Chapter - II

Correlates of Academic Achievement
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CORRELATES OF ACADEMIC ACHIEVEMENT

a) Significant studies conducted in India
b) Significant studies conducted in other countries
c) Observations of the researcher regarding above studies

Correlates of Achievement of Candidates Studying in Teacher Training Institutions in India – A Review

The literature dealing with the factors associated with achievement in teacher training course is very large. Some writers have reviewed certain significant literature on the subject. These reviews are first presented in brief. Then a review if their studies in the field is presented.

Previous Reviews

Evans in his article “Research on Teaching Ability and Academic Achievement” has reviewed significant literature on the subject upto 1959 and has concluded: The most obvious deduction from the available evidence is that there is no one pattern of successful teacher. Teaching is a complex process calling for many different abilities, no one of which is by itself sufficient to ensure success. At the same time each of these abilities makes a small but necessary contribution to success and academic achievement.

Don Ray Spirey (1972) attempted a review of the research dealing with prognosis for success of student teaching in “Teacher Education Programme and Academic Achievement” from 1900 to 1971. Some of the findings of his review were:

i) Catells 16 P.F. Questionnaire appeared to be an instrument worthy of further research on prediction of academic achievement.
ii) Such factors as placement in choice of teaching area and location, compatibility with directing teacher at the participating school, time of year of placement, emotional climate of the participating school, etc. seem to be some of the external variables affecting success in student teaching and academic achievement.

iii) There appears to be some indication that intelligence is related to success. In conclusion the need for explicit definition of academic achievement has been stressed.

2.1 Review of the Related Studies in the Field

Attempts to investigate various types of variables in relation to success in teaching and its academic achievement have continued. In these studies at least three different approaches have been followed. Some are simple correlational studies. Few had followed the approach of comparing the characteristics of two or more groups of student teachers classified according to some variable, other studies are multiple correlational. Again in this group of studies some are validity studies of admission procedures and some have attempted the study of theoretical predictors.

Correlational Studies

Dosajh (1956) in his study on a large sample of teacher trainees of the Government Training College, Jullunder during the years 1952-53, 1953-54 and 1954-55 found positive and significant relationship of imagination and maturity with academic achievement.

Saksena (1957) in his study of pupils at Vidya Bhavan Teacher’s College Udaipur found positive and significant correlation between intelligence and teaching personality but no relation between teaching personality and scholastic background and economic status.
Sarangi (1963) found a positive and substantial relationship between emotional maturity and teaching skill of pupil teachers.

Tej Kiran (1964) found high positive relationship between sociability, enthusiasm and emotional stability and good teaching.

Aaron (1968) in his study on a sample of 40 B.Ed. trainees found positive but non-significant relationship between teaching ability (marks obtained in 10 practice teaching lessons) and three types of motivation – n Aoh., n Aff. and n. Pow.

Raina (1970) explored the relation among various measures of non-verbal form of Torrance’s test of creativity and total teaching practice marks for SSSs positive but non-significant relations between fluency and teaching practice marks, flexibility and teaching practice marks, and total creativity score and teaching practice marks were found. The relationship between originality and teaching practice was found to be negative and not significant. The relationship between elaboration and teaching practice marks was found to be positive and significant.

Krishna Iyengar (1972) found significant relationship between need for achievement (n.Ach) and performance of student teachers in student teaching. For measuring need for Achievement, he used a TAT test developed by himself for the purpose.

Patted (1972) in his study conducted on a sample of 93 student teachers attempted to find the relationship between a measure of self perception and total marks obtained by them at the B.Ed. final examination. The correlation obtained was found to be positive and significant.
Patted G. M. studied the perceptual factors and success in teacher education and their academic achievement.

The specific objectives of the study were,
1) To select relevant perceptual factors.
2) To construct tools (measures) to assess the perceptual factors.
3) Evaluate the constructed perceptual tools in terms of validity and reliability.
4) To compute relationships between the selected perceptual factors and academic achievement of teacher candidates of the B.Ed. course.
5) To determine the relative efficiency of the selected perceptual factors in predicting academic achievement of teacher candidates of the B.Ed. course.

