
iii) of Ability	.288	-----	.288	-.083	.205
iv) of Effort	.138	-----	.138	-.051	.087

Note: Indirect effects are product of all direct effects along the pathway (see calculations on appendix - iv).

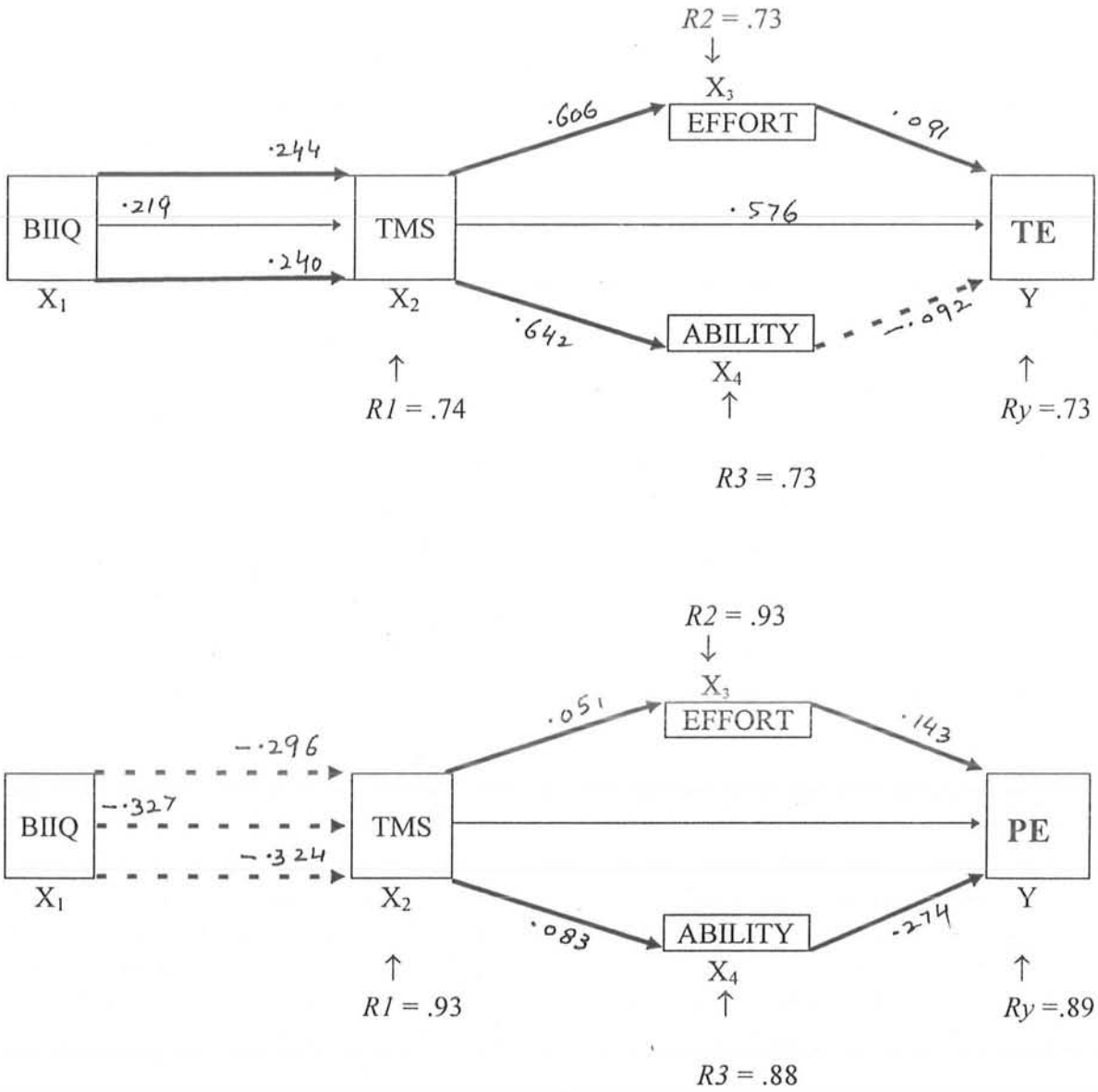

Figure 4. Order of variables for TE and PE aspects of efficacy and its path coefficients. (Mini arrow lines i.e. ↑ are residual coefficient *R* for each endogeneous variable. These are un-measured influences which are assumed to be un-correlated with the measured ones (*Bs*), estimated as $Uy = \sqrt{(1 - R^2)}$

Prediction for TE . Path interpretation of regression coefficients for endogenous variables TE and PE from Table 18 and 19 respectively follows.

(i) Of all the path coefficients from the antecedent variables to effect variable i.e. TE, those from BIIQ (X_1) and TMS (X_2) were significant $B_1 = .251$, $t = 2.016$, $p<.05$, $B_2 = .623$, $t = 4.196$, $p<.000$ (Eq.5, Table 15). TMS (X_2) had a strong virtually all direct effect on the effect variable since it had almost no shared effects with ability (X_3) or effort (X_4) attribution. TMS had a large influence on TE score and it even mediated the effect of BIIQ on TE.

(ii) BIIQ influenced TE directly as well as indirectly only moderately. Its indirect effect mediated by TMS was about half (B .366 --.259 = .126) of its direct effect $B = .219$ (Eq.2). It had no spurious effect as (its total effect equals its r) it had no prior variable in the proposed model to share effects.

(iii) TMS affected TE almost exclusively or directly and the indirect effects via effort or ability attribution were very negligible (.055, & .059 respectively), contrary to our prediction. These variables that were proposed as intervening variables had little indirect or direct effect on TE.The bivariate relationship between *effort* and TE ($r = .380$, $p<.05$) was however largely (2/3rd) spurious due to effect of task-motivation (X_2).

