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978-0-521-29207-8 - Middle Start: An Experiment in the Educational Enrichment of Young Adolescents

J. Milton Yinger, Kiyoshi Ikeda, Frank Laycock and Stephen J. Cutler

Excerpt

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1. The sources of academic achievement: theoretical perspective

Are educational quality and educational equality essential to an open society? If so, can they be attained directly by attention to training; or are they primarily dependent variables, reflecting home and community environment? Are patterns of language and perception, motives to learn, and basic skills set at such an early age that kindergarten is already too late; or are there possibilities for growth at every age, albeit of different kinds and degrees?

During the last decade, such questions have attracted the attention of many scholars and stimulated many public and private programs of action. For example, over ten years ago, in 1965, the United States embarked on an educational enterprise designed to reduce the disadvantages some children carried with them as they entered school: “Head Start,” which rapidly became a major project. In 1975 it enrolled 350,000 children, most of whom were in full-year programs, and operated on a budget of \$392 million, which Congress renewed for three years.

Somewhat earlier, in 1963, we were asking ourselves whether early adolescence was a strategic time to effect significant changes in educational motivation and performance. We shared the generally held view that inspired Head Start: “the earlier the better”; but we did not believe that attention to the early years would eliminate the need of attention to later years, for we thought the problems differed according to the period of life. This point is well made in a recent monograph on programs of educational intervention in early adolescence:

older children may still have serious basic skills deficiencies despite earlier exposure to special programs if, at the time of that exposure, they were not cognitively ready to gain the maximum benefit from it. Studies by Kagan, Piaget, Elkind and Moore suggest that the rate at which certain cognitive capacities develop is influenced by individual and cultural factors. Thus the children of low income, minority families who form the target group of compensatory education programs, may develop the particular set of skills needed for school learning more slowly than do upper income

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children. Therefore, not all such children will be able to gain full benefit from even well-designed and generally effective early programs. (Larson and Dittmann, 1975: 4)

Research on issues related to compensatory education has been influenced by school integration and the opposition to it, the increasing importance of education to an urban society, the growing interest in equal opportunity, and other national trends. A variety of sophisticated methods have been used in this research: surveys of large populations have been designed to isolate precisely the factors in individual, family, and community life that keep pupils in school and encourage high achievement.¹ One group of studies examined school integration as it relates to individual and group background, on the one hand, and to school performance on the other.² Another series assessed programs specifically designed to help minority children to do better in school.³ Most of this research is *ex post facto*; seldom is there a control group. As a result the conclusions must be and generally have been stated cautiously.

We report here a field experiment, with carefully selected experimental and control groups, designed to show whether a relatively minor school experience – when judged against all the pressures on academic performance – would have a significant effect on children in the middle years of schooling. The main stimulus was a six-week summer program on a college campus, followed by a modest series of related activities during the succeeding five years. We measured the possible effects of these experiences as indicated by persistence in school, grades and achievement test scores, and the quality of the schools or programs entered after the seventh grade. Our theoretical perspective, of course, determined the independent variables and the methods by which we examined their cumulative effect and their interaction.

Approaches to the study of human behavior

Explanations of human behavior follow waves of style. Today there is some resurgence of the belief that man's capacity for aggression evolves largely from his biological inheritance.⁴ Some studies emphasize the biological base of intelligence, concentrating upon individual and racial differences.⁵ No one, to our knowledge, denies the influence of experience and opportunity. A number of authors do affirm, however, that most of the variation in intelligence can be accounted for by hereditary factors. Other studies examine the impact of experience, but from a

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classic or modified Freudian perspective that takes into account only the earliest years when, so some argue, a rich and flexible or a constricting lingual screen is formed, motivation and a sense of self that either support or inhibit intelligence and confidence develop, and levels of nutrition and health either promote development or leave a permanent deficit.⁶

On the other hand, many beliefs, theories, and policies promote the view that experience and opportunity continue to work beyond earliest childhood. Cultural resources, more than genes, set a ceiling on intelligence (Faris, 1961; Hunt in Deutsch, Katz, and Jensen, 1968: chap. 8). Developing a concept of “collective ability,” Robert Faris reaffirms the importance of the super-organic influence on human creativity and accomplishment: “to an important degree, a society generates its level of ability . . . the upper limit is unknown and distant . . . the processes of generation of ability are potentially subject to intentional control.” The level of ability is influenced, not only by society’s funded knowledge but by the distribution of stimuli, the availability of models, the changes that breach constricting “aspiration boundaries.” “Few persons can summon their maximum effort against what they conceive to be an absolute impossibility, but their powers may be released if they are shown, by the example of achievement by a person they view to be comparable, that the thing can be done.” (Faris, 1961:841.) Implicitly if not explicitly agreeing, the federal government supported Head Start programs for three to five-year-olds and Upward Bound programs for adolescents, in the belief that campaigns such as these will identify and stimulate unused capacities. So, too, colleges and universities now enroll students who do not meet what used to be minimum standards, in the hope that the stimulus of college may be able to reduce the deficits of the first eighteen years.

