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ABSTRACT

This review of educational research pertaining to school readiness criticizes the current movement towards earlier schooling for children. Research findings in any one of a number of areas suggest the undesirability of schooling for 3-, 4-, and 5-year-olds. Four areas of study investigated in this review which support the above hypothesis are concerned with: (1) comparative school entry ages: early entrants are less stable, less motivated, and more anxious than later entrants; (2) parental attitudes and deprivation: the more parent-child interaction, the faster the child develops social and language skills; (3) neurophysiology and cognition: the critical stages of a child's intellectual and physical development should not be rushed; and (4) affective development: emotional development is impaired when a child leaves home to enter school at a very early age. It is concluded that the home, and not the school, is the young child's educational center. (ST)

THE PRE-SCHOOL MOVEMENT: PANACEA OR PORTENT?

Raymond S. Moore and Dennis R. Moore

There is a danger that some early childhood education (ECE) planners may be in the process of creating more learning problems than they can cure. In their zeal to help young children they may be launched on a course which research has not yet sufficiently charted and eventually find that they have disabled those they were trying to help. There is yet insufficient research evidence, for example, to justify the generalizing of early schooling, however good, down to age three or four--as called for by the New York Regents (1967), by the California ECE Task Force (1971) by Riles (1972), and as is being considered in many other states. In other words research indicates that at these early ages the school is not in most cases a desirable alternative for the home.

Harvard child development specialist Sheldon White is concerned that the current preschool movement may "work itself into so much trouble within six years or so that it will wipe out the gains special education has made and possibly ruin the future of early-childhood education" (Moore: 1972). He bases his conclusions in part on his recently completed study of federally-funded early childhood programs.

Yet at the same time research does provide some direction for reasonably safe ECE programs. These will be discussed later. Meanwhile note that we do not depreciate or distract from carefully formed proposals or projects which provide clinical or other therapeutic help for the handicapped or severely deprived, whether it be in the home or in the school. For instance, research supports efforts at early recognition and correction of problems which may interfere with a child's development. These efforts include parental

cooperation, community services, screening programs, special attention to nutrition, etc.

Special education planners appear to have been generally guided by scientific evidence, and their progress supports this conclusion. But this does not seem to be true for early schooling in general. To call for early schooling for all three-or-four or five-year-olds is, as a nationally-known child psychiatrist and researcher, Dale Meers, told us recently, like prescribing methadone for all because it is helpful for heroin addicts. Both Schaefer (1971:18) and Rohwer (1970:3) see an unfortunate failure of planners to relate research to practice.

Benjamin Bloom's review (1964) provides evidence enough of the young child's rapid growth in intellectual capacity during his first eight years. But it does not necessarily provide substance to the often-held theory that because of this rapid growth the young child's brain should be stimulated or organized through schooling to make greater use of this emerging potential. If this were so, the child should in theory be taken from the mother at birth, since it is in his earliest years that his intellect apparently grows most rapidly.

No matter how good the plan, no broad scale system of early schooling has yet proven more effective for the harmonious development of the young child than has the provision of a warm, free, continuing and consistent home life. Studies by the Westinghouse/Ohio University (1970), and the U. S. Commission on Civil Rights (1967), indicate that large scale early schooling efforts to date (Head Start, etc.) have largely failed in achieving their objectives. On the other hand numerous studies demonstrate the basic role of the home in early childhood development. Dr. Glen Nimnicht, a key psychologist in the Head Start effort, is quoted by Betty Hoffman in WOMAN'S DAY (August, 1972) as saying,

"The early years are crucial in the development of a child's potential, . . . But there's no evidence that a young child needs to go to nursery school. It's my hunch that twenty minutes a day playing with his mother does a preschooler as much good as three hours in a classroom."

The development of an appropriate home environment therefore appears to be a more likely goal in behalf of most children than attempting to provide in the schools a substitute for family life.

Research findings in any one of a number of areas suggest the undesirability of schooling for children as young as age three, four or five. We suggest four of these here: (1) Comparative school entrance ages, (2) parental attitudes and deprivation, (3) neurophysiology and cognition and (4) affective development. But when brought together these areas provide a certainty which no one area can supply alone and they tend to offset criticisms leveled at any one study or area.

