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ABSTRACT

Since the 1950's a number of large-scale intervention programs have been created to promote equality of educational opportunity among diverse social groups through the provision of additonal resources to the educational environments of selected students from disadvantaged backgrounds. At the secondary and postsecondary levels, such programs have usaully sought to raise the academic achievements and motivation of selected students from lower socioeconomic backgrounds and increase the numbers of such persons graduating from high school, enrolling in college, and graduating from college. Although these intervention efforts have been in operation for many years, little is known about their collective impact on the targeted populations. The present report attempts to alter this situation by reviewing and synthesiging the available literature as to the effects of intervention programs at the secondary and higher education levels. Making such a synthesis is a difficult and hazardous enterprise. Problems arise because many of the studies have looked at different outcomes, for different populations, at different points in time, in different educational settings, using different measures and different research designs. In addition, there is the difficulty of determining the reliability and validity of a study's findings. On the whole, virtually all of the evaluations are seriously flawed. (Author/JM)

THE EFFECTIVENESS OF SECONDARY AND HIGHER EDUCATION INTERVENTION PROGRAMS: A CRITICAL REVIEW OF THE RESEARCH

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V.T.

R.S.

SUMMARY

Since the 1950's a number of large-scale intervention programs have been created to promote equality of educational opportunity among diverse social groups through the provision of additional resources to the educational environments of selected students from disadvantaged backgrounds. At the secondary and post-secondary levels, such programs have usually sought to raise the academic achievements and motivation of selected students from lower socioeconomic backgrounds and increase the numbers of such persons graduating from high school, enrolling in college, and graduating from college.

Although these intervention efforts have been in operation for many years, little is known about their collective impact upon the targeted populations. The present report attempts to alter this situation by reviewing and synthesizing the available literature as to the effects of intervention programs at the secondary and higher educational levels. In doing so, the report begins with a brief history of intervention programs, starting with New York City's Demonstration Guidance Project in 1956 and continuing with that city's Higher Horizons program. It is noted that these early efforts were important in establishing a model of educational intervention which: (1) employed a "deficit" model to account for the differential rates of academic achievement between children of differing social classes, (2) offered supportive educational services, such as tutoring, counseling, and cultural enrichment, (3) worked with a segment of the "disadvantaged" population, principally those students

considered to possess academic potential, and (4) concentrated principally on the development of reading and mathematical skills. This general approach to intervention is evident in virtually all the programs considered in this report, e.g., Title I projects, Upward Bound, Educational Talent Search, College Bound, Project ABC, Summer Skills Program, Junior High School Summer Institutes, Gary Job Corps Diagnostic Reading Program, Special Services projects, Educational Grants Program, SEEK, and the College Discovery and Development Project. Indeed, it is noteworthy that so little attention has been paid to the utilization of alternative modes of educational intervention. Most programs reviewed here have been very much alike in their approach to the problems of intervention in education.

Synthesizing the results of the evaluations of secondary and post-secondary intervention programs is a difficult and hazardous enterprise. Problems arise because many of the studies have looked at different outcomes, for different populations, at different points in time, in different educational settings, using different measures and different research designs. In addition, there is the difficulty of determining the reliability and validity of a study's findings. On the whole, virtually all of the evaluations are seriously flawed. Many rely upon gross figures, such as number of graduates, grade point averages and standard test scores, to assess a program's success or failure. Such an approach, however, is inadequate since it does not control, or take into account, a myriad of input and process factors which may also affect program outcomes. As a result, it is frequently impossible to determine which program components,

singularly or in combination, were most effective in producing particular program outcomes among specific populations.