In pursuance of above said objectives
1) Self, student, teaching profession, instructional goal and instructional role study based on experts opinion and self experience.
2) Tools to assess the above said perceptual factors were constructed using the standard procedure and their intrinsic and test and retest and split half reliabilities were computed.
3a)
   i) Coefficient of consistency by the split half method 0.62 (n=50)
   ii) Coefficient of stability by the test retest method 0.64 (n=50)
   iii) Range of intrinsic validity was between 0.79 to 0.80 (n=50)
       Judges found the scale to have content validity.
3b)
   i) Coefficient of consistency 0.87 (n=50)
   ii) Coefficient of stability 0.77 (n=50)
iii) Range of intrinsic validity found to be between 0.88 to 0.93 (n=50) and Judges found the scale to have content validity.

3c)
   i) Coefficient of consistency was found to be 0.86 (n=50)
   ii) Coefficient of stability was found to be 0.74 (n=50)
   iii) Range of intrinsic validity was found to be 0.86 to 0.93 (n=50) Judges found the scale to have content validity.

3d)
   i) Coefficient of consistency was found to be 0.66 (n=50)
   ii) Coefficient of stability was found to be 0.69 (n=50)
   iii) Range of intrinsic validity was found to be from 0.81 to 0.83 (n=50) Judges found the scale validity to have content validity.

3e)
   i) Coefficient of consistency of the scale was found to be 0.82 (n=50)
   ii) Coefficient of stability of the scale was found to be 0.69 (n=50)
   iii) Range of intrinsic validity was found to be in the range between 0.85 to 0.90 (n=50) Judges found the scale validity to have content validity.

4) Relationships between perceptual factors and academic achievement of teacher candidates (n=200) from two Colleges of Education – University College of Education and Kamala Baliga College of Education were found to be significant. The correlation's ranged from 0.1480 to 0.3875.

5) Prediction of academic achievement of teacher candidate in B.Ed. course based on self, student, teaching profession and instructional goal perception of teacher candidate is possible.
Multiple correlation was found to be 0.42 (multiple correlation predictors self perception, teaching profession self perception and instructional goal perception was found to be 0.42).

2.2 Correlates of Achievement

The central focus of all formal educational effort is academic achievement on the part of students even though it is derivable to have alround development as the goal of educational process where academic achievement would be just one of the dimensions in most educational institutions academic achievement continues to be the exclusive concern narrowing down the very concept of educational process. Nevertheless it is important to note the achievement in school subjects is not an independent phenomenon. Rather it is directly influenced by a number of factors some of which are personal to the individual while many others are located in the environment on which the learning process takes place. Thus in order to fully understand the concept as well as the process of academic achievement it is imperative to identify and explore various factors related to academic achievement. However the number increased quite speedily and by now there are 175 studies completed in this area. A point that becomes obvious is that the area has been explored essentially as a topic of academic interest rather than of direct practical relevance as very few independent research projects have been completed in this area.

Researcher have studied a large number of Personality characteristics of the learners exploring their possible relationships with academic achievement creativity adjustment attitude and values and other psychological characteristics that have been explored. Socio-economic status directly or indirectly is one variable that finds
a place in large number of students. Some have also studied instructional characteristics and there is a major trend discernable during the last few years where group of specific studies particularly with respect to disadvantaged groups such as scheduled castes and scheduled tribes.


It attempts to study the influence of attitude towards the teaching profession as the achievement of students studying through Programmed Learning Material (PLM), Advance Organiser Material (AOM) and the Practical Method (PM).

To study the effect of treatment, intelligence, attitude towards the teaching profession and their interaction on the overall achievements of the students.

The study was designed on the post test control group design. Therefore three levels of treatment and three group of students. The treatment were randomly assigned to the three groups. The study was conducted in two stages where in instructional material was developed for 109 and 139 Arts and Science graduated admitted during the academic sessions 1983-84 and 1984-85 to the University Teaching Department of Education Devi Ahilya Vishwa Vidyalaya. The tools used included Raven’s advanced progressive matrices and the attitude scale of Kalli Bavnur. The data were analysed using Anova of unequal size.