Prediction for PE . Path analysis for PE revealed the following (Table 19):

(i) BIIQ (X_1) had a significant negative path to PE (B_1 = .310, t = 1.97, p<.048).

(ii) TMS was the least useful variable in predicting PE (B_2 = .054) which is theoretically consonant with finding (i) above: the stronger the view about ability as fixed entity, the lesser the task motivation.

(iii) Effort attribution influenced PE with a modest direct effect (B_3 = .138), one third of which was spurious due to the effect of BIIQ, a variable negatively associated with PE (Table 20). Ability attribution, however, emerged as significant predictor of PE (B_4 = .288, t = 1.724, p<.05). It means that teachers with high PE scores attributed ability as causal of students' success or failure.

All the three findings are theoretically consistent and reveal the psycho dynamics of PE scale in our sample of teachers. Having a high personal efficacy as teacher meant that they strongly entertained concept of ability as fixed entity and likewise tend to attribute student outcome to their *ability*, not to *effort*. Negative association of BIIQ to PE psychologically corroborated the significance of ability attribution as predictive of PE attitude of teachers. That is, the lower the concept of intelligence as an incremental quality, the higher the focus on *ability* in influencing student achievement for persons having high self efficacy perception. BIIQ and TMS as antecedent variables, and ability attribution as

intervening variable, (Equation 3 in Table 19) significantly predicted PE $F(3,223) = 2.52$, $p<.047$. It explained 22% of the variance ($R^2 = .226$). Negative BIIQ or a view of intelligence as a non-incremental fixed quality and ability attribution characterised teachers of high personal efficacy beliefs in our sample.

The hypothesis of effort---ability attribution as intervening/situational school-context variable was partially supported. For instance *effort* did not add to the prediction of TE aspect of teacher efficacy after task motivation was introduced revealing that bulk of the bivariate relationship between effort and TE was spurious. Ability attribution had little effect on TE. Attribution of ability, however proved as a potent intervening factor predictive of PE aspect of teacher efficacy.

The conclusion is that path analysis unfolded the respective psychological perspectives of TE and PE dimensions of teacher efficacy. BIIQ and TMS (both in the positive direction) were found strongly salient to TE dimension ($p<.01$), the latter had all direct effect on TE and mediated half of BIIQ's effect on TE. The effect of BIIQ was moderate and that of effort attribution was largely spurious, BIIQ (in the negative direction) and ability attribution (in the positive direction) were found moderately salient to PE dimension ($p<.05$). Effort attribution and task motivation proved to be null variables for PE.

Influence of Sociological Characteristics on Teacher Efficacy

It was hypothesized that characteristics such as gender and subject discipline of teaching (arts/science) would be associated with teacher efficacy. We expected this association to vary between men and women and science and arts (subject discipline) teachers.

Academic discipline

Since discipline and gender are genuine dichotomies, their association with teacher efficacy was estimated through Point bi-serial correlation i.e. rpbi.

Table 21
Association of Aacademic Discipline and Gender with Teacher Efficacy

		TE			PE		
Teacher Characteristics	*N*	*M*	*SD*	*rpbi*	*M*	*SD*	*rpbi*
Discipline							
Arts	136	17.14	3.45		33.78	3.51	.002
				.151*			
Science						3.42	
	91	18.09	3.19		33.80		
Gender							
Men	158	17.80	3.60		33.75	3.51	
				.109			.015
Women	69	17.00	2.76		33.80	3.32	

* $p<.05$

The rpbi depends directly upon differences between two means, A significant departure from the mean difference of zero in the case of academic discipline made it a significant correlation($r\ pbi = .151$, $t = 2.31$, $p<.05$). It means that the association of scores of science teachers with teacher efficacy (TE) was significantly greater than the same for the arts teachers supporting the hypothesis of difference. The PE dimension did not covary with subject discipline.

Gender

The association was not found to be significant for men and wemen. That is, the association of men teachers' score to TE or PE was not different than that of women. Our hypothesis of no gender differences was supported.

Experience

Experience is also a dichotomous variable, e.g. novice and experienced teachers. However in view of a large range in the period of experience reported by the respondents (Table 4), period was divided into three categories; little, some, and large for a meaningful and discriminating analysis. Controlling the influence of academic discipline which has been already found as a significant test factor, we estimated conditional relationship between period of experience and teacher efficacy score through cross tabulation method.

Table 22

Relationship Between Teacher Efficacy (y) and Experience (x), Controlling for Subject Discipline (Science, Arts).

Y	Score	Science			Arts		
		Little Experience Zero Year	Some Experience 5-10 Years	Large Experience 11-20 Years	Little Experience Zero Year	Some Experience 5-10 Years	Large Experience 11-20 Years
TE							
	18 & above	64% (11)	58% (24)	56% (17)	65% (19)	44% (16)	55% (41)
	Below 18	36% (6)	42% (17)	44% (13)	35% (10)	56% (20)	45% (33)
PE							
	35 & above	47% (8)	54% (22)	50% (15)	45% (13)	42% (15)	49% (36)
	Below 35	53% (9)	46% (19)	50% (15)	55% (16)	58% (21)	51% (38)

N=227, Y = dependent variable (s) e.g. TE, PE in this case.

The following findings are note worthy in view of Table 22.

1. PE did not systematically relate to different categories/length of experience of teachers. TE showed a comparatively marked differentiation but it too fell short of significance. Thus teacher efficacy as measured by *TES* did not relate to *experience*. This finding is discrepant to that of Soodak and Podell (1993) who found perceived efficacy to rise with experience. Several researchers interpreted it as stability in efficacy after an enhancement in the initial/preservice years (Guskey & Passero, 1993; Korevaar, 1990; & Midgely, Feldlaufer & Eccles, 1988).

2. Interestingly, greater proportion of novice teachers (30 out of 46 = 65%) scored above the median point on TE than the experienced teachers (98 out of 181 = 54%) which means they were more optimistic about the outcome of their teaching efforts than the experienced ones. The difference between the two proportions, however, fell short of significance ($z = 1.35$ *n.s.*).