Comparative school entry ages. Many studies have compared early entrants with later entrants into kindergarten or primary school. If these showed that the earlier a child enrolled, the more stable, better motivated and less anxiety ridden he would be, we should seriously consider even earlier schooling as a constructive step in child development. But almost all comparative studies find the opposite to be true.

Margaret Gott (1963) compared 171 kindergarten children who were about four years nine months when enrolled with 171 who entered at five years seven or eight months. She compared younger children only with older children of the same ability group, for a total of five ability groups. She reports:

> Reading readiness tests were used at the end of kindergarten. The Stanford Achievement Tests measured reading, arithmetic and spelling at the end of grades two through six, and social studies after grades four, five and six. Social-emotional development and leadership honors were judged by records and faculty reports. . . .

> All younger groups achieved less than all older groups in all subjects at all grade levels, except for one zero difference, in the ninety comparisons of mean scores. (1963)

Inez King (1955) made a similar study of first graders with similar findings. John Forrester (1955) evaluated 500 New Jersey students and found that the very bright younger school entrants did not realize their potential through grade 12, while the very bright later entrants generally excelled. A study by Mawhinney (1964) supports Forrester's findings, while a number of other studies provide evidence at various grade levels for over a span of more than fifty years (Carroll, 1964; Halliwell and Stein, 1964; Green and Simmons, 1962, Hampleman, 1959; Baer, 1958; Carter, 1956; Wright, 1936; Caswell, 1933; and Reed, 1927).

In concluding his review of a number of reviews comparing entrance age and school success, Halliwell states that

> The analysis of the reviews on entrance age and school success in the elementary school indicates conclusively that despite the plethora of prominent individuals and organizations which maintain that the research on early entrance supports the position that early admission results in no adverse effects, early entrance to first grade does result in lower achievement throughout the grades when comparisons of achievement with control groups of later entrants of similar abilities are made. . . .
>
> In view of the facts, that at any grade level the early entrant is approximately seven months behind his control in achievement, that despite an extra year of schooling the early entrant is only three months superior in achievement to the regular entrant at a particular age, and that other approaches to acceleration have resulted in superior achievement for younger pupils both in terms of age and grade, the conclusion of the present reviewer is that the advantages of postponing early entrance to first grade programs as they are presently conducted are very real.

Not only are unfavorable achievement performances generally noted for the early entrants, but also significantly lower evaluations are commonly observed in such areas as social-emotional development and motivation. Many of these studies, like Mawhinney's are done in school systems considered by some to be superior in imaginative approach. If these many studies find comparatively disappointing results for the younger

school and kindergarten entrants, are the preschooling results for three and four-year-olds likely to be any better? If so, one must hold that the relative quality of the school system in general is inferior to its preschools.

Parental attitudes and deprivation. A review of a number of ECE proposals indicates that planners have given relatively little attention to the matter of parental deprivation in prescribing early schooling for very young children. Yet this appears to be a crucial factor in terms of a child's overall adjustment. Bowlby, along with Ainsworth, Yarrow, Spitz and others, collectively underscore the importance of continuity of attachment to a warm, concerned parent, or surrogate, on a small adult-to-child ratio. Bowlby (1952:15) notes that children are vulnerable physically, intellectually and socially to a loss of maternal care. He states that this vulnerability gradually decreases and becomes less serious after age five, but "there can be no reasonable doubt that a fair proportion of children between the ages of five and seven or eight are unable to adjust satisfactorily to separation. . ." (1952:5). Bowlby's later (1969) report underscores his earlier findings.

Yarrow says that "besides the retardation of development caused through emotional factors, maturation and adjustment is markedly slowed by deprivation of sensory, social, and affective stimulation when a child cannot be with his mother." (1964: 127). Ainsworth adds that "in the case of the child over two, efforts to enrich the institutional environment by providing nursery school experience seem to be less effective in stemming retardation of development than efforts to facilitate the attachment of a child to a substitute mother." (1967:348) This would indicate that if a child cannot be provided warm continuing relationship with the mother in the home under reasonably desirable circumstances, the nearest thing to sound motherhood should be provided.