While recognizing the gravity of these methodological problems, and the limitations of much of the available research, this report has reached several conclusions as to the success of secondary and post-secondary intervention programs. For Title I projects, there is little evidence, other than teacher opinions, to demonstrate a positive program impact. And while a considerable proportion of the program funds have been invested in supportive educational services, such as personnel, school construction, and classroom materials, a large number of eligible students have not been reached by the program. For Upward Bound, a program designed to increase the number of "promising" disadvantaged adolescents who attend college, the results have been quite favorable, showing positive effects upon the numbers of students who graduate from high school and enroll in college. In terms of academic achievements in the cognitive domain (e.g., reading scores, achievement tests, etc.), the program does not seem to have had much impact. The Educational Talent Search Program is currently being evaluated. Other secondary school intervention programs appeared to have had some positive effect upon educational attainment when a particular college committed itself to accepting qualified program graduates.

Programs at the college level appear to have had equally limited consequences. Special Service projects do not seem to have affected either the gap in academic achievement between "disadvantaged" and "advantaged" students or the academic achievements of program students relative

to non-program students from similarly disadvantaged backgrounds. But again, some positive impact was noted in the attitudinal and motivational orientations of program students, changes perceived as positive consequences of the program. The Educational Opportunity Grants Program, intended to locate and support eligible poor students through college, seems to have successfully met its objectives, but information on the academic performance of these pupils is unavailable. Programs like SEEK and College Discovery and Development have had mixed success in increasing the number of graduates and in improving their academic performance.

The review of the available material on secondary and post-secondary intervention programs leads to several conclusions and prompts a number of recommendations as to future intervention programs. First, it appears that while most programs have had relatively little impact upon the cognitive academic achievements of targeted populations (e.g., reading and mathematics achievements), a number of programs have had positive effects, specifically upon academic progressions and non-cognitive orientations of students such as measured by attitudes, values, and motivational orientations. Second, the more successful efforts appear to have resulted from a closer integration of the project into the regular school or college program. At the secondary level, this is especially evident when a particular college makes a commitment to accept the graduates of the program, and at the higher educational level, when the program is functionally integrated into the academic and social mainstreams of the the college. It must be noted, however, that these conclusions must remain at the level of suggestion since most of the evaluation studies thus far examined have been seriously flawed and incomplete.

Recommendations for future intervention efforts include provisions for the improved planning, execution, and interpretation of evaluation research, the funding of longitudinal evaluations, and the dissemination of research findings to a wider audience. Also suggested is the need for programs to include a larger number of a more representative sample of the "disadvantaged," to focus more explicitly upon non-cognitive learning outcomes, and to employ alternative models of learning and educational attainment as foundations for program construction. In this respect, it is also suggested that funding for future intervention programs be so structured as to permit a wider array of program types and a more serious experimentation with alternative intervention approaches.

INTRODUCTION

Our society's involvement with questions of equality of opportunity among differing social groups has been reflected in many areas, perhaps nowhere more than in our nation's educational systems. Inequality of educational opportunity has been a particular concern because of the presumed relationship between an individual's educational attainment and his subsequent social mobility, failures in education being directly linked to lack of opportunity in the job market.

The inability of persons to complete a given educational program has been shown, however, to be the product of many factors largely independent of the individual's ability. Beyond the characteristics of family and community environments, the quality of one's schooling has been thought to play an especially important role in the process of educational attainment. For persons from lower status backgrounds in particular, inferior quality of teaching staffs, limitations of educational resources, and insufficient counseling, among other items, have been seen as largely reinforcing the paucity of educational stimuli in their out-of-school environments.

For that reason, a number of programs aimed ultimately at the goal of equalizing opportunity among individuals of differing social backgrounds, have sought to intervene in the educational process in a manner designed to enrich the educational experiences of "disadvantaged" persons, and thereby enhance the probability that their educational performance and attainments would not differ substantially from those of other persons of similar

ability but different social status backgrounds. These "intervention programs," largely of recent origin, have involved "disadvantaged" individuals from a variety of racial, ethnic, regional, and social status backgrounds. And they have centered their attention upon persons of varying age and grade levels from the earliest pre-school levels to the more advanced, post-secondary school levels.

