

Correlates of Achievement

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INTRODUCTION

Achievement is the end-product of all educational endeavours. The main concern of all educational efforts is to see that the learner achieves. Quality control, quality assurance and, of late, total quality management of achievement have increasingly gained the attention of researchers in education. After exploring the concept of achievement in the cognitive, affective and psychomotor aspects of human behaviour, researchers have probed further and have attempted to understand the 'black box' of achievement. The studies on 'how' of achievement have brought to light the correlates of achievement and paved the way for control and manipulation of variables for quality management of achievement. This report presents a synthesis of studies on correlates of achievement with a view to identifying the emerging trends.

EARLIER SURVEY

The pioneering work to review the studies on achievement of students, especially the correlates of achievement, was done by Dave, R.H. (1968). The review was based on 17 studies at the M.Ed. and Ph.D. levels, and the variates identified were socio-economic status, intelligence and gender. Later on, studies on achievement were subjected to systematic analysis and from time to time reported in Surveys of Research in Education in India (1974, 1979, 1987, 1991). For the First Survey (1974),

Dave, P.N. analysed 33 Ph.D. studies and 11 projects and identified six broad groups of correlates, namely: personality, socio-economic status, backwardness, over and under achievement, general and miscellaneous. The studies were mostly of the survey type, and *ex-post facto* studies and experimental studies were conspicuous by their absence. Anand, C.L. and Dave, P.N. (1979) found a new set of correlates relating to poor curriculum organisation. Anand, C.L. and Padma, M.S. (1987) examined 65 studies, including 50 Ph.D. studies and 15 projects. Their analysis highlighted among other sets of correlates three more categories relating to creativity, institution and SC/ST candidates. More and more clusters of variates were identified to explain the variance in the achievement of students. Researchers also started using multivariate techniques for data analysis. As a result of a higher level of statistical analysis interpretations of association between the variates and the criterion variable also showed further refinements.

Padma, M.S. (1991) reviewed 96 studies in the Fourth Survey, of which, eight were project reports. The studies were classified by variable, educational level and subjects. The variables were further analysed under four broad categories, viz., student-related, teacher-related, sociological and others. Under student-related variables, the frequently encountered correlates were intelligence, anxiety, values, interest and aptitudes. Teacher-related variables were mostly the process variables dealing with methods of

teaching and classroom interaction. Socioeconomic status was the predominant sociological variable with home environment, parental attitude, aspiration, encouragement and cultural influence as the second-level variables. Other variables included language ability, entry behaviour and homework.

A general predictive model of achievement, cutting across subjects and stages of education, though desirable, was not found feasible. Most of the reported studies were related to achievement in high schools and higher secondary schools. About 50% of the studies considered achievement as a whole and not with reference to specific subjects.

THE PRESENT SURVEY

One hundred thirty-two additional studies were reported during 1988-92. Of these, 82 are doctoral works in education and 5 in psychology; 24 studies are at the M.Phil. level, 4 are projects and 17 are reported in educational journals. School-stage-wise, 7 are at the primary level, 106 at the secondary and higher secondary levels, 16 at the college level and 2 pertain to

Cognitive Variables

Intelligence and creativity are the two main cognitive variables studied by a large number of researchers. Corroborative evidence to prove that intelligence is a correlate of achievement was obtained by Bhusari, C.V. (1988); Kaile, H.S. (1988); Kumar, R. (1989); Shah, J.H. (1990); Chadha, N.K. and Chandna, S. (1990); Thilagavathi, T. (1990); Devi, U.A. (1990); Garg, C. (1992); Sen Barat, K. (1992) and Kaur, P. (1992). Kaile, H.S. (1988) found that the conjoint effect of intelligence and creativity is different on achievement in different subjects. Sibia, A.'s (1989) results reveal that the association of intelligence and achievement in mathematics is not significant. Gourikutti, A.J. (1992) did not find this association. But Sibia, A. (1989) found a significant relationship between verbal intelligence and achievement in science. Intelligent students in Madhu Bala's (1990) study experienced more problems in learning economics than not-so-very intelligent students; perhaps the latter group is more problem-blind than the former. Shah, J.H. (1990) calculated the Deviation IQ and

Subject	Total achievement	English	Local Language	Social Studies	Science	Maths.	Others	Total
Number	99	5	4	2	8	10	4	132
Percentage	75	4	3	2	6	7	3	100

teacher education. One study is a meta-analysis of 20 studies involving 104 correlations between locus of control and academic achievement (Bhogayata, C. 1989).

The distribution of 132 studies on achievement, subject-wise is presented in the Table.

The correlates of achievement probed in the 132 studies abstracted in this report are discussed under broad categories including the cognitive variables, the affective variables and environment (school and home) related variables.

established the IQ-achievement association. Chadha, N.K. and Chandna, S. (1990) calculated partial "r" to study the variance in achievement attributable to variance in intelligence alone. Kaile, H.S. (1988) found that intelligence was not a significant predictor of achievement in English for the high SES group in Punjab.

Irudayaraj, M. (1989), Kaile, H.S. (1988); Padhan, G. (1990); Thilagavathi, T. (1990); Padhi, J.S. (1991); Patel, M.M. (1992); and Arora, R.K. (1992) selected creativity as one of the variables in their study to investigate its

relationship with achievement. All except Irudayaraj found significant relationship between the two variables. Chadha, N.K. and Chandna, S. (1990) arrived at a positive first-order correlation between creativity and achievement, but when the influence of intelligence was partialled out they got only a negative correlation between creativity and achievement. Perhaps the achievement measured was in opposite direction to divergent thinking. Padhi, J.S. (1991) studied along with main effects, the interaction effects also and found the interaction of creativity and classroom environment significant on scholastic achievement.