Geber, using Gesell tests, studied more than 300 Uganda babies both low social economic status tribal-oriented families and from higher economic status families. The low SES mothers were child centered, continually caressing, cuddling and talking to their little ones. Geber found these infants to be superior to western children in physiological maturation and coordination, adaptability, sociability, and language skills. (1958: 185-95) Our first reaction to this conclusion was that African children often mature earlier than westerners. Geber reports that in her sampling the babies from the higher SES and mothers who provided less maternal contact/involved their children in formal training, were much less mature in the qualities of physiological maturation, coordination, adaptability, sociability and language skills than those from the lower SES mothers.

Bell (1970, 1971), studying moderate socioeconomic status (SES) white families, arrived at similar conclusions, especially in showing that there is a positive relationship between quality of maternal attachment and cognitive development (1970). She replicated her study with low-SES Black families (1971), coming to virtually identical conclusions. Studies by Riccuiti (1968) and Brazelton (1971) generally support Geber's and Bell's conclusions.

Spitz sees in the relationships between western mothers and their children a progressive and artificial reduction of "skin contact between mother and child. . . . in an attempted denial of mother-child relations" (1957:124). It is commonly conceded that while such parental attention is best for the child, many American parents are not willing to provide it, or others simply don't know how. But research indicates that parents, given some understanding of their children's needs, are willing to change. Mildred Smith, in a Flint, Michigan study (1968:106) reported that 90% of the homes in a ghetto area responded favorably to a request for parents to set aside time for play with their children including quiet time in the home for reading to them. When the experiment was concluded,

99% of the parents asked that it be continued. Smith warns against the assumption by the school of the parental role:

> In this situation, the role of the school was not to assume parental responsibility. First of all, the school, as organized in our society, cannot assume such control over the child; secondly, no outside agency, school or otherwise, should assume the appropriate role of the parent.
>
> The rightful role for educators is seen rather to be that of teaching parents to assume their appropriate responsibilities and assist them in this task. The relationship sought is the cooperative sharing of responsibilities by the parents and the schools, working together to bridge the educational gap with purposeful educational programming and planning (1968:107).

Studies (or experiments) by Hess and Shipman (1968:127), Lewis (1970), Daugherty (1968), and Levenstein (1971) appear to support Smith's conclusions. Thus we must conclude that we can avoid considerable risk of developmental damage by working closely to build the home rather than to take the child away from the home and to center the activity in the school. Some educators point out how they are involving parents more and more in preschool activity. Nevertheless they are taking children away from home, their natural habitat. Except for those who are handicapped and require clinical intervention at school or elsewhere, or whose home environment is hopeless, we see the home, not the school, as the child's educational center. Generally then, efforts should be made to keep the child as close as possible to the type of environment which can best be provided by loving and informed parents in the home. And our largest energies and most careful plans should be directed toward preparing for such enlightened parenthood.

Neurophysiology and cognition. One of the most surprising aspects of the proposed early schooling program is the frequent disregard for or lack of awareness of neurophysiological and cognitive evidence to the contrary. While more research is urgently needed, enough progress has been made in both fields to question the stimulation of the young child's brain on the basis of his rapidly developing intellect. It conjures recollections of trying to

force open a rosebud, perfect in its immaturity, only to find that we have marred it irreparably.

There is considerable evidence that development is related to function in a gradually maturing experience in the young child. Metcalf and Jordan point out that

> the EEG [electroencephalograph] changes throughout the life cycle from earliest times (including prematurity) to old age. These changes are particularly rapid during the first two years. Development continues at a decelerating rate through adolescence after which there is a trend toward relative "plateauing" of development. The marked developmental changes in the EEG from birth to adolescence have led behavioral scientists to seek relationships between brain maturation (as seen with the EEG) and other areas of development, whether they be at the physical, physiological, or psychological levels. (1972: 127-28)

Nagera is concerned that we may provide cognitive stimulation for which the child is not yet ready. He notes that in the child's early brain development

> . . . Myelinization and function are very closely related. Here again there is hard evidence from animal experimentation suggesting clearly that environmental stimulation has significant effects upon ultimate structure and function (1972).