But though a considerable amount of resources have been invested by both public and private bodies in such programs, and though additional outlays are presently being considered for their continuation and extension, there is still much unknown about the impact of these programs upon the target populations. And what little is known, has yet to be thoroughly synthesized into a coherent map of factual data. It is the purpose of this report to begin such a synthesis; in this instance, of what we know about the impact of intervention programs at the secondary and post-secondary educational levels.

Specifically, the report will attempt to do several things. After a brief history and description of the means and objectives of secondary and higher educational intervention programs (Chapter One), attention will focus upon questions of evaluation (Chapter Two). Such questions are central to the present focus because of the very direct relationship between techniques of evaluation and observed impacts of intervention programs. Chapters Three and Four will then synthesize the available research on the impact of the major secondary and higher educational intervention programs. Attention, in this instance, will be limited to the major programs simply because the covering here of the very large number

of very small, single institutional programs would expand the report beyond sensible limits. Nevertheless, Appendix A presents, in "report form," information on the attributes of a larger number of the more important smaller programs, while Appendix B cites the availability of data on a much larger number of small programs. Chapter Five summarizes the findings of the report, while the final chapter (Chapter Six) makes a number of policy recommendations concerning possible changes in current intervention programs and in their modes of evaluation.

Before proceeding to the body of the report, several cautionary comments are called for. First, in attempting to compare and synthesize results from a very diverse set of studies and reports, the authors have had to make a number of unifying assumptions as to definitions, meanings, and characteristics of data bases. For instance, the term "promising student" occurs throughout the literature, very frequently with no information given as to the criteria upon which such evaluations are made. In this and other instances we have sought to remain faithful to the contents and contexts of the synthesized reports. And though we recognize that our decisions as to meanings may sometimes err, we are confident that no work reviewed has been unduly misrepresented.

We have also been forced to make a number of decisions concerning the comparability of findings from a very diverse set of studies and reports, reports based upon data sets generally unspecified in nature and often quite disparate in distributional characteristics. More importantly, we have had to make judgments as to impacts of programs whose evaluations were generally insufficient and very often unrelated to the range of

program objectives. In all instances, we have sought to be objective in our comparisons and unbiased, as possible, in our decisions as to the impacts of intervention programs. Nevertheless, we recognize that some degree of "value-laden" noise is unavoidable in all such decisions and have therefore attempted to state our positions on given issues where appropriate.

CHAPTER ONE

INTERVENTION PROGRAMS AT THE SECONDARY AND HIGHER EDUCATIONAL LEVELS: THEIR BACKGROUND AND OBJECTIVES

A Brief History of Intervention Programs

One of the first large-scale efforts to improve the educational performance of disadvantaged youth occurred in 1956 in a New York City junior high school.[1] Called the Demonstration Guidance Project, the program established a model for intervention for much of the later work with the disadvantaged adolescent. In this instance, approximately 700 "promising" but poorly performing students were selected for the six-year project, students whose measured competencies in reading and mathematics were more than one year below the national norms for their grade level. The selected students, representing all of the grades in the school of over 1,400 students, were provided with a variety of compensatory services such as small classes, remedical instruction, culturally enriching activities, modified curricular programs, and special counseling.

An evaluation of program participants in 1960, 1961, and 1962 was conducted to assess the impact of the intervention efforts. A control or comparison group was set up by using pupils who had graduated from the

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[1]It must be noted that intervention into education is not a new phenomena in America. Throughout our history, groups have sought to intervene to improve the education of the poor. Only recently, however, have these efforts been national in scope and large-scale in character.

same junior high school and who had also attended the same senior high school.[1] The findings of the evaluation revealed several positive outcomes. In terms of completion rates, 78% of the project participants graduated from high school, a rate nearly 30% higher than expected. More precisely, 108 academic diplomas were given to the program participants and only 43 to the comparison group of non-program students. Of the former group some 89% went on to some form of higher education, while a substantially smaller percentage of non-program students did likewise. Another 150 of the program participants graduated with general and commercial diplomas with 48% of these persons continuing their schooling beyond high school. Overall, of the 365 project students studied, some 168 went on to some form of higher education, while only 47 of the control group did likewise. In terms of academic achievements, 1947 of the 250 individuals who first started with the project in the seventh grade show an average gain in reading achievement of 4.3 years after just 2.6 years of instruction (U.S. Commission on Civil Rights, 1967). And finally, the evaluation noted increased school attendance, a rise in I.Q. scores, and a decline in "behavior" problems among the program participants.