3. TE score of arts teachers were unsystematic unlike that of the science teachers. (The former cover a varied type of discipline; language arts to social sciences, the latter are a compact group of natural sciences i.e. Biology, Chemistry, *Physics* at the school level).

4. TE and PE scores were strong or weak to an almost equal proportion between the experienced and the novice teachers' *group*.

Profile of Pakistani School Teacher

Data from teachers in Pakistan characterize a two factor structure of TES that is discrete but also opposite to each other in their motivational dynamics. Teachers of this sample appear to have a tendency to give a predominantly *yea* response to PE statements that focus on ability The typical or average score on PE was 33 with a theoretically possible range of 10-40 scores. PE attitude supported the notion of the efficacy of abilit*y* rather than effort to bear on positive educational outcome. TE score, on the other hand, was close to average ($M = 17.5$, in a possible range of 8-32). Our teachers thus had comparatively stronger

tendency to endorse personal efficacy (internal self dimension) than teaching efficacy (the external conditions) aspects.

The degree of task motivation of the respondants was average. They entertained incremental view of intelligence with the same degree. Psychological theory posits that the former depends upon the latter. Both the variables are positively correlated with TE. Teachers who scored high on both TE and PE had higher task-motivation. A high TE, low PE profile was associated with beliefs in malleability of intelligence, and had a developmental/incremental view about IQ.

Subjects believed that effort counted toward success and ability accounted for failure. Generally they appreciated effort more than ability as related to educational outcome.

It is noteworthy that particular institution (IER or ÇEM) or gender differences were not salient to our sample. Experienced teachers were not any more confident than the novice, or professional experience had failed to boost-up their sense of efficacy about the job. However, science teachers were more confident than arts teachers in believing that they would overcome student difficulties.

Chapter 4

DISCUSSION AND CONCLUSIONS

The construct of 'teacher efficacy' has been diversely explored in educational research; a sense of power within a school, feeling of responsibility for students' success or failure, sense of academic futility or some composite of these beliefs. Thus it is important to first know how efficacy was conceptualized and measured in a study. We had a clearly psychological perspective in investigating this concept and took it as teachers' judgment in self competence and student outcome vis-a-vis instructional strategies and related classroom tasks. Further, we approached the concept of teacher efficacy from motivational and goal theory perspective. Teachers' goal in teaching are supported by their beliefs related to achievement, school, students etc.

Validity of 'Teacher Efficacy' Construct

Teacher Efficacy Scale yielded similar factor structure as that found in the Western samples. The relevance of the construct of teacher efficacy and its measure to our sample of teachers was upheld. The results of factor analysis were well comparable with those of Gibson and Dembo (1984), Woolfolk and Hoy (1990), and Soodak and Podell (1996). Pakistani data characterized TES as having two factors TE and PE as independent or least related (r = --.114) aspects of efficacy. Our hypothesis in this regard was upheld and it supported Bandura (1977): "One can entertain a sense of high self efficacy without being optimistic about bringing achange in others" (p.112). Thus PE and TE aspects of

teacher efficacy may exist as discrete motivational qualities; the former as judgment of one's capability to perform at certain level, the latter as judgment that such behaviour will bring the desired outcome or effect.

We now turn from a question of structure of TES to that of its meanings. Two-facet construct of teacher efficacy, measured through TES as investigated here is based on Bandura's concept of self expectations and outcome expectations. Within this frame work and cognitive motivational theories, certain variables/concepts were selected, measured and related to both TE and PE dimensions. Task-involvement, as a goal, emerged as strongly associated with TE (TMS--TE r = .64, $p<.01$)---the belief that students' background difficulties can be overcome and they will change as a result of teaching/education. Beliefs that intelligence as a vehicle for learning and achievement is a malleable quality which can be improved with effort and industry seemed to underlie task-involving teaching strategies ($r = .366$, $p<.05$). As opposed to effort, the factor of ability as attributed to student achievement, was negatively associated with TE (Table 8). These findings and relationships are consistent with goal theory of motivation. Task-involvement as a goal in teaching behaviour, as opposed to ego-involvement, implies strategies conducive to learning for all I.Q. levels. In this context, TE can be called an adaptive, positive, and favourable attitude or perception in teaching. Woolfolk and Hoy (1993) found conceptually similar results in their study of preservice teachers in that teachers' bureaucratic orientation and attitude towards control in the classroom was negatively correlated with TE ($r = -.42$, $p<.01$) and weakly positively correlated with

PE (r = .18, p<.05). Their interpretation was that the more the subjects believed in the power of the school to overcome home and background factors (TE), the more humanistic was their orientation towards pupil control. The variables and the constructs that were held as predictive of TE (i.e. TMS, BIIQ, effort-ability attribution) explained 46% of the variance in TE scores (R^2 = .469). The choice of variables/concepts hypothesized to explain TE aspect of efficacy were found to be fairly predictive and relevant. Task--ego goal theory of Nicholls which is generally applied to student learning motivation, has been found equally useful to explain teacher motivation. Similarly, Weiner's ability vs. effort attribution paradigm also differentiated between teachers; those having low TE scores endorsed ability attribution, others having high TE score ascribed student success to effort.

PE attitude, on the other hand, was negatively associated with incremental concept of intelligence (r = --.328, p<.01), unlike TE. Again unlike TE, PE attitude was significantly associated with 'ability' (as a perceived cause of student achievement) and 'effort' was found to be unrelated to it. In other words PE attitude entailed both a traditional view of ability --- a belief that it is an inherent quantity that cannot be enhanced or controlled (Elliot ξ Dweck 1988), and a concern for lack of ability as influencing student achievement.