A number of investigators, including Corbin (1951, Nicholson (1956), Larry (1962), and Nelson (1967), indicate that appreciable brain neurophysiological development is ongoing in the normal child from birth into adolescence. Yakolev's (1963, 1967, 1972) data on physiological development indicates that structural maturation of the brain appear generally consistent with Piaget's period of concrete operations. Piaget's studies of cognition demonstrate how a child processes, orders, and articulates information ranging primarily from motor sensory activities to those which are primarily abstractions or which require ability to reason from cause to effect. Overton (1970:96) summarizes these four major steps as follows: the sensory motor period from birth to two years, the pre-operational period from two to seven years, the period of concrete operations from seven years to eleven years, and the period of formal operations between eleven and fifteen years of age. The

period of concrete operations appears to be the interval when the child develops the ability to reason from cause to effect.

Piaget's (1972:96-103) "conservation tasks" tests which relate quantity to shape and form of objects were designed to measure cognitive maturity in terms of abstract thinking. In Almy's replication of Piaget's work she found that "only 48% of the 2nd grade children in the middle class school, with a mean chronological age of 7 years and 4 months, were able to conserve in all three of the Piagetian tasks (1966:83)." According to Phillip, Piaget,

> when asked whether or not the stages of the development of the child's brain can be speeded up, called this the "American question." Piaget's basic answer to this question was that it probably can but probably should not be speeded up. Piaget feels that there is an optimal time for organization of operation of the brain. And feeling that there is an optimal time, he goes further to point out that the optimal time is not the minimal time. His concern is for maximal development more than acceleration (1969:132).

Elkind (1969:332) notes "in negative correlation between early physical maturation and later intellectual attainments. . . . the longer we delay formal instruction, up to certain limits, the greater the period of plasticity and the higher the ultimate level of achievement." He says that "Not only is there no clear cut longitudinal data to support the claims of lastingness of pre-school instruction, there is evidence in the opposite direction."

Vision, perception and hearing are among related neurophysiological concerns. While there is some confusion among sensory-motor researchers, particularly relating to vision, there is sufficient evidence to seriously question the exposure of the typical child to reading programs before he is seven or eight.

For parents or teachers who wonder why many of their bright children do not read well, Strang (1964:164-5) and Carter and McGinnis (1970:48) note that when these children cannot adjust to the difficulties and discomforts of tasks requiring close vision, they simply

give up trying to read. Under this pressure and frustration many lose their motivation, when if allowed to mature they may have done well. According to Carter and McGinnis,

> . . . the visual mechanism at six years of age is unstable and many children have difficulty in fixating at definite points and in keeping their place in reading. Children at this age make many regressive movements and are inaccurate in moving from one line of print to the next. . . . Some children who cannot adjust to the difficulties of near vision find reading so uncomfortable that they give up trying to learn (1970).

Hilgartner (1963), an Austin, Texas, ophthalmologist, concludes on the basis of more than 50 years of clinical records that eyestrain is often related to age of school entrance. In a paper presented to the Texas Medical Society he stated:

> In studying my records, I find that the earlier the children start to school the more frequently nearsightedness is discovered, between the ages of 8 and 12. . . .
>
> . . . the legal school age in Texas in 1906-7 was 8 to 17 years, the entrance age was reduced in 1907-8 to 7 to 17 years. In the year 1910, when my father refracted 151 children, there were 117 hyperopes to 15 myopes, a ratio of 7.7 hyperopes to 1 myope. This ratio held fairly constantly until 1930, when the r atio changed to 2 to 1.
>
> The legal school age was again changed in 1930-31 from 7 to 6 years, and five years later the ratio was 1.8 hyperope to 1 myope. In 1940, ten years later, the ratio was practically 1 to 1. In 1945, 1946, 1952, 1957 and 1962, the ratio changed greatly and the number of myopes greatly exceeded the hyperopes. The average is now 5.0 myopes to 1 hyperope. For contrast, in 1910 it was a majority of 7 to 1 in favor of the hyperopes. (1963: 3, 5)

Dr. Hilgartner goes on to make specific application to the modern school.