A second and much larger effort at intervention, called the Higher Horizons Project, was also established in New York City. Begun in 1959, this project attempted to expand the scope of the Demonstration Guidance Program to include students in elementary, junior, and senior high schools

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[1]This group had received its education somewhat earlier than that of the experimental group; namely from 1957-1959.

in economically deprived neighborhoods in New York City. But unlike that earlier program which selected a number of students within a school, the Higher Horizons Project included all pupils attending a variety of selected schools. As part of the project, additional teachers and curriculum specialists were brought into the target schools where they concerned themselves primarily with curriculum modifications and improvement of students' reading skills.

The Higher Horizons Project proved, however, to be much less of a success than the much smaller Demonstration Guidance Program. An evaluation of the project several years after its commencement found few differences between project and non-project schools on factors such as academic performance, school behavior, and student attitudes toward school (Wrightstone, et. al., 1965). In some respects, the relative absence of observable outcomes in programs involving more than one school is no longer surprising. This is especially so since we have become increasingly aware of the critical distinction between within-school and between-school variations in educational outcomes. Specifically, that intervention programs of any sort tend to have greater impact upon variations in student learning within schools (i.e. relative to other students not aided) than it does upon variations between schools in aggregate learning scores.

In any case, the failure of the Higher Horizons Project to produce significant changes in school-level outcomes contributed to its discontinuance; a discontinuance which marked, however, only a very brief interruption in the beginning avalanche of a wide variety of intervention programs in education. But though we will be covering here only the more

important of these programs at the secondary and post-secondary educational levels, it must be noted to what degree these early programs set the stage for later programs. Both in content and approach to the problems of intervention, later efforts tend to parallel these programs in the types of services provided (e.g., special counseling, modified curriculum) and in the manner in which those services were entered into the educational system (e.g., with little attempt to modify the structure of the program schools).

Intervention Programs: Their Objectives and Means

As noted earlier, the overriding objective of all intervention programs is the equalizing of educational opportunity among differing social groups. Given the still widespread belief in the role of educational attainment in social opportunity, these programs have sought to alter the patterns of educational achievement of disadvantaged youth as they move through the school system. As Coleman et. al. (1966) have shown in their landmark study of inequality of educational opportunity in America, the average minority student scores lower on tests of verbal and nonverbal skills at every grade level than the average majority student. Without external intervention this achievement disparity between youngsters of differing social classes becomes progressively larger at higher grade levels. Implied by this trend in learning differences is a direct relationship between the size of the "learning gap" and the number of years individuals spend in poverty neighborhood schools.

Intervention programs at the secondary and higher educational levels seek to stop and even reverse this trend. They do so by signaling out "promising" children of the poor (as defined by federal guidelines) and, through the improvement of their educational performance, help them attain a college education. At the same time, a number of post-secondary programs have also sought to redirect value orientations and enhance motivational forces in ways which would facilitate individuals' persistence in college and hopefully their functional involvement in American society.

In order to achieve these objectives, intervention programs have utilized a number of educational tools, for the most part, very much like those employed in the first Demonstration Guidance Program.. Most include provisions for financial assistance, counseling, tutoring, and remedial instruction. Sometimes modifications are made in the curriculum and specially trained teachers employed. Other times attempts at cultural enrichment occur. Periodically, these efforts are combined, as with the SEEK program, and modified curricula utilized which employ specially interesting, different, and culturally relevant materials as a means of motivating students to learn.