Negative path from incremental beliefs to PE, and a positive path from ability to PE revealed latent meanings of the construct of personal efficacy for our subjects in general. This configuration implies that task orientation as a teaching strategies is not in general salient to PE dimension of efficacy, but where high TE conditions accompany and interact with it (Table 9). In other words PE contributes more in teaching under TE attitude/conditions simultaneously.

All the three findings are motivationally related, that is,: PE dimension broadly indicates (a) a focus on ability, (b) a traditional view of ability or intelligence, and (c) a rather weak sense of task-orientation. However, these indications reflect on 'personal efficacy', as an individual measure in isolation of TE aspect. It may be noted that PE was found to work poorly, in terms of task motivation, when it is accompanied with low TE, however it works better under high TE conditions. Table 9 indicates in details how high PE attitude in interaction with high TE attitude is conducive for building up teachers' motivation and task orientation. This is an interesting finding. The current data demonstrates the importance of multivariate analysis in specifying complex relationships. Nevertheless PE could only be weakly predicted $R^2 = .202$, $p<.05$ compared to TE ($R^2 = .469$, $p<.01$).

For instance negative causal path from incremental beliefs to PE, and a positive causal path from ability to PE revealed latent meanings of the construct of personal efficacy for our subjects. We might have otherwise taken PE as a positive attitude.

A critical reading of TES indicates that PE statements predominantly focus on teachers' ability, skills, training percepts, and student control measures, signifying an ability related---"What I can do," approach; whereas TE statements indicate a focus on teaching, effort and task-orientation--- "what can be done to students" approach. Higher local base score on PE (i.e. a mean score of 33 on PE scale which has a theoretically possible mid value of 25) indicated that PE statements appeared salient to this sample of teachers. It also reflected a discrepancy in the strength of beliefs and norms of teaching between teacher population in Pakistan and that in the West where the scale was conceived and anchored. Likewise, a lower base rate of 17 for TE scale corresponding to a theoretical base value of 20 (which would also be the base rate in the Western population of teachers) further indicated discrepancy in the other motivational direction. These differences denote personal as well as situational/cultural effects of the two populations, which need to be kept in view while interpreting data from the cross cultural perspective.

Interactive Significance of TE and PE Aspects

Can TE and PE, two independent and discrete beliefs, co-respond? An interactive PE by TE levels of efficacy analysis was found to provide an affirmative evidence. (Table 8 & 9). It appeared that certain conditional relationships existed as different levels of PE and TE (scores) interactively influenced other variables/constructs. For example subjects with high TE were more task oriented than those with low TE score however this relationship existed more strongly for those who had a high PE as well as high TE level than other levels of efficacy e.g. (hi TE, lo PE or vice versa). Our hypothesis that teachers who score high on both TE and PE will be more task oriented than those who score low on one or both the dimensions, was supported, (Table 8). The interactive effect for the variable of incremental concept of intelligence was also supported but in a different direction: Teachers high on TE but low on PE displayed a stronger belief in intelligence than subjects in other interactive categories (e.g. lo, lo, or hi, hi, Table 9). These findings revealed that discrete aspects of efficacy such as TE and PE are sometimes related in opposite way. Thus studies that simply combine the two dimensions into one index (e.g. Ashton & Webb, 1986; Guskey, 1988) are likely to miss important relationships.

Similar conditional relationship were found with various attributional pattern for student success and failure. For example, our data confirmed a general finding of the attribution research that failure is attributed to ability and effort is perceived as salient to success

(Bandura, 1986; Schunk, 1991), it however additionally revealed that the former view was supported by low TE, high PE efficacy group of teachers whereas the latter was endorsed by high TE, low PE group (Table 15). These contrasts are theoretically consistent with the motivation theory and inform us how TE, PE interaction crystallized effort -- ability percepts in achievement/school settings. It may be mentioned in the last that cross-tables detected interaction effects which were otherwise not interpretable from the correlation coefficients. For instance high level of PE by high level of TE facilitated stronger task orientation than high TE/low PE. PE positively contributed amidst high TE conditions though overall task -- PE correlation was nil (r = .044). The two methodologies led to different interpretation of the data. Techniques providing better control procedure provided a refined analysis, that is, interaction could not be detected by simple correlation method.

TE and PE Imply Different Motivational Frames

The model employed to explain teacher efficacy found task goal as strongly predictive of teaching efficacy (TE) beliefs. Incremental beliefs, as another variable was a modest predictor of TE. The latter facilitates the former (Elliot & Dweck, 1988). Both of these variables had positive influence paths and signs to endogenous variable TE, resulting in a robust regression prediction (R^2 = .463). On the other hand the same variables predicted PE in a different pattern; a fixed concept of intelligence (B_1 = - .310, p<.05) and a focus on 'ability' attribution (B_4 = - .288, p<.05)

as causal of student achievement toned down task motivation ($B_2 = .054$) and belief in the efficacy of effort ($B_3 = .138$). It was, however, a weak prediction ($R^2 = .202$) which left bulk of the variance unexplained. Patterns of relationships for TE and PE endogenous variables were thus found to be distinctly different, and meaningful in the motivational framework of this study. Briefly, a focus on *task* and concern for *effort* was central to TE, a focus on ability and concern about deficiency in ability (for ability connotes an evaluation on the lower side, that is taking it as less than sufficient [Ames & Jennifer 1988]) was salient to PE. 'Effort' and alternatively 'ability' attribution assumed to be reflective of school culture/conditions as a context variable, was hypothesized to mediate the effect of core exogenous variables (i.e. task motivation and incremental intelligence beliefs) on PE and TE the effect variables. 'Ability' did contribute to the prediction of PE significantly ($B_4 = .288$, $p<.05$). Its correspondence with non-incremental/fixed concept of intelligence, jointly loaded on PE significantly F (3,224) = 2.45, $p<.05$. Task orientation and 'effort' appeared to have limited influence on PE ($B_2 = .051$ & B_2 .143, respectively). A focus on 'ability' in PE conditions seems to have retarded task motivation there. Attribution-motivational framework thus proved relevant in our model for assessing motivation in achievement settings. For the prediction of TE, ability attribution contributed little just as effort attribution was of trivial significance in the prediction of PE. 'Effort' did not figure well in the prediction equation for TE largely due to the order or sequence of variables; that is, task motivation (X_2) a strong correlate of effort (X_3), over