The mean achievement scores of the students belonging to the three treatment groups differed significantly.

1) Academic achievement of students teachers was related to teaching aptitude, attitude, co-operation, dedication, nationalism, scientific outlook, tolerance and entry level.

2) Female student teachers were found significantly higher in comparison to male student teachers in all the variables, viz academic achievement in total theory and practical, aptitude, co-operation, dedication, nationalism, scientific outlook, tolerance and entry level.

2.3 Educational Evaluation, Examination and Achievement

The educational evaluation procedures and examination have been the subject of extensive research for the past three decades. The work on examination reforms done by the NCERT, the UGC and the Association of Indian Universities under scores the importance that has been attached to this area at the national level. This is quite understandable as under the present circumstances marked by the examination oriented curriculum programmes and the degree linked to job requirements it is the examination which holds the position of premium giving credibility to the whole system of education. Researches on educational evaluation began in the country in 1943 marking the beginning of educational research itself when the Bombay University awarded Ph.D. degree in education to Chickarmane (1943) for his work of factor analysis of arithmetical ability among school children. The area has made thereafter steady progress. Till now 199 studies have been reported on the various aspects of evaluation examination and achievements. An interesting feature is that about 50% of these studies are independent research projects. The large number of research units that were functioning at
various university centres and the committed work carried out by certain individual scholars. The small number of studies that have been reported after 1980 gives an impression that this enthusiasm has been on the wane among the researchers.

The construction of achievement tests for different school subjects has attached number of scholars. Also quite a few studies have been conducted analysing the factorial structure of achievement abilities. The steps in psychological test development without appropriate consideration to more recent developments in the field of achievement testing. The topic that has the biggest proportion of studies in examination, several aspects of examination such as reliability, type of questions, internal assessment grading system and innovations have been covered. In the recent past quite a few studies have been conducted analysing the problems and issues related academic achievement.

Chich-Lun Hung and Kevin Marjoribanks (2005) examined relationship among family, social studies, perceptions of family and college learning environment of students, teachers and their academic achievements. The data were collected from Taiwan colleges. Although findings have suggested the family background is an important determinant of educational achievements and the college characteristics have minimal effect debates continue regarding the relative importance of family and college input.

In this study relations were examined among family, social studies, perceptions of family and college learning environments and measures of student teachers academic achievement. Educational aspiration were chosen as an outcome variable as investigations have shown them to be an important predictor of eventual academic
achievement. In addition, self concept was chosen as an effective outcome as student teachers, which is an important correlate of academic success.

The student-teacher academic achievement was measured using tests from the secondary school aptitude test. In the test there were verbal and mathematics measure, asserted at five levels. The alpha reliability estimates of the tests over 0.87 and 0.84 respectively.

Structural equation modelling with Amos 4.01 programme was used to examine relationship among family, social studies and student teacher perceptions with their academic achievements.

Julian and Others (2001) reported in research papers and investigated that there are number of factors that are considered to impact upon academic achievement. Student teacher understandings of what is considered to be acceptable behaviour appeared to differ. Possible reasons for and implications of these differential teacher messages are discussed. The paper concludes by examining the implication of the findings from the study for increasing motivations and academic achievement in countries with very different socio cultural contexts.

Unlike Elliotte et. al. (1999). The present study obtained data from both student teachers and teaching staff and it thus proved possible to consider self perception are reflected by the views of the teachers. Given the close relationship between the students teacher self perception and what they considered their teachers thought of them it would appear that teacher message lays a significant role.
Nair (1973) attempted to find out the predictive value of academic achievement and socio-economic status (S.E.S.) of student teachers in terms of their success in teaching. The study was limited to the 95 student teachers of the Government Training College, Trichur in the year 1972-73. Academic achievement was ascertained on the basis of percentage of the marks obtained at the university examination for their first degree. Weightage was also given to the post graduate degree. To find out the S.E.S. Kuppuswamy's procedure for determining socio-economic status was followed. A set of criteria was used for evaluating their teaching. Value of “r” calculated for academic achievement and teaching ability was +0.2 and for S.E.S. and teacher ability +0.05 on the basis of these correlation the investigator drew the following conclusions.

i) Academic achievement alone is not a good predictive criterion for teaching success, though better knowledge of content is an essential factor for academic achievement.

ii) S.E.S. alone cannot be considered as a predictive criterion of teaching ability.