Such educational tools have been employed, however, in ways which have had little impact upon the structure of the target schools. Changes in the school administrative structure, values and behaviors of the regular teaching staff, and ongoing instructional techniques for instance, are quite infrequent. For the most part, intervention programs have tended to employ means designed primarily to supplement the target population's

educational environments, not restructure it. Past intervention programs have therefore had apparently little, if any, impact upon the schools themselves.

Means and Objectives: A Question of Assumptions

As important to the understanding and analysis of intervention program as the means and objectives, are the multitude of assumptions about intervention which underlie the setting of objectives and the selection of means. And while it is the primary concern of this report to describe and synthesize what is currently known as to the success and/or failure of secondary and higher educational intervention programs, it is also important to recognize the theoretical premises upon which these programs are based. To understand these premises is to recognize that they directly and indirectly contribute to a program's outcomes and must therefore be taken into account in the evaluation of program impacts.

Probably the most important of these assumptions, that concerning the nature of poverty, remains the subject of considerable debate in academic circles. Briefly this debate centers on the means by which one describes and analyzes the lives of the disadvantaged, particularly those of minority group backgrounds (Baratz and Baratz, 1970; Fantini, 1970; Frost and Rowland, 1971; Ginsburg, 1972; Gordon, 1970; Jensen, 1969; Rees, 1968; Schultz and Aurbach, 1971; and Valentine, 1972). Of particular concern, in this respect, has been the debate over the "proper" interpretation of the roots of "disadvantagement" and its relationship to the

"advantaged" groups within American society. One of the most perceptive commentators, Valentine (1971) has separated the views on these issues into three general categories. And though these categories were originally created to apply to Black Americans, they also have salience for the study of disadvantaged groups, whatever their race, sex, religion, or ethnicity.

The first category Valentine terms the "deficit model." It postulates that deficiencies occur in the group's biological, psychological, or socio-cultural makeup. Adherents to such a perspective, for example, might describe the disadvantaged as being inherently incapable of performing the same type of tasks as the economically advantaged. Similarly, they might refer to the inability of these individuals to manifest achievement motivation, to defer gratification, or to use Standard English as roots of their inability to alter their disadvantaged position in society.

The "difference model," on the other hand, while agreeing that disadvantaged and advantaged groups do differ on a number of dimensions, does not ascribe inferiority to one group's idiosyncracies. To illustrate, the fact that economically deprived persons tend to reveal preferences for immediate rewards suggests, in this model, that this characteristic is an adaptive one, functional for their survival in a disadvantaged environment. They may well have been offered items in the past which did not materialize or they may live such marginal existences that they cannot afford to wait for larger gains sometime in the problematic future.

The final category, termed the "bicultural model," sees a simultaneous adherrence to two cultures or subcultures by members of the disadvantaged groups. While they possess some distinctive styles of

living, this fact does not preclude their ability to interact with advantaged or upper and middle class individuals. Being socialized to two value and behavioral systems permits the disadvantaged to cope with such shared institutions as school systems, courts, and governmental agencies while maintaining the independence of their particular subculture.

Of the three poverty models, intervention programs generally subscribe implicitly or explicitly to the deficit model on "disadvantagement" (Baratz and Baratz, 1970; and Ryan, 1972). Title I programs, in particular, are most likely to view the disadvantaged child as coming from an environment that is deficient in appropriate role models, stimulations, and encouragements. Intervention programs attempt, therefore, to provide additional or supplementary stimuli appropriate to the problem of educational achievement.

CHAPTER TWO

THE EVALUATION OF EDUCATIONAL INTERVENTION PROGRAMS

Evaluation: A Matter of Perspective and Choice

As many researchers have noted (Dyer, 1969; Hagen and Thorndike, 1960; Hyman and Wright, 1967; Weiss, 1972; and Wright, 1968), the task of evaluation research extends beyond the collection and analysis of data. It is also integrally connected to the clarification of program or institutional goals and to the identification of effective means to achieve these goals. In carrying out each of these responsibilities, persons involved with evaluation research are expected to avoid biasing the processes of data collection, analysis, and presentation in ways which unduly affect the method of inquiry. Objectivity is a critical component to effective evaluative research.