shadowed the latter by preceding in the array/order of variables (Figure 3 & 4), otherwise effort-TE correspondence (r = .532, p<.01) was far more robust than ability--PE correspondence (r = .205, *ns*). Applying same set of predictor variables to both TE and PE, the effect variables, we wanted to differentiate between the two attitudinal states in terms of their motivational meanings and relevance to teaching. Interestingly, the predictors salient to TE were not significant to PE. The prediction thus explained what TE and PE aspects of efficacy signified despite the model's limited efficacy to predict the latter aspect strongly. In view of the above analyses, we take TE as a motivationally adaptive and favourable attitude in teaching and school work, however personal efficacy which is denotatively a desirable construct empirically works favourably in high TE conditions but not so well when accompanied with poor TE conditions. Its motivational meanings, in our data/culture revealed it to be adaptive attitude but limited to high TE attitude simultaneously (Table 10). Otherwise PE attitude, had a rather modest gross/overall correspondence with task orientation approach in teaching (B_2 = .104). The analysis provided us a conditional interpretation of the efficacy of PE relevant to our population of teachers. In Bandura's account, self efficacy is constellation of personal beliefs that emerge from subjects' interpretation of their experience. In our teachers' conception, 'ability' underlay personal efficacy a cross-cultural finding.

Outside the prediction analysis/model, teaching experience and Science vs. Arts discipline, as sociological variables, assumed as antecedent hence one that could influence teacher efficacy.

The latter significantly differentiated among teachers in the strength of their beliefs in overcoming external student conditions i.e. TE. A self perception or PE scores however did not differentiate between science and arts teachers.

One account of experience, however, teachers could not be differentiated regarding their score on both TE or PE. That is the experienced and less experienced obtained about the same TE and PE scores. Most of the cross-sectional studies examining the influence of experience on teacher efficacy found no significant difference (Guskey & Passaro, 1993; Korevaar, 1990; Woolfolk, Roseff & Hoy, 1990). The researchers concluded that stable efficacy is the characteristic of experienced teachers. This study confirms the findings of the previous researches. According to Imants and Brabander (1996), teachers' sense of efficacy changed/improved rapidly in the initial years but then it stabilized soon, hence no gain in perceived efficacy was observed beyond a certain period. Dembo and Gibson (1985) found changes beyond 5 years as minimal. The criterion of experience, in our study was chronological i.e. numbers of years spent in the teaching job. May be this criterion was not sensitive to critical difference in teachers as could perhaps be reflected in efficacy scores on TES. According Social Learning Theory, a sense of personal efficacy emerges from subjects' interpretation or value of his/her experiences. It can be thus said that teachers with greater experience in this study perhaps did not perceive their teaching skills as more valuable than what the novice perceived. Constancy in school conditions seems to explain efficacy stability or lack of professional growth/change in particular studies.

Teachers' Motivational Beliefs Profile and its Implications for Teaching and Teacher Training Effort

A strong task orientation in teaching (as a goal), an incremental view about intelligence, and a greater focus on effort than on ability would theoretically characterize the profile of high TE, high PE teachers. On the other hand, the profile of this sample of teachers showing high self efficacy perception---PE but moderate outcome expectations (about student learning/achievement)---TE, presented the following characteristics:

1. A perception of high personal efficacy (PE)---a tendency that was uncorrelated with task orientation, negatively associated with incremental view of intelligence, and positively and strongly related to ability (than to effort causal attribution) was found to characterize our sample of teachers. As such, they will be prone to emphasize ego-goals in the classroom.

2. In motivational terms, a TE attitude was found to be desirable in that it was associated with a task-oriented approach in teaching, bore a positive relationship to incremental percept of ability, and emphasized effort as causal of achievement. However mean score of 17 in our sample which is lower than mid value of 20 on TE scale was indicative of deficient beliefs in the perceived efficacy to bring about an optimum student outcome. Science teachers had relatively stronger TE perception about themselves than the Arts teachers.

3. A higher base rate for effort than for ability attribution was obtained on the whole, however, the low efficacy (lo TE, lo PE) group among them attributed failure to lack of ability more often than to lack of effort.

The extent to which teachers believed they affected student learning is called an efficacy perception. Reviewing research over a period of decade, Good (1981) concluded that classroom data suggest that teachers' beliefs influenced teaching patterns and achievement gains in students. In view of this characteristics of the above profile must also bear on pattern of teaching and teaching outcome. An analysis of the teachers' profile from the perspective of social learning theory (SLT) is as follows:

In SLT, two major sources of motivation are; (a) outcome expectation and (b) self motivation, i.e. TE and PE respectively in the teaching situation. These aspects of motivation have different degree of strength and psychodynamics in this data. For instance high PE among our subjects indicated strong self satisfaction with one's perceived level of skills and abilities as a teacher. By SLT account, this perception is relative to efficacy standards observed in teachers in the schools as models. Teachers in general evaluate their self efficacy vis-a-vis such models/targets. The high PE score of teachers in this sample can therefore be explained as a case of simply regarding or interpreting a mediocre performance (i.e. nearly 50 % result in Matriculation, and High Secondary School Examination) as sufficient and acceptable in the government schools.