Khanapuri (1979) in her attempt to predict performance of TCH student teachers in practice teaching found that there is significant positive relation between TPP and STP with the criterion variable.

Majagi (1982) in his attempt to construct and standardize a battery of test for selecting candidates to B.Ed. course found among other things that interest in teaching and attitude towards pupils were correlated with the marks obtained by the candidates at the external examination in teaching.
The investigation by Sharma (1971) on “Construction of teaching aptitude test for elementary school teachers” reveals among other things that mental ability, attitude towards children adaptability, professional information and interest in the profession contribute to success in teaching and its academic achievement.

Singh (1970) in his study on “An investigation of teacher trainees performance in relation to certain intellectual abilities”, revealed among other things that intelligence, factors a, e, f, i, l, m of 16 P.F. aesthetic and religious interest are significantly related to teaching skill. Student teacher ratings were used as criterion measure for the assessment of teaching skill in this investigation.

Debnath (1971) in his Ph.D. study on “Teaching efficiency - it’s measurement and some determinants” found among other things that age, experience, academic achievement and professional training are the significant determinants of teaching efficiency. It may be pointed out here that rating of teaching through observation was used for quantifying teaching efficiency.

The study conducted by Gurubax Lal (1974) on “Relationship between creative thinking and vocational anxiety and their effect on success in teaching and achievement” revealed among other things the following:

i) Creative thinking is significantly correlated with academic achievement.

ii) High vocational anxiety is inversely related to academic achievement.

Practice teaching lesson awards and university examination marks represented the criterion viable in the study of academic achievement.
Gupta (1977) investigated into the “Personality characteristics and adjustment level, academic achievement and professional attitude of successful higher secondary school teachers” found among other things the following

i) Academic achievement is significantly related to the personality factors a, b, c, f, g, h, i, l, o, q₃ and q₄.
ii) The academic achievement is not significantly related to success in teaching.
iii) The academic achievement is significantly related to home, health, social, emotional, professional, total adjustments and attitude towards teaching.

Assessment of academic achievement with the help of a scale represented the criterion variable in the study.

An investigation conducted by Mehta (1972) on “Factorial analysis of teaching ability of graduate pupil teachers of secondary teachers training colleges” revealed among other things that,

i) High achievers with reference to teaching ability are found to be more conscious, venturesome, tender minded and experimenting in their academic achievement.
ii) The high achievers are high on verbal reasoning, numerical ability, space relation and abstract reasoning.
iii) High achievers are also high on theoretical values and preferred to be practical. Practice teaching total marks represented the criterion variable teaching ability in this study.

Bhogo Liwal (1982) in his study on “Personality characteristics associated with teaching effectiveness of higher secondary school teachers found that

i) The more effective teachers are by and large superior in their intellectual capacity, intellectual functioning, empathetic and
imaginative functioning, differentiative and integrating functioning, extent of interest to practical consensus.

ii) The more effective teachers are characterized by a fairly higher level of understanding of uncommon abstract concepts.

iii) Inner control is better in the case of more effective teachers.

Course on teachers rating scale, teacher personality characterize inventory provided the criterion measures of teacher effectiveness.

2.4 Casual Comparative Studies

Aaron (1967) found that the two groups of student teachers one with previous teaching experience and other without experience did not differ significantly with reference to their achievement in B.Ed. teaching examination conducted during the years 1963 through 1966.

Patted (1971) found that the two groups of student teachers classified as effective and poor on the basis of marks earned by them in practice teaching differed significantly on the two perceptual dimensions – self perception and student perception.

2.5 Multiple Prediction Studies

Warburton, Butcher and Forrest (1963) in their investigation on a sample of 100 teachers under training in the department of education university of Manchester attempted to examine the predictive powers of measures of abilities, personality, interests, values and general culture and biographical details in terms of final teaching mark, final theory mark and award of the graduate certificate in education. Analysis of results showed that:
i) Degree class was the best single predictor of theory mark and of final award.

ii) A personality questionnaire, (Catell's 16 P.F.) was the best single predictor of teaching many; and

iii) The successful student tended apart from academic qualifications to have high level of general culture, high consciousness (16 P.F. Factor G) to have tender minded attitudes to education and to participate fairly, widely in social activities.