While objectivity is a necessary part of evaluation research, it is usually very difficult to achieve. Decisions inevitably must be made about what should be evaluated, who should do the evaluating, how program outcomes should be assessed, when the evaluation should occur, how often it should take place, and what interpretations should be accorded the results. These issues are not easily managed. Nor are they ever conclusively resolved. They can be viewed from a variety of perspectives and resolution at one point in time may appear, at another point, to have been mistaken. For some studies one approach may be appropriate, but for

others a vastly different one may be necessary. In short, the nature of evaluation is such that, as Dentler noted (Rossi, 1972, p. 32), "No good evaluation goes unpunished."

Those involved in the evaluation of educational intervention programs, therefore, face many critical and often unresolvable decisions. Their values, interests, and skills can affect virtually every stage of the evaluation--from the specification of the program goals to be examined to the interpretation of that program's results (Weiss, 1972). The research on secondary and post-secondary intervention programs reflects this situation quite readily.

Among the more important issues that require resolution by program evaluators are those concerning decisions as to which outcomes to study and, when multiple outcomes are involved, decisions as to the proper weighting of the chosen outcomes. With regard to the former, a consensus must be produced as to what a program is attempting to change. The designers must determine whether to examine cognitive, affective, social, psychological, or behavioral outcomes, or some combination of these outcomes. And in the latter instance, they must also decide on the differential weights to be given to different outcomes not only in the immediate context but also in the intermediate and long-range ones. In this sense, evaluators must also be sensitive to the problem of measuring unanticipated consequences, program outcomes which become evident only after the program has begun and which may be as important as those anticipated (Cain and Hollister, 1972; and Friedman, 1971).

The question of choice among multiple possible outcomes becomes especially critical in the evaluation of educational intervention programs at the secondary and post-secondary levels. Such programs often specify the completion of an academic program as a suitable program goal and believe that academic performance is the major determinant of such an outcome. Recent research has pointed out, however, that academic performance is only one of many factors, cognitive and non-cognitive, related to the process of program completion (Tinto and Cullen, 1973). Evaluations based solely on I.Q. scores and/or achievement tests may then decide, when no change in pre- and post-test scores are noted, that a program has been unsuccessful when in fact it may have been. St. John (1971), Coleman, et al. (1966), and others have noted, for instance, the importance of non-cognitive perceptual learnings in the process of educational attainment. Specifically, they found a person's self-concept and sense of control over his environment to be significant factors in school achievement. Unfortunately, such perceptual outcomes, like those of motivations, expectations, and aspirations, have been virtually ignored in program evaluations. As a result, evaluations of intervention programs have been too narrowly focused on formal cognitive learning outcomes and may therefore have missed equally, if not more, important consequences of intervention.

Evaluation: Design and Measurement

Related to decisions concerning choice of outcomes are those of when and how often to measure the effect(s) of interest. Evaluators can

choose between one of two types of studies. In one, referred to as formative or process evaluation, the variables of concern are monitored in a repetitive manner which provides a relatively continuous feedback of information to program overseers. In so doing, such evaluation can be of particular assistance in the immediate modification of an ongoing project. Various aspects of the program can be reassessed and quickly changed if necessary. In the alternative type of evaluation, termed summative or outcome evaluation, only the end products of the program are investigated (Scriven, 1967). As a result, information feedback occurs in a manner which limits the ability of overseers to make program changes until the program or one of its cycles has been completed.

The evaluations reviewed in this report tend to be exclusively of this second type. They tend to focus on immediate, short-term program consequences rather than on their intermediate or long-term effects. In their concern for assessing the cognitive and behavioral consequences of the program upon its participants, program evaluators rarely test a particular program cohort year after year. Even for Title I programs which require annual examinations, evaluation research has emphasized one year changes, not those which occur over several years. And in looking at year-end changes, evaluators have tended to limit their evaluations to the examination of the program's impact upon the participants. Only infrequently have they looked at the effects of intervention upon the regular school staff (teachers and administrators), on the ongoing school curriculum, and upon the normative pattern of teacher-student and student-student interactions within the school.