This determined their perception of self efficacy or PE score. A reference to Bandura and Kupers' (1965) experimental study illustrates the point: Children who had seen rewards only for the excellent performance followed the high standards exhibited, while those who saw rewards for poor standards rewarded themselves with similar performance. In our study, subjects rewarded themselves with a perception of high or sufficient efficacy for just mediocre teaching outcome (e.g. 65% result in Matric and 35 - 40% in Higher Secondary School) because they observed most of the teachers showing barely average standard and student outcome. Bandura's (1977) theory identifies information about performance of others and that of one's own as two major sources of self efficacy. The social norms and standards of the school affect teachers' satisfaction and self efficacy perception. Teacher results pass off usually undemanded and unchecked by the School Inspectorate here. Besides, no incentives are stipulated for higher teacher performance. The prevalent norms and standards, when internalized and self-imposed, gave our teachers a sense of satisfaction and efficacy. Elliot (1989) regarded school as a critical context for teachers in determining their efficacy perception. The social world of school that contains low-standard models of teacher behaviour forms the school culture as a forceful organizational variable which seems to have affected the school outcome in Pakistan . A high perception of self efficacy for just average outcome indicates low targets as a norm for the school teachers. Their behaviour, as Sarason (1971) suggests must be seen and interpreted within the context of social norms of the school/organization. Bandura (1977, 1986) also claims self efficacy as a context dependent characteristic. The scenario of our government schools and their effect on

teacher behaviour bears serious implications for the teaching profession as well as for the teachers at the school level.

By SLT doctrine, a change in the outer/social reality of school can be instrumental to bring about a change in teachers. The social reality of schools can be manipulated by erecting and reinforcing teachers exhibiting high standards/role models to be observed and emmulated by other teacher. The standard or level for teacher excellence can be regulated by applying reinforcement contingencies. A relationship of defined teacher outcome---immediate consequence, is missing altogether at present, leading to a state of apathy and indifference in teachers. To counter such a situation, the teacher excellence, wherever found, may be recognized and valued to guide teacher efficacy. A model or standard-organsim-behaviour-consequence (S-O-B-C) paradigm should be applied in schools as an external persuasion technique to motivate teachers to show better performance. This will concomitantly also serve to rationalize their inflated self efficacy perception viś a defined target/standard to be regulated by the department of public instructions.

Teachers' motivational beliefs profile may also be appreciated from internal cognitive perspective. A deficient TE perception indicated lack of adequate/average beliefs that external difficulties can be overcome, and teaching and education can be an enabling experience for the students. Such a perception is likely to undermine teachers' morale. Besides, more focus on ability than on effort by low efficacy group of teachers

(lo TE, lo PE and lo TE, high PE) would also have adverse impact on teaching strategies and consequent teaching outcome. There is evidence that low efficacy teachers as focus on ability apply ego-involving strategies which undermine learners' effort motivation as well as achievement gain specially on complex tasks (Sarason, 1975; Nicholls, 1979, 1980, 1983). It may be noted that task-oriented strategies (TMS) found no correlation with ability (r = .044) in our data as well. As a remedy for such situation, cognitive theorists suggest that teachers' educational beliefs can be corrected or changed through an intervention in teacher training effort. (Gist, 1987; Frayne & Latham 1987). Studies provide evidence that efficacy beliefs can be moderated. For instance, Ferstarling (1985), in a survey of 15 studies reported that cognitive persuasion methods have been successfully applied to indoctrinate failure as a result of insufficient or lack of effort rather than ability. Schneider (1992) claimed that as a result of such cognitive re-training, teachers' cognition changed favourably and their expectation of success arose. For subjects as of this study, teacher training programme need to be geared to belief change for making teachers responsible for their work, focusing on effort (as a controllable and enhancable strategy) and cultivating task orientation in teaching strategies. Teachers may stipulate to themselves and to their students the rationale for an activity they embark upon in the classroom. This rationale can potentially orient them to focus on task and value effort. Dweck and Leggett (1988) emphasize that fixed ability views generally develop in childhood in school socialization process, last in the absence of an appropriate intervention. A teacher training programme inclusive of psychological education and 're-cognition' on these lines can potentially bring about desirable change

in beliefs and goals of teachers in our subjects that will guide their classroom action. Beliefs in teaching efficacy---that students' difficulties and limitations of background factors can be overcome are critical to school efficacy or power of the school and education to change students. Teacher education programmes in Pakistan have exclusively emphasized on cognitive skills and competencies, overlooking the affective dimension of teacher behaviour comprising beliefs and values that influence the way teachers perceive, organize and react to different situations or stimuli in the school environment. In fact this investigation has increased our awareness of the idea that it is not enough to have just skills and knowledge to be effective teachers, the goals teachers pursue in teaching and the beliefs underlying them are equally important in their impact on teaching and learning in the classroom, and in case the same are not compatible with the objectives of the curriculum and the intended beliefs and attitude formation therefrom, in Zichner and Tabacknick's (1981) words, it may wash out the whole effect.

Conclusions

Whereas this was an exploratory study and participants comprised a select group of government school teachers enrolled in a higher teacher education programme, general conclusions, within such limitations, have been made as follow:

First, teacher efficacy construct was found to comprise independent factors of personal efficacy, and teaching efficacy beliefs similar to the findings in the Western researches. Urdu version of Teacher Efficacy Scale warranted this finding. The scale is deemed to be valid for local use as a research tool and can potentially identify preservice entrants for

selection, diagnostic and instructional purposes, in teacher education courses, vis-a-vis their teaching beliefs. The generalizability of the concept (of teacher efficacy) and its relevance to teacher population in Pakistan has been supported in this study. We found TE by PE interactive aspect of efficacy as providing more differentiated and theoretically meaningful profiles of teachers regarding their beliefs, goals and attribution patterns, than separate TE and PE indices. Therefore interactive effects between specific levels of PE and TE (PE X TE) rather than the composite score (TE + PE) of the two dimensions as used by Gibson and Dembo (1985) is recommended to be a more appropriate appreciation of the two facit construct of teacher efficacy since the two factors are not only structurally but also functionally discrete as the multivariate analysis revealed it. As predicted teachers who scored high on both TE and PE also scored higher on all the predictor variables than those who were not high on one or both the efficacy dimensions. The profiles of the latter categories of teachers can also be differentiated on these lines.

