Chapter II

Historical Resume

In the recent years the issue of choice in schooling has emerged as an important educational issue. The children's surroundings either at home or school have a powerful presence that contribute to the enhancement or retardation of their mental growth. A carefully planned, well placed early education can give children the experiences they need for their proper cognitive development.

A few decades ago, a great effort was made in United States to administer tests such as intelligence, achievement and career-aptitude tests to school children. The first comprehensive intelligence test was designed for the French Government in the 19th century by Alfred Binet.

Arthur Jenson (1969) believes that 80% of what is measured by I.Q. tests (intelligence quotient) is the result of genetic heritage while only 20% is based on environment. Most psychologists agree with Jenson that both heredity and environment affect intelligence but

Wei, et al. (1971) reported a study on socially disadvantaged and middle class young children. Their emphasis was on studying the interaction between the individuals and the environment opportunities for such interaction are often missing in a deprived environment and may contribute to differences in the level of development. 4 groups of 20 white kindergartners and 2nd graders from 2 schools were given 4 classification tasks. Their findings indicated that the culturally deprived groups progressed at a slower pace than the middle class group.

There are number of studies which emphasized that formal schooling has a powerful effect on children's cognitive abilities. By studying the children who have been to school (perhaps only for a year or two) and children who are entirely unschooled, the researchers found that even half a year or a year of school can have a strong effect on the children cognitive ability.
Schooling has been found to enhance the traditional psychometric fluid intelligence of children as evidenced from the gain in I.Q. points up to 5 or 7. This gain in I.Q. is evidenced more in primary and secondary school years compared to college years. Learning processes involved in many school activities do affect the formation of the cognitive strategies needed for successful performance on general ability tests.

Cole & Scribner (1974) and Scribner & Cole (1981) studied school and unschooled kpelle children from central Liberia which were given a series of sorting problems with cards displaying shapes that differed in colour, form and number. Such problems required the child to pick all the red cards, e.g., but to ignore variations in shape (square, triangle, circle) and number (two, three or four objects). When a child had correctly solved such a problem, the child was given other problems in which colour (rather than form or number) was still the basis for solution, but the colour was now blue or black. Even though the same principle applied to the original problem and the later ones, schooled children solved later problems much faster than the
unschooled children.

A study conducted by Stevenson (1982) in which first graders and children of the same age who were not at school were tested on fifteen different Cognitive tasks. The school children performed markedly better on every task than the unschooled children.

The superiority of schooled children over their non schooled counterparts have also been documented. Dash and Das (1984) who reported that simultaneous and successive processing develops much faster in schooled than non-schooled children. As the successive years of schooling increase the difference between schooled and non schooled becomes wider and wider favouring the former group.

Earlier the findings of Stevenson et al. (1978) also supported the above findings who reported that schooled children differed from their non schooled children counterparts only after a few weeks or months of schooling. On the contrary Rath (1991) reported that even one year of very improverished schooling experience failed to produce significant difference in successive processing of schooled vs non schooled children.
Horn (1978) viewed the cognitive ability develops due to incidental learning independently of schooling and the effects of schooling is nil in "pure" tests of ability like fluid factor of intelligence. Any increase in test scores in only due to age factors. Coleman, Haffer and kilgore (1982) were also skeptical about the absolute effects of schooling in children. While Cohan and Cohen (1989) reported that schooling has definite positive influences in the formation of cognitive strategies needed for successful performance on general ability tests independent of age factor. Rath (1990) findings also support Cohan's findings, suggested that even primitive form of schooling in the remote tribal areas did seem to accelerate basic cognitive processes and formations.

Thus on the basis of above studies it may be speculated that schooling has a remarkable effect on the cognitive development of children.

The trend in Education in India in the recent years has been toward public schooling. The rise in popularity of public schooling coupled with a general decrease in the proportionate enrollments in nonpublic
schools illustrate one thing that parents believe that public schools provide better environment than non-public schools for the cognitive enrichment of their children.

There are certain factors such as status, culture, school which undoubtedly play a vital role in the development of creative potentials of the children. Of all the environmental factors the school plays a most significant role in the development of creative potential.

There are a number of studies which support the view that school background has an important effect on the proper development of cognitive ability of the children. James Coleman et al. (1981; 1982) reported that private school gives better cognitive outcomes for the children than does the local public (government) school.

While Morgan (1983) reported a slight gain in vocational achievement for white students in public schools. But further he emphasized that the public and private sectors did not differ in the amount of learning produced once the appropriate background and curriculum
controls were introduced. Attending catholic schools did slightly raise expected educational attainments. Consistent sector differences appeared in the rated quality of student life. Instructional quality, discipline, safety and peer relations were rated higher in private schools, while learning freedom and job counselling opportunities were rated higher in public schools.

Alexander, Karl L and Pallas, Aaron (1983) reported that when the student selection and background characteristics are controlled the differences between public and parochial schools in cognitive and achievement outcome measures become negligible.