Decisions must also be made as to the type of research design appropriate for given program evaluations. Such decisions are critical to the evaluation process because the selection of research design tends to dictate the subsequent types of statistical analyses, the generalizability of research findings, and, to some extent, the organization of the program itself. For most evaluations, a design closely approximating that of the controlled experiment is usually desired. Such an approach requires the random assignment of program participants to treatments and often incorporates a control group which has not experienced the treatment. The latter group affords the evaluators a basis for determining whether the treatment has had a significant effect upon the target population in ways which facilitate the reliability of research findings. Extraneous factors such as maturation, experimental mortality, and statistical regression are distributed on a chance basis and their effects upon subsequent results therefore minimized. Generalizability of the study's findings is also enhanced by the utilization of a representative sampling of program and non-program participants (Campbell and Stanley, 1963; Bracht and Glass, 1968; and Campbell, 1969).

Unfortunately, such controlled experiments have rarely been employed in social settings (Evans, 1974; Timpane, 1970). Specifically, they have rarely been used in evaluations of secondary and post-secondary school intervention programs. At the higher educational level in particular, the voluntary nature of many programs makes for self-selection artifacts. Problems concerning the absence of sufficient pre- and post-testing, the substantial and often unspecified character of dropout from

programs, and low questionnaire and interview response rates have also plagued the majority of program evaluations. Then too, falsification of data and reactivity of respondents to testing procedures have occurred even in those very few instances when care was taken in evaluation techniques. In short, past evaluations of intervention programs, though desirous of controlled situations, have been far from controlled.

Together with questions of research design, program evaluators must also decide what measures to employ to discover alterations in the specific outcome(s) of interest. The measures utilized must be valid (i.e., they must appear to get at the underlying dimensions of the specific outcome), reliable (i.e., they must produce similar results upon repeated testings), and have a high degree of sensitivity (i.e., they should be able to detect slight changes in the object of concern). If these measure characteristics are seriously lacking, the research findings may become highly suspect, irrespective of research design.

The instruments utilized in the study of educational intervention programs are, in differing degrees, subject to such measurement problems. Since figures on retention rates, numbers graduating, numbers dropping out, grade point averages, I.Q. scores, and achievement test results are not so susceptible to such criticisms, they have been frequently utilized to measure program outcomes. But equally important, if not more important, noncognitive and behavioral measures cited earlier are another matter. For the most part their development as useful program measures remain in the formative stage. And though Hunt and Hardt's study (1969) of Upward Bound programs is among the very few to utilize such measures, their

findings are not extremely reliable. And the reliance, in a number of evaluations, upon participants' testimonials as a substitute for these measures is an even more serious failure to employ rigorous instruments.

Evaluation: Decisions as to Program Success

Finally, after all is said regarding problems of program evaluation, overseers are still faced with the thorny problem of deciding when a program has been a failure or a success. And while one can speak of "objective" measures of cost and benefit of program impacts, decisions concerning the continuation of a given program often depend upon prior value orientations concerning the weighting of different program outcomes within a decision-making framework. At one extreme, decisions have been based upon cost-efficiency criteria which give differential importance to the financial burden of operating intervention programs. At the other extreme, persons have argued for the continuation of programs simply because, "it's the right thing to do," irrespective of other considerations. The quandry between efficiency and effectiveness on one hand, and between differing value positions on the other, continue to plague "objective" evaluation of program impacts.

CHAPTER THREE

SECONDARY SCHOOL INTERVENTION PROGRAMS

The secondary school intervention programs to be reviewed in this chapter originated in the 1960's. All are supported by the Federal government and share certain goals and objectives. Specifically, they share the common objective of raising the academic performance of the participating students. And though steps have been taken to deliver better counseling, motivational, and medical services, these actions remain secondary to the goal of heightened academic performance.