Those who stress environment do not usually deny the importance of inheritance or the impact of the earliest years. Some psychological behaviorists and sociological structuralists, to be sure, give major attention to external stimuli; but there are few today who overlook, at least in their theoretical statements, the full range of influences on behavior. Among those who argue the case for external forces, however, there is important disagreement on whether the shared norms and values of cultures and subcultures are critical; whether, for example, if two groups differ in educational aspirations and performance, the differences indicate cultural contrast. This point of view is developed most fully by

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those who employ the concept of a “culture of poverty,” the phrase by which they refer to norms and values that in their judgment, give traditional support to poverty as a way of life.⁷ It is not simply a matter of low income. Lewis argues that many people in the world are very poor without feeling the hostility to the dominant institutions, the fatalism, and the feelings of helplessness and inferiority that characterize the culture of poverty. The culture of poverty “is a culture in the traditional anthropological sense in that it provides human beings with a design for living, with a ready-made set of solutions for human problems, and so serves a significant adaptive function” (Lewis, 1966: 9).

Other scholars – we shall call them “structuralists” in contrast to the “culturalists” – believe that differences in aspiration and school performance (along with economic, familial, and other differences) come primarily from the structure of opportunities. On the one hand, they argue that values and aspirations are shared throughout a society and across status levels; on the other hand, they stress the great differences in access to resources and opportunities. The culture of poverty, in their view, is a secondary set of norms, a series of painful adjustments to difficult conditions, a “value stretch” by which those in poverty try to deal with limited opportunity, crushed self-esteem, discrimination, and other burdens (Rodman, 1963). As Lee Rainwater puts it, the poor, faced with enormous obstacles when they try to “play the games” of the dominant society, develop their own games, which are to some degree passed along in the socialization process. With specific reference to black Americans, he writes: “The substitute adaptations of each generation condition the possibilities subsequent generations have of adapting in terms of the requirements of the normative games. . . . Nevertheless, in the American context at least it is clear that each generation of Negroes has a strong desire to be able to perform successfully in terms of the norms of the larger society and makes efforts in this direction” (1970: 143).

In the area of our interest, educational plans and performance vary widely among status groups, so the structuralists argue, because of differential opportunities, not because of differential talent or varying cultural support.⁸ From this point of view, it follows that sensitive high school counseling, GI Bills or other financial subsidies, the existence of community colleges within commuting distance, and the like, all close the gap between educational aspirations and realistic expectations among the less advantaged.⁹

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Clearly, important policy questions are involved in this debate. To the extent that authors such as Oscar Lewis (1966) and Edward Banfield (1968, 1974) are right, elimination of poverty (and, by extension, of educational disadvantage) may do little to abolish the culture of poverty. To the extent that the structuralists are right – and we think the evidence supports them more strongly – the first need, if cycles of poverty and poor educational performance are to be broken, is to alter the social reality, the opportunity system. Efforts to convert the disadvantaged to a new culture or to resocialize them to a different set of values are likely to fail in the absence of new opportunities, realistically available and fully perceived. This is not to say, however, that normative systems adapted to poverty, and individual tendencies that express and help to perpetuate them, do not play a part in the total pattern of causes. Culture and character do not merely reflect the social structure: they strongly influence perception of and response to changes in the structure of opportunities. Although the first requisite in strategies of change is the opening up of opportunities, eventually group norms and individual tendencies must also change. Opportunities are never absolute; they are relative to the attitudes, skills, and perceptions of those who experience them, and to the cultural norms and values through which they are interpreted.

For many of those in poverty a powerful combination of structural and cultural factors is connected with racial discrimination. The causes of poverty, as Duncan has forcefully documented, are by no means identical in the case of Blacks and Whites in the United States (1969: chap. 4). He estimates, for example, that at least one-third of the income gap cannot be accounted for by differences in education, family background, number of siblings, or ability. That one-third is the cost of being a Negro (as of 1962 in the United States). Clearly no simple explanation based on a subculture of poverty is adequate.

To what degree can these approaches be reconciled?

Such complexity, and such diverse interpretations of it, call for a pragmatic attitude, and not too tight a hold on theoretical premises. We sought to find by research which elements in the cycle of causation can best be controlled. We believe it is more important to seek ways to develop the unused capacities in all human beings than to debate how existing circumstances determine the present range of variation in abilities.