> The educators, at least the ones I have talked to, say that in the first grade of school, there is little book work or reading that the child experiences. They say that the child plays and he is taught to draw and he begins to learn about the birds and bees. For the sake of peace, I will concede that the actual amount of reading the first grade or kindergarten child does is nil. However, I will not concede that he does not use his eyes excessively for near work, while in the school room. I make the charge that most of the morning he is looking at pictures, making drawings, or watching the teacher draw pictures on the nearby blackboard.
>
> During the 3 or 4 hours that the beginner, age 6, is in school he is using all the ocular muscles for accommodation and convergence, in order to see the pictures, drawings, etc. If he were outdoors, playing robber, soldier, or other games, he would not be using his eyes excessively for close work. The internal and external recti, the superior and inferior recti, as well as the obliques would not be working excessively to make the child see a single object. (1963:4)

Milkie, who directs Professional Development for the American Optometric Association, states that "all clinicians concur that evidence that close work does seem to be associated with the beginning progression of myopia cannot be ignored." He points to papers by Eggers, Sato, Harmon and Young, all of which relate near work to the development of myopia in young children.

Harmon (1958) has shown that the high-achieving child will often determine for himself that he will perform as requested by parents and teachers and will sacrifice distant vision and will develop myopia which is much more compatible with nearpoint activity and application to reading. Other children, often poor achievers, will not sacrifice distance acuity and therefore will not become nearsighted.

There is some reason to conclude that providing activity which primarily is oriented to distant vision until the child is at least seven years of age will give the child an opportunity to achieve highly without sacrificing distant vision. Comparative school entrance-age studies give considerable support to this thesis.

As the young brain develops there is also a progressive improvement in sound discrimination. Carter and McGinnis (1970) note that the ability to differentiate among speech sounds is considered by many investigators to be of prime importance in successful reading. If a child is unable to differentiate between sounds he will be unable to reproduce the sound correctly in speaking. This would also handicap him in recognizing written words, since improper pronunciation would lead him to expect a different spelling of the word.

Wepman (1968:1-6) says that in some children auditory discrimination and auditory memory--"ability to retain and recall speech sounds"--are not well developed until the age of nine.

Even more difficult for many young children is intersensory coordination and response. Birch and Lefford (1963) make clear that the integration of certain intersensory modalities do not take place until children are age seven or eight. We conclude therefore

that the imposition on an unready brain of tasks requiring such integration--as for example in reading--constitutes a strain and therefore potential damage to the young child's brain.

Cognitive and neurophysiological evidence then points to the desirability of building a strong physiological and emotional loom on which to weave the child's cognitive experience. To hurry the building of this framework threatens to incur learning disability.

Affective development. Many of the factors already discussed have implications for the affective development of the child, but a number of specific studies are available which specifically underscore the danger emotionally and attitudinally of taking the child out of homes to place him in school at a very early age. Blatt and Garfunkel (1969) hypothesized

> . . . that a 2 year intervention with preschool lower class children will enhance their demonstrated educability. This hypothesis was tested with a variety of measurements over a 3-year period and included the testing of cognitive, non-cognitive, and environmental factors.

But "the analyses of the data led to the unequivocal inference that the groups were no more different at the conclusion of the study than they were at the beginning (1969:121)." Blatt and Garfunkel were forced to reject their hypothesis, concluding instead that (a) the home is more influential than the school, (b) the school can do little without strong home support, (c) disadvantaged parents "are often anxious to cooperate" and (d) school organization and requirements are often "foreign" to these parents who in turn are blamed by the school for not readily accepting them (1969:119-120).

Husén (1967) did a correlational study of mathematics achievement which included a comparison of achievement of attitudes toward school. He drew his samplings from Australia, Belgium, England, Finland, France, Germany, Israel, Japan, the Netherlands, Scotland, Sweden and the United States. Rohwer (1970) ranked Husen's samples in terms of age, of school entry and of national medians in each country. He found no significant

negative correlation between age of school entry and mathematics achievement but he found a significant negative correlation between school entry age and attitude toward school. In other words, the longer the student had been in school before sampling, the greater the probability of negative attitudes toward school.