Sherry (1964) in his study on a large sample of student teachers of the department of education and the training colleges affiliated to the Agra University in Agra region attempted to investigate the usefulness of certain psychological tests for predicting success in teaching. The study among other things revealed that:

i) Measure of intelligence, personality, interest and attitude could be combined to form a battery to predict rated success in teaching.

ii) Intelligence was found to be the most important for success in teaching and

iii) The next important factor was the emotional quality of the teacher and attitude occupied a more important place than interest.

Tarpey (1965) in her study on a sample of 128 students in 4 different training colleges in Ireland attempted to investigate the predictive powers of certain personality factors in terms of teaching many. Among other things the study revealed the following:

i) There was no significant correlation between intelligence test scores and the teaching mark in all the colleges.
ii) Positive correlation was found between the scores on the teacher attitude inventory and the teaching mark of all four colleges, a correlation which was significant for two.

iii) Significant correlation between personality factor G. (Super ego, Strength, Consciousness) and the teaching mark was found in only one college.

Mathias and Park (1965) attempted to investigate the predictive powers of fourteen quantitative measures obtained from the cumulative personnel records of 252 students at North Western University in terms of their success in student teaching. The study revealed some statistically significant correlations, but no correlations of a high enough level to suggest the possibility of single predictive relationship. Multiple correlation analysis indicated the potency of three variables as possible predictors of success in student teaching and their academic achievement. These were:

i) Participation in extra-curricular activities.

ii) Grade in speech courses and

iii) Pre-student teaching interview followed by a second possible combination:
   a) Participation in extra-curricular activities.
   b) Speech course grades and
   c) Grades made in professional education courses.

Suraj (1965) attempted to find out the relationship existing between teacher trainees intellectual efficiency, self acceptance and teaching skill. The study was conducted on a sample of 400 students attending teacher training programmes at the graduate level in Punjab. Among other things his study revealed that the predictive value of intellectual efficiency for determining teaching skill was much more than (5:1) that of self acceptance.
Deva (1966) attempted to investigate the predictive powers of intelligence, social adjustment, personality adjustment, socio-economic status and academic achievement in terms of student teaching success. 546 student teachers of six teacher training institutions in Western Uttar Pradesh preparing for the B.T. (Bachelor of Teaching) Examination of Agra University constituted the sample of his study. Multiple correlation analysis indicated the potency of personality adjustment, social adjustment and academic achievement as predictors of success in student teaching and its academic achievement.

Morman et. al. (1967) in their study on a sample of 95 first year female elementary teacher trainees at the California state college, Los Angeles, attempted to investigate predictive powers of three sub-tests of TAV selection system (T – moving towards people, A – moving away from people, V – moving against or versus people) when they found that the inter-personal reactions as measured by the TAV related to academic success.

Walberg (1967) in his study on a sample of 280 students in their last year of elementary teacher training at Illinois Teachers College in Chicago attempted to investigate the predictive powers of measures of academic background, scholastic aptitude and professional knowledge in terms of rated success in teaching. During the last week of the student teaching semester, the students are rated by the principals of their schools as well as their field supervisors for effective teaching. The ratings are summed for an overall performance rating. The study revealed that grades in High schools and colleges as well as scores on tests of scholastic aptitude and professional knowledge did not correlate with rated teaching effectiveness.
Cortis' (1968) study on a sample of 259 students of colleges of education attempted to investigate the predictive powers of cognitive creativity, personality measures and biographical details in terms of practical teaching, previous teaching experience, lower verbal fluency and naturalistic and tender minded attitudes to education were found to be correlates of academic achievement.

Sharma's (1971) study was designed to investigate the relationship of six predictors, teaching aptitude, age, academic grades, teaching experience, sex and socio-economic status with the criterion measures of classroom teaching. 700 student teachers from the elementary teacher training institutions of Uttar Pradesh, India were involved in the study. Analysis of results indicated that there was significant relationship between the criterion – teaching success and teaching experience and that socio-economic status and sex variables were not significant.