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We did not start our research, however, lacking judgments and assumptions about the sources of talent and of the factors that promote or inhibit educational achievement. To some degree, we share each of the perspectives mentioned above. We believe that any complete statement must take account of four orders of phenomena: biological factors, early learning, subcultural and cultural influences, and the structure of opportunities; that attention to each of these factors must be significantly qualified, and they must then all be brought into one theoretical system that takes full account of their interdependence. To comment briefly on these points:

First, it appears to us that inheritance does produce some range in human capacities but that this assumption requires two qualifications:

(1) There is no evidence that the range of inherited capacity varies significantly among races. Rather, group variations in measured intelligence reflect the skills tested, the measuring instruments, and the patterns of experience and opportunity.¹⁰ We shall not explore, nor even cite, the vast literature on this subject (but see Simpson and Yinger, 1972: 50–6 and 203–4). To generalize about group differences without full equation of nutrition, stimulus deprivation, experience of discrimination, test conditions, and general environmental support is to rest conclusions on a weak foundation. We believe that the study of intelligence is on much sounder ground when it examines the organism–environment transactions.

(2) Socially shared knowledge and methods of training, more than inheritance, set the ceiling on intelligence. Average men today can understand aspects of the natural world that once baffled geniuses, because, as Newton said, we stand on the shoulders of giants. It is far more important to improve methods of training that lift the base of socially shared knowledge than to dwell on the range of inherited differences.

Second, we recognize the importance of poor stimulation, ego-strength, and nutrition during the early years. This point must also be qualified:

(1) The importance of early life can be exaggerated, because those who are deprived in infancy are usually those who are deprived later as well. We cannot attribute poor motivation or talent to childhood experiences without controlling the reinforcing effects of later experience. (We hope that our research will make some contribution to this problem.)

(2) The importance given to the first few years is not intrinsic to

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them, but may be merely a reflection of the present state of our knowledge. We may learn to prevent or overcome nutritional deficits, to reverse or redirect motivation. The evidence is reasonably good that, at the present time, severe protein-calorie deficiencies during the first year of life impair mental development, while moderate malnutrition in later infancy seems to have effects that are reversible. In either case, the deficiencies and the knowledge or lack of knowledge to eliminate them are all part of a socio-cultural system; they are not simply biological facts to be taken as given (Kallen, 1973; Montagu, 1972).

Third, recent research on cultural influences has illuminated their involvement in education. Instead of assuming that American values uniformly support education, we must study their range carefully. Here again, however, the contribution of a particular orientation – in this instance, to cultural variation – is greatest if its limitations are recognized. The study of cultural factors in education must begin with two qualifications:

(1) Culture is not simply an independent variable, causing behavior in a given environment, separately or in conjunction with other factors. Culture itself develops and changes. From one perspective, as already noted, it is a group's adjustment mechanism, one that must be studied in the lives of particular people in particular circumstances (Ball, 1968; Parker and Kleiner, 1970; Rodman, 1963).

(2) In complex societies such as the United States, a wide variety of cultural influences bear on education, only some of which are effective in a particular context (for an analogous point referring to delinquency, see Matza and Sykes, 1961).

Fourth, the opportunities and surrounding stimuli are important in every individual's education, just as they are in his work, politics, and religion. The social structure, as the term is used here, is built of small-scale, personal encounters, broader reference groups of significant others, and the impersonal resources of local and national institutions. Together they make up the opportunities open to any individual. Regardless of personal capacities or the strong cultural value placed on education, the individual's attainment will be limited in the absence of strong structural supports. This proposition must also be qualified:

(1) Individuals respond differently to the same opportunities. That is, changes in opportunity are not enough, in themselves, to guarantee changes in behavior. Individual tendencies and social encouragement are involved. What is an opportunity to one person is an impossible

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dream, a threat, or a hoax to another with different tendencies. Interaction effects, as well as the additive effects of separate factors, are crucial.

(2) Subsocieties with somewhat different values and norms also vary in how well they stimulate their members to take advantage of opportunities. If it is unwise to explain behavioral differences between classes by culture alone, it is equally unwise to overlook the fact that societies and groups within them evaluate education differently. Persons of equal talent, facing equal opportunities, will respond differently if their cultural supports vary.