Pontius' studies further (1972) underscore the potential behavioral liabilities of speeding up "concrete" adult demands on children. And Heffernan suggests that we may be "warping children to satisfy adult demands." (1968:496-497) Then she proceeds to ask

> Are we denying children their childhood by forcing formal language and reading on them at too early an age? There is a cultural pressure in our society to make every child learn to read in kindergarten or first grade. Children with a developmental lag in language maturation are extremely vulnerable in our society (1968:496-97).

Questions on procedures. Several questions have been logically asked by those concerned with learning disabilities.

1. How then do you suggest the handling and implementation of early screening programs to determine which children need special early education in a clinical or other institutional format? Generally this initial screening is considered a function of the teacher in the school. The family physician is however becoming increasingly concerned and involved and should be a principal counselor. Otherwise community services should assist the family in this respect. A fourth or more of the children may have this need.

2. At what point do you believe special education for handicaps should be provided? Special education should be provided at whatever age specialists consider necessary for appropriate therapy and maximum growth on the basis of research and successful experimentation.

3. What procedure do you suggest for monitoring dysfunction or damaged systems in children, as opposed to simple immaturity? This again should be assumed as a public res-

ponsibility through community services, when it cannot be afforded privately.

In all efforts to treat the learning disabled or atypical child, research should be a prominent guide. It is believed that this is commonly true and is a prominent reason for the success of special education today. But special educationists should be just as concerned that the ranks of the learning disabled not be unnecessarily extended. To this end, profiting by their successful experience, they should lend influence and effort to insure that those who plan for the typical child adhere more closely to replicated research findings in all areas respecting his early development.

We strongly suggest then that we not only need a greater (1) research effort, but we should (2) correlate it with other pertinent research, (3) enunciate it clearly and simply and (4) place it in those media where it will have maximum exposure and power, in terms of educational planning and implementation.

Conclusion. A careful canvass of preschools will usually demonstrate that the ideal early schooling programs that are often proposed are seldom ideally implemented, even by the most skilled personnel. When funding is cut back or inflation takes its toll, as often happens, even the best of programs often become child traps, as child-adult ratios increase and quality of personnel erodes. Clinical or out-of-home arrangements must be made for those children who are handicapped or whose parents are unable to provide adequate care. Yet a broad spectrum of research indicates that this care should be given in an environment as near as possible to a warm, consistent and constructive home if the child is to become a stable, well-motivated and adjusted person.

It has been repeatedly demonstrated that a twin child, through intensive stimulation, can be taught to climb stairs a bit earlier than he normally would. But usually it is noted that the other twin, left free to explore for himself (under parental supervision) will shortly be as good a climber as his stimulated sibling. In fact the free child is often

found to have less anxiety than the one who has been "pushed." The sum of replicated ECE research points in the same direction in terms of early cognitive stimulation and related intellectual accomplishments.

In an optimum home, a mother teaches her affectively-oriented creature much by example, and relatively little by didactics. She shares household errands and routine more and more as the child grows older. The child who thus develops values of responsibility, neatness, promptness, etc., becomes a self-respecting creature. This translates into self-discipline and intrinsic motivation of a high order. To the extent that we depart from this principle of family-building and responsibility (as may at times be necessary) the child's development is in jeopardy. To the extent that we can support this family integrity, by hewing as close as possible to the home ideal, the child will not only be a better social and emotional creature, but also a better intellectual person, with all the mental stimulation that may be appropriate for his age.

Thus we conclude that California's call for "primary school at age four . . . for the vast majority of children" (1972:10) or for all (1972:5) is unwise; likewise New York's endorsement (1967) of "formal education" down to age three, however modern the methods. Also contraindicated by research is California's stipulation that "All children must acquire the basic tools of learning in reading, oral and written language, and arithmetic by the time they are ready to leave the primary school (1972:2)." A review of research evidence tells us that there will be much less likelihood of learning disability at these ages if effort is directed primarily toward affective development and the building of values in a home or a home-type environment, and we worry less about cognition and the tools of learning.

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