Dosajh's (1972) investigation attempted to study the predictive powers of academic background, emotional maturity and imagination in terms of marks in student teaching. 251 students of the B.Ed. class of the session 1970-71 of the Government College of Education, Chandigarh (Punjab) constituted the Ss of the study. Amongst the major findings of the study was –

None of the predictors correlated significantly with success in B.Ed. teaching. The study further revealed that the evaluation criterion in student teaching was highly subjective.

In a multiple correlative study conducted by Patted (1972) an attempt to predict performance of 110 B.Ed. student teachers in the University College of Education, Dharwad in student teaching on the
basis of scholastic aptitude, attitude towards teaching profession and introversion, extroversion measures was made.

The results of analysis demonstrated positive and significant relation between the criterion and each of the three predictors. Further it is very interesting to note that 83 percent of the variance in student teacher programme in teaching was explained by the weightage sum of the three predictors. The findings of the study deserve cross validation.

2.6 Studies on Selection Procedures

Giriraj Kishore (1964) in her study attempted to investigate the extent to which the B.Ed. selection procedure followed in Aligarh Muslim University was able to predict the success of student teachers at the university examination in theory and practice of teaching. 92, 75 and 69 students undergoing B.Ed. course respectively in the years 1961-62, 1962-63 and 1963-64 constituted the Ss of the study. The selections were made on the basis of previous academic records and performance of students in three admission tests-General English test, intelligence test and tests in the two teaching subjects. Among the major findings of the study was:

i) In the case of teaching marks the correlation of intelligence test scores was generally higher than those of other predictors. The correlation of academic record was the lowest.

In a study conducted by Cornett (1969) three selective admission criteria used for admitting students to teacher education were evaluated to determine the effectiveness of these criteria in predicting performance of first year teacher. The analysis indicated that selecting students on the basis of a 2.0 average, a 'C' or better in Freshman English and a 'C' or better in introductory course in education was in effective in predicting teaching performance. He
concluded that the existing programme was possibly screening out too many potentially successful teachers.

2.7 Observations

The studies referred to in this chapter reveal that large number of variables have been studies in relation to success in academic achievement. However the findings of the studies are more or less contradiction and none of them has given a firm answer to the problem of prediction of academic success. This uncertainty could be attributed to the following sources.

i) Complex nature of the criterion,
ii) Different nature of samples involved,
iii) Different types of measures used, and
iv) Non-coverage of certain predictor variables.

Despite the fact that hundreds of studies have been conducted in the area of good teaching in India and abroad over the past 50 years and lakhs of rupees and millions of man hours poured into the research results continue to be disappointing.

Moreover the studies have not tried predicting success in teaching and academic achievement form a single theory of personnel make up. The present study attempts to apply the theory of perceptional psychology to the problem of prediction of academic achievement in Hindi medium teacher education course.

It may be pointed out here that one or two studies have been conducted using perceptual view of teaching to predict teacher success and academic achievement in teacher training.

Patted (1974) in his study on perceptual factors and success in teacher education course on two hundred B.Ed. trainees using SP,
STP, IGP, IRT and TPP as predictor variables to predict success in practical teaching examination found that SP, STP and IGP together contribute to the extent of 21.47 percent in projecting the criterion. The relative contributions of the above said perceptions were 9.46, 3.57 and 8.44.

Jayappa (1990) in his study on “Perceptional view of good teaching development and validation” conducted the study on a sample of 400 TCH student teachers using SP, STP, TPP, IGP and LPP (Learning Process Perception) as variables to predict success in practical teaching examination. He found that 54.76 percent of the variance in the criterion of good teaching is accounted for the above said five perceptions taken together. About 19.22 percent of criterion variable is accounted for the variance in SP, about 11.21 percent by STP, about 4.27 percent by TPP, about 10.8 percent by IGP and about 9.68 percent by LPP.

It may be pointed out here that curricular perception, educational evaluation perception, two important educational perceptions have not been included in the above stated studies. Hence the present study includes these perceptions also.