Pande, G.C.'s (1985) factor analysis revealed that reasoning ability had a significant loading on the mathematics factor, and verbal comprehension on the civics and history factor. Shrivastava, P.'s (1992) sample showed that high achievers in science and mathematics were field-independent in their cognitive style, and agriculture and commerce students did not show preference for any one style. Obiedat, A.A. (1992) carried out four-way ANOVA on his data and found no first-order interaction of the variables sex, mathematical thinking, IQ and SES on achievement in mathematics. There was second-order interaction only of the group, sex, IQ and SES. The third-order interaction was not significant.

Singh, S.'s (1988) investigation was on the relationship between achievement of certain concepts in physical chemistry and certain selected intellectual abilities exemplified in the SI model of Guilford. He found a significant relationship between achievement and reasoning ability. The achievement factor had high loading of reasoning-ability variables.

Affective Variables

Motivation comes out as a positively related variable to scholastic achievement in a number of studies (Sarsawat, A. 1988; Saxena, V. 1988; Dhar, D.R.N. 1989; Devanesan, P.P. 1990; Baskaran, K. 1991; Harikrishan, M. 1992; Rani,

M. 1992 and Rani, R. 1992). Baskaran, K. (1991) has selected achievement motive; Dhar, D.R.N. (1989), school motive; and others, mostly motivation towards learning particular subjects.

Self-concept is another variable most often selected by researchers. All these investigators found self-concept and achievement to be directly related. Mohan, A. (1988) studied self-esteem in the place of self-concept. Gupta, D. (1990) found a negative correlation between frustration and achievement. Emotionally mature students achieve better (Gupta, P. 1989) than those who are not emotionally mature. Stress is negatively related to achievement (Namrata, 1992). Anxiety and achievement are related (Ramachandran, R. 1990; Sati, B.D. 1991; Thilagavathi, T. 1990 and Gupta, B. 1992). General anxiety and test anxiety are also studied (Sibia, A. 1989). Adjustment problems have been found to be negatively associated with achievement (Ramachandran, R. 1990; Ngailiankim, C. (1988); Ray, P. (1990); Baskaran, K. (1991); Diwan, D.K., (1991); Chhaganlal, N.M. (1992); Sam, U.K. (1992) and Mazumdar, A. (1992) studied the relationship between attitude and achievement. Diwan, D.K. and Chhaganlal, N.M. had student teachers as their sample and others, school students.

Environmental Variables

Environmental variables, both school and home-related, are studied for their association with achievement. Socio-economic status is the domineering variable in this cluster and the findings are in agreement with the already available empirical evidence (Nair, V.P. 1987; Trivedi, V. 1988; Singh, M. 1989; Ganguly, M. 1989; Devanesan, P.P. 1990; Reddy, R.I.V. 1991; Indira, 1991; Garg, C. 1992; Harikrishnan, M. 1992; Muthumanickam, R. 1992 and Rani, R. 1992). The significant positive association fades into insignificance in one or two studies, and in one study it has slipped into the negative direction—in the case of rural failed students. More failed students in this study (Garg, C. 1992) are from high socio-economic status families.

Parents' child-rearing practices influence the achievement of students (Jain, S. 1991). Indira (1991) found a relationship between family-size, birth-order and student's achievement (Koteswara, N.M. 1991). Parental support, especially mother's contribution, is found to be more significant to the academic achievement of students (Sahay, N. 1991). Sultana, S. (1988) found inconsistent results regarding the differences in achievement in various subjects of children of working and non-working mothers. In certain subjects (mathematics and natural sciences) the differences are significant and in certain other subjects (English, social studies) the differences are not significant.

School climate and students' achievement is the focal area of Mukhopadhyaya, D.K.'s (1989) and Natarajan, R.'s (1992) studies. School- and home-related factors were studied by Koteswara, N.M. (1991) and Kulshreshtha, P.K. (1992) in relation to achievement.

Personality traits of students do not give a consistent pattern in their association with the achievement of students. Investigators (Haq, N. 1988; Kolwadkar, V. 1980; Menon, G.S. 1990; Namrata, 1992) draw different pictures from the data they have collected.

There are two studies on alienation and achievement (Nisha, 1991 and Patel, M.M. 1992).

CONCLUSION

Though there are not many new variables studied, application of more sophisticated statistical techniques for data analysis (partial 'r', multiple 'R', factor analysis, two, three even four-way ANOVA) has made interpretations more valid. Bhogayata, C. (1989) has made a 'meta-analysis' of the results of the studies on locus of control and academic achievement. With 394 studies relating to achievement in general and with reference to special subjects, it may be worthwhile to 'meta-analyse' the results and conduct 'effect' studies, to arrive at more valid generalisations.

The project studies, in general, do not differ

very much from the doctoral studies undertaken for acquiring degrees. One would expect project studies to be policy and change oriented. Funding agencies, instead of inviting projects, may promote commissioned projects. Will the DIETs and Institutes of Advanced Studies in Education undertake R and D projects in the area of scholastic achievement?

Academic achievement is cumulative and, as such, attention at the primary level becomes imperative. There are only seven studies dealing with primary education out of the 132 discussed in the present review. With the strong achievement foundation at the primary stage, achievement at higher stages would become manageable. More studies on achievement in primary education, and more policy and change oriented studies are required.

Again, there are only two studies on teacher education. We need more studies on the achievement of teacher trainees.

Achievement cannot be explained by one single model that will be applicable to all, at all stages of education, in all places. We may have to develop models that are subject-specific, locale-specific and even client-specific. Yet a general paradigm could be possible and our research endeavours should be to design that general paradigm and to develop models under this general paradigm to suit the varying conditions.

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