The field theoretical approach

An adequate theory must combine the biological, psychological, cultural, and structural influences on education. We shall not work out such a theory here.¹¹ But we shall illustrate how it might restate questions related to education and educational attainment. One of the postulates of field theory is that all four influences on behavior must be taken into account, because behavior is the cumulative effect of them; indeed, is often a *product* of their interaction. In the latter case, an activity cannot occur if any one of the four influences is lacking. A corollary is that efforts to improve educational performance are most likely to be successful when several factors are strengthened, since biological, cultural, structural, and psychological influences *combine* to produce a given outcome. That outcome would not occur without all the factors, but the weights assigned to each, under various conditions, need empirical verification. We would posit that, were the data rich enough and the mode of analysis powerful enough, interaction effects would emerge from analysis; nevertheless, this is not necessarily so in any given piece of research. In many systematic empirical studies, total effects have been shown to be composed of both main effects and interactive effects, depending on the statistical tools used.¹²

Let us put the argument for a product model in simple mathematical terms, using fictitious numbers. Assume that a given level of education is a function of inherited capacity, learned skills and motives, cultural definitions of appropriate behavior, and structural opportunities. Assume further that each factor can have a support score ranging from 0 to 10. Now compare two individuals of the same capacity but differing on the other three factors. Their education, the product of all four

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Table 1.1. *A field theoretical model of educational performance*

	Inherited capacity	Learned motives and tendencies	Cultural support	Structural support	Product score
Individual A	5	5	5	5	625
Individual B	5	2	2	2	40

factors, would be sharply different, as seen in the multiplicative model (Table 1.1). If the statement in Table 1.1 is correct, Individual B is educationally deprived, and the modification of only one factor cannot help significantly. If some experience should strongly increase B's motives and skills (to a score of 8, say), while the cultural and structural supports remain weak, then in a strictly multiplicative model there is some improvement ($5 \times 8 \times 2 \times 2 = 160$); but B still will fall seriously behind Individual A, who has equal capacity and poorer motivation, but substantially stronger cultural and structural supports.

In another sense, the simple mathematical model in Table 1.1 indicates that no chain is stronger than its weakest link. We get the largest *product* of four factors that add up to 20 with $5 \times 5 \times 5 \times 5$, the lowest (if zeros are excluded) by combining two nines and two ones. If our interpretation is correct, wise educational policy deals with all possible factors. Theories that emphasize one factor not only are less powerful analytic tools, but they are less useful guides to community action than are multifactor theories. An extraordinarily low score on one factor is likely to mean that compensatory efforts aimed at related factors can have only moderate effect.

We can get an index of the relative influence of "opportunity" effects and of "capacity" effects on education by reexamining the data in Sewell and Shah's study (1967) of a sample of Wisconsin males. In a series of papers Sewell and his colleagues sought the factors that determine who is likely to graduate from college. Effects of opportunity stem from the family's socioeconomic status (SES), whether high or low. Coming from a higher SES, the upper middle-class child will have grown up possessing more advantages in the social structure, having been exposed to cultural influences that support the motives and skills necessary for higher attainment.¹³ A child of similar capacity (as measured by IQ, for example, crude as it may be for equating capacities or

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Socioeconomic status	Intelligence levels				Total
	Low	Lower middle	Upper middle	High	
Low	001	036	050	092	034
Lower middle	010	034	077	158	065
Upper middle	020	045	112	214	100
High	048	107	177	293	193
Total	014	053	110	217	100 (21.8%)
<i>N</i>	(1,070)	(1,100)	(1,083)	(1,133)	(4,386)

^a Expected percentage represents the percentage of all males in the total sample who graduated from college: 21.8%. This expected value is divided into the obtained percentages for each condition or cell of SES × Intelligence level to index the departure from the expected value, and it is further multiplied by 100 to round out the values into whole numbers.

Source: Adapted from Sewell and Shah, 1967: 15.

potential), but with parents of lower SES, is more likely to be denied valuable activities and the culturally shared knowledge found in families of upper SES. Such limitations reduce the chances of graduating from college, regardless of capacity.

Of all males in this Wisconsin study, the percentage graduating from college was 21.8. We would expect more men with equal capacity but of higher SES to go beyond this norm, given their greater chances at learned skills, and the appropriate motives, related opportunities, and cultural supports. The converse should be true of males of equal capacity but lower SES. In fact, the relative advantage of a male of higher SES in completing college work shows up at every level of IQ (Table 1.2). Even at the highest IQ, the child from the lowest SES falls below parity (a score of 100), with a score of 092; the child at the highest level of both SES and capacity, on the other hand, exceeds parity by a score of 293, or 2.93 times that expected of the population as a whole. The ability of parents and other adults of higher SES to see that their children finish college is evident: their children's chances are consistently greater than those of equally talented children of lower SES. Sewell and Shah found that, among males, a high IQ contributed slightly more