Kilgore (1983) suggests that Alexander and Pallas's results actually support the conclusion that Catholic schools provide the average student with an added increment to achievement through the increased likelihood that the student will be enrolled in an academic track and through enhancing the performance of those in a general track. While Bickel et al. (1985-86) also did not find any evidence indicating the superiority of private schools in academic achievements.
analysed data on students in high schools to test the private schools superiority hypothesis for science achievement. The supposition that private schools are superior to public schools in producing science achievement was rejected on the basis of present analysis. Major differences in science achievement between public and private schools appeared attributable to relatively, fixed characteristics of students and to their experiences beyond the school environment rather than factors easily alterable by educators. The value of homework, the problem of excessive T.V. viewing, the influence of parental involvement in education and the effect of the amount of academic classes taken are also important.

Van Laarhoven et al. (1986) examined the effects of types of schools (public, catholic, protestant and private secular) on school careers in primary education. The educational careers of 3042 Dutch students who were in the 6th grade in 1965 were traced. The differences between catholic and protestant schools were greater than those between public and non-public schools.
Differences were found in rates of non promotion and were somewhat less marked in achievement, moreover, differences by sector were found in parent's actually choices for secondary education.

Sassenrath, and his colleagues (1984) compared 2 groups of 49 high schools seniors matched on age, ethnicity, gender, socio-economic status and intelligence quotient (IQ). The subjects in one of the groups had switched from public to private schools (primarily catholic) while the other group had remained in the public school. The subjects of both the groups did not reveal any difference in reading and mathematical achievement tests. Thus these findings suggest that schools background has negligible effect on mental development.

Pattnaik B and N. Panigraphy (1987) studied the students of 5th and 7th grade studying in Urban English medium and urban and rural Oriya medium schools and found that schools influence significantly fluency of letters and words. Children belonging to oriya medium urban school have more power of fluency of letters than the urban English medium school children, but not from
rural oriya medium schools. High achievers have more fluency than low achievers in both fluency of letters and words. School and grade independently do not affect verbal fluency of words but their interaction is significant.

Rao, Nalini (1988) examined primary schools representing different types of management (Govt. private and Govt aided private) and the achievement of 630 students to determine the impact of facilities and equipment, teacher qualification and teacher pupil ratio on the cognitive output of the students. Students were administered achievement test in language and arithmetic. The findings support a relationship between school excellence and pupil achievement and the hypothesis that schools have comparatively better facilities and staff consequently obtain a higher overall school excellence score and subscribe to higher academic performance by students.

Singh, Surendra P. (1991) examined the effect of sex, age and educational level on the Cognitive functioning of 50 male and 50 female students. He found
significant effects for all 3 variables. As age and educational level increased, cognitive functioning increased in males and while decreased in females.

Mohanty et al. (1991) suggested that through better training cognitive ability of the children can be enhanced. They administered a test of epidemic curiosity and the Columbia Mental Maturity Scale twice to 40, 4-5 year olds, once before intervention training and either after intervention training or after the empty time interval (in the case of control Ss). Intervention training consisted of 5 cognitive play tasks. Short term cognitive intervention training improved the performance of Ss in cognitive tasks. Although Ss of both groups were attending preschool, but cognitive training produced greater improvement in cognitive performances of experimental Ss than in Controls.

Torny Purta Jadith (1991) emphasized the application of cognitive psychology to instruction in specific domains and suggest ways of improving social studies accordingly. New information is received by students and given meanings in terms of their past experience and cognitive structures (schemas) Schemas
functions to organize information that the student already possesses relating to a topic. Access to knowledge is enhanced when new information is linked to prior knowledge and organized in schemata. Concept maps and semantic networks are useful in this regard. Instruction should be centered around key-concepts, students should be encouraged to make connections between new information and existing knowledge.

Vansickle and his associated (1991) also highlighted the importance of cognitive psychological research on problem solving in designing instructional programs in the social sciences. Domain specific knowledge is composed of declarative and procedural knowledge, aspects of which are organized as schemata are used to organize information stored in long term memory. General thinking strategies enable one to structure problem solving (PS) and identify tasks that Domain-Specific knowledge can help to accomplish. Cognitive Self Management is useful in monitoring the effectiveness of problem solving (PS). The concept of bounded rationality, collective rationality and cooperation are important in this regard.
Entwisle, Soris R and Alexanander, Karl L (1992) in a longitudinal study of a random sample of 790 beginning first graders. The mathematics achievement level of African-American and whites was almost identical. Two years later, when scores for 430s were available, African-American had fallen behind by about half a standard deviation. Math test score changes over the summer when school was closed were used to estimate "home" influence and to investigate 3 major hypotheses that might account for lower math achievement among African Americans. The most important sources of variation in math achievement were differences in family socio-economic status (SES), followed by school segregation. Poor children of both races consistently lost ground in the summer but performed as well as better than better of children in winter when school was in session.

On the basis of the above studies it may be concluded that school environment functions as a silent engineer in modulating the process of cognitive development in children.
With this background we may now pass on to the next chapter dealing with the problem and hypotheses.