Second, TE and PE aspects of efficacy were meaningfully correlated with other psychological concepts/variables in this study except that PE aspect was found to (a) associate strongly with ability, and (b) believed ability as a fixed and predetermined, entity contrary to our prediction (Table 8). Based on cognitive motivation theories and concepts, a common model brought out the distinctive psychological perspective and dynamics of the two aspects of 'teacher efficacy' for a more informed use of the construct of teacher efficacy as well as its measure by TES in our school context. As hypothesized, incremental concept of intelligence and task motivation were positively associated with TE. A similar hypothesis was not supported for the PE dimension.

Motivational patterns underlying TE and PE have important implications for teaching and learning since teaching goals bear on students' learning goals. In this context it was culturally very informative to observe that apparently positive sounding variable, *personal (teaching) efficacy*, was intrinsically a maladaptive attitude for teaching functions in our teacher population. Nature of thoughts underlying teachers' personal efficacy beliefs ---that ability is a fixed entity and it is salient to achievement---can probably be reformed within the scope of teacher training courses.

Third, a high PE---lowTE profile of our sample of teachers is a motivationally unfavourable characteristic. Poor school outcome in our country confirms this psychological inference. Interesting enough and contrary to our prediction, the perceived efficacy of the experienced teachers was not found to be higher than that of the novice. Since beliefs determine teachers' practices, these must be focused, challenged and realigned or reframed in teacher education courses. The present outline of teacher-training courses does not contain any intervention of psychological or affective nature. A belief change can also be manipulated by (a) applying reinforcement contingency for defined teacher behaviour as explicit direction and goal, representing the external reality of the school system (b) arranging an internal belief change programme as a component of teacher education courses. This two pronged strategy, (a) S-O-B-C as school condition and an extrinsic reason, and (b) 'cognitive retraining' as an effort to moderate beliefs that act as intrinsic force, is likely to jointly rationalize efficacy perception, enhance school performance, and render teaching experience in government schools a meaningful context factor. The strategy is based on social learning theory as well as cognitive motivation research literature where relevant and applicable to Pakistani school context.

Future Directions

A number of research issues can be addressed in future investigations. First, a replication study may be conducted to confirm the structural analysis of TES on a more representative sample of teachers in Pakistan. The effect of school differences may preferable be controlled as much as possible in the selection of schools in future studies. Studies on different samples of known characteristics will also be useful as validity evidence. For instance, Mitchell and Barbra (1996) report that schools that offered opportunities for teachers to reflect on their teaching fostered more positive changes in self efficacy beliefs of teachers than other schools. Within the scope of this study, for example, we feel a need for studying a more meaningful or qualitative criterion of experience to replace the present purely chronological and quantitative one, in terms of number of years, to investigate for instance Soodak and Podells' (1993) view of developmental nature of the concept of teacher efficacy.

Second, the proposed ~~causal~~ model for PE aspect needs to be reviewed in view of its current poor predictive ability. We applied a common predictive model to both PE and TE aspects for theoretical reasons so that difference between the two aspects can be brought out. A predictive study of PE in a purely psychometric sense, using a multi-variables model, can be useful in understanding PE better. About 80% of the variance in PE scores that remains untapped so for will potentially explain what is motivationally good about PE that makes it, under high TE condition, favourably affect teacher motivation.

Third, when the future researchers find an access to sophisticated statistical software package in Pakistan, like structural analysis through EQS software package (Bentler 1992) and LISREL 6 and LISREL 8 programme (Joreskog & Sorbom, 1993) as reported in recent investigations, a comprehensive and more controlled analysis would be possible. Until then these findings can be treated as tentative. Besides, the potential of Urdu version of TES as a diagnostic tool may be assessed for classifying teachers for various in-service and preservice training intervension purposes and the outcome may be related to TES score for ascertaining its predictive and clinical validity. This will empirically extend the present research work in teacher motivation to teacher education programmes in Pakistan.

Fourth, in future studies, researchers may also test the TES scores between teachers with different student outcome to lend external/criterial validity to TES scores. Likewise teachers appraised on teaching effectiveness by their supervisors and mentor teachers may also be put to TES to find how well it differentiate between them.

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TEACHER EFFICACY SCALE

SHERRI GIBSON, PHD.

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate numeral to the right of each statement.

1. When a student does better than usual, many times it is because I exerted a little extra effort.

2. The hours in my class have little influence on students compared to the influence of their home environment.

3. If parents comment to me that their child behaves much better at school than he/she does at home, it would probably be because I have some specific techniques of managing his/her behavior which they may lack.

4. The amount that a student can learn is primarily related to family background.

5. If a teacher has adequate skills and motivation, she/he can get through to the most difficult students.

6. If students aren't disciplined at home, they aren't likely to accept any discipline.

7. I have enough training to deal with almost any learning problem.

8. My teacher training program and/or experience has given me the necessary skills to be an effective teacher.

9. Many teachers are stymied in their attempts to help students by lack of support from the community.

10. Some students need to be placed in slower groups so they are not subjected to unrealistic expectations.

11. Individual differences among teachers account for the wide variations in student achievement.

12. When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.

13. If one of my new students cannot remain on task for a particular assignment, there is little that I could do to increase his/her attention until he/she is ready

14. When a student gets a better grade than he usually gets, it is usually because I found better ways of teaching that student.

15. When I really try, I can get through to most difficult students.

16. A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.

17. Teachers are not a very powerful influence on student achievement when all factors are considered.

18. If students are particularly disruptive one day, I ask myself what I have been doing differently.

19. When the grades of my students improve it is usually because I found more effective teaching approaches.

20. If my principal suggested that I change some of my class curriculum, I would feel confident that I have the necessary skills to implement the unfamiliar curriculum.

21. If a student masters a new math concept quickly, this might be because I know the necessary steps in teaching that concept.

22. Parent conferences can help a teacher judge how much to expect from a student by giving the teacher an idea of the parents' values towards education, discipline, etc.

23. If parents would do more with their children, I could do more.

24. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.

25. If a student in my class becomes disruptive and noisy. I feel assured that I know same techniques to redirect him quickly.

26. School rules and policies hinder my doing the job I was hired to do.

27. The influences of a student's home experiences can be overcome by good teaching.

28. When a child progresses after being placed in a slower group, it is usually because the teacher has had a chance to give him/her extra attention.

29. If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.

30. Even a teacher with good teaching abilities may not reach many students.

URDU TEXT OF SELECTED TES ITEMS

ہدایات :

نیچے کچھ بیانات معلم، تدریس و دیگر تعلیمی معاملات کے متعلق لکھے ہوئے ہیں۔ آپ بطور معلم بعض بیانات کے ساتھ متفق اور بعض کے ساتھ ''غیر متفق'' ہو سکتے ہیں۔ بتایئے کہ آپ کسی بیان سے کس حد تک ''متفق'' یا ''غیر متفق'' ہیں۔ نیز بتایئے کہ آپ کچھ متفق ہیں یا کافی متفق ہیں۔ اسی طرح آپ کسی بیان سے کچھ غیر متفق یا کافی غیر متفق ہیں۔

نیچے دیئے گئے ہر بیان کے آخر میں کچھ متفق/کافی متفق// کچھ غیر متفق/کافی غیر متفق بطور جواب لکھے ہوئے ہیں۔ آپ ان چار میں سے ایک پر نشان لگا کر اپنا جواب ظاہر کریں۔

1- اگر کوئی طالب علم اپنے سابقہ معیار سے مسلسل بہتر کارکردگی دیکھائے تو اس کی وجہ اکثر اوقات یہ ہوتی ہے کہ میں نے اُس کے ساتھ زیادہ محنت کی ہوتی ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

2- چند گھنٹے اسکول میں رہنے سے طلبہ پر تھوڑا اثر پڑتا ہے۔ جبکہ زیادہ تر ان پر گھر کے ماحول کا اثر پڑتا ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

4- ایک طالب علم کتنا کچھ سیکھ سکتا ہے اس کا تعین بنیادی طور پر اس کے خاندان سے ہوتا ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

6- اگر طلبہ کو گھر سے نظم و ضبط کی تربیت نہ ملے تو پھر بہت ممکن ہے کہ وہ کسی بھی نظم و ضبط کی پابندی نہیں کریں گے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

7- میری تربیت و تجربہ اتنا ہے کہ طلبہ کو سیکھنے میں کوئی بھی مشکل درپیش ہو میں اسے حل کر سکتا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

8- تربیت اور تجربے نے مجھے وہ مہارتیں سیکھائی ہیں جن کی وجہ سے میں ایک قابل استاد بنا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

12- اگر کسی طالب علم کو کلاس میں کام کرتے ہوئے کوئی دقت پیش آرہی ہو تو میں عام طور پر [redacted] کام کو اس کے درجہ قابلیت کے مطابق آسان بنا دیتا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

14- جب میرے طلبہ اپنے معمول سے بہتر نمبر اور گریڈ حاصل کرتے ہیں تو اس کی وجہ یہ ہوتی ہے کہ میں نے انہیں پڑھانے میں بہتر طریقے استعمال کئے ہوتے ہیں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

15- جب میں واقعی کوشش کرتا ہوں تو نہایت کند ذہن اور کم دلچسپی رکھنے والے طلبہ کو بھی سبق سمجھانے میں کامیاب ہو جاتا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

16- استاد ایک محدود حد تک ہی کامیاب ہو سکتا ہے کیونکہ طلبہ کی تعلیمی کارکردگی زیادہ تر ان کے گھر کے ماحول کے زیر اثر ہوتی ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

17 - اگر طلبہ کی تعلیمی کارکردگی پر اثر انداز ہونے والے تمام عناصر کا جائزہ لیا جائے تو ان میں "استاد کا کردار" کوئی مضبوط عنصر کی حیثیت نہیں رکھتا۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

21- اگر میرا کوئی شاگرد ریاضی کا کوئی مسئلہ جلد سمجھ لے تو اس کی وجہ یہ ہوتی ہے کہ میں اس مسئلے کو پڑھانے سے متعلق ضروری عمل سے واقف ہوتا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

23- اگر والدین بچوں پر زیادہ محنت اور وقت خرچ کریں تو اس صورت میں میں بھی ان طلبہ پر زیادہ محنت کرنے پر تیار ہوں گا۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

24 - اگر طالب علم میرا پڑھایا ہوا سبق بھول جائے تو میں یہ جاننے کی کوشش کروں گا کہ اگلا سبق کس طریقے سے پڑھاؤں کہ اسے یاد رہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

25 - اگر میری کلاس میں کوئی طالب علم شرارتیں کرے یا شور مچائے تو مجھے یقین ہے کہ میں اسے جلد ہی درست راستے پر لا سکتا ہوں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

27- طلبہ پر مرتب شدہ گھریلو اثرات کو تعلیم و تربیت سے بدلا جا سکتا ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

29- اگر میرا کوئی طالب علم کلاس ورک نہ کر سکے تو میں ٹھیک ٹھیک اندازہ لگا سکتا ہوں کہ کیا وہ کام اس کی قابلیت کے مطابق بھی تھا یا نہیں۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق

30- ایک اچھی خاصی تدریسی مہارت رکھنے والا استاد بھی کئی ایک طلبہ کو سبق سمجھانے میں ناکام رہ جاتا ہے۔ کچھ متفق / کافی متفق / کچھ غیر متفق / کافی غیر متفق