There are, however, a number of significant differences between various secondary school intervention programs. Title I projects, on the whole, have concentrated largely upon a pupil's junior and senior high school achievement. Whether or not the pupil eventually enrolls in an institution of higher education has remained secondary, college attendance not being viewed as a criterion for judging the intervention's effectiveness. Non-Title I programs, on the other hand, have been very much interested in having participating students continue their education beyond high school. Failure to do so has been viewed as a reflection of the program's meager impact.

Just as some important differences emerge between the program goals of Title I and non-Title I projects, so do some distinguishing differences occur between these programs in the educational techniques they employ. Title I projects, for example, are normally administered by the

schools themselves as expansions of the ongoing school programs. Equipment are added, inservice teacher training sessions held, curriculum specialists hired, and additional school materials purchased. Non-Title I programs do not always cooperate as closely with the participating school system. Summer or after-school sessions may be held, counselors and tutors employed to work with youngsters without regular teacher input, and measures taken, external to school counseling, to improve a youngster's knowledge about college.

Beyond these broad comparisons, each program has its own specific characteristics which distinguishes it from the other programs. It is to a detailed discussion of each program that we now turn.

Title I Programs

The Elementary and Secondary Education Act of 1965 generated a variety of secondary school intervention programs. Fundamentally it sought to provide financial assistance to local educational agencies serving children from low-income families. Funds for the program were intended to create, expand, and improve educational programs for these children (U.S. Department of Health, Education, and Welfare, 1970). Under the provisions of the Act, local agencies identified areas in their communities which had high concentrations of poor youngsters. They then determined the educational needs of this particular population and created programs to meet them. Involvement by the United States Office of Education in other than fiscal, statistical, evaluative, and certain limited administrative matters, was discouraged (Office of Planning, Budgeting,

and Evaluation, 1973). Consequently, the U.S.O.E. has largely concerned itself with the way states carry out their monitoring of Title I programs and the provision of technical assistance to the states.

In 1967 over nine million children took part in these federally sponsored projects. Most of these pupils were enrolled in elementary school. About 65% were non-white (Glickstein, 1969; McDill et. al., 1972). Per pupil expenditures in 1968 ranged in amount from $142 to $257 (McDill et. al., 1972). By 1972 approximately $1,600,000,000 was being spent on Title I projects (Office of Planning, Budgeting, and Evaluation, 1973). Figures on secondary school programs, however, are rather sparse.

Determining the extent to which Title I projects have succeeded at the secondary school level is a difficult task. As Hecht (1973) has pointed out, the perennial evaluations which were mandated under the original act have been highly flawed. The objectives of the law were vaguely stated. No time for planning was allotted for the establishment of a comprehensive, systematic, and objective program evaluation or for the preparation of those educators who were to carry out the program guidelines. Appropriations were made during the school year so that districts tended to channel the funds into such conventional areas as instructional materials, plant construction, and additional staff. In short, careful program assessment did not occur in Title I's first years.

The early evaluation reports, moreover, are characterized by the use of a "compilation" methodology (Hecht, 1973). Project information was gathered by local educational agencies and passed along to the state educational agencies. This information was later forwarded to the

federal government. These data largely concerned dropout rates, testing results, and attendance rates. Unfortunately, these data were frequently non-comparable across states; in some instances non-comparable within states.

The usefulness of these data is also hampered by its focus on elementary students. The 1968 evaluation of Title I programs, for example, virtually ignored any mention of intervention projects at the junior or senior high school level (U.S. Department of Health, Education, and Welfare, 1970). Information, if reported, is frequently combined with data on elementary school programs so that conclusions about projects for adolescents are risky.

Despite these severe limitations some tentative remarks about the nature and effectiveness of Title I programs for secondary school students seem appropriate. Among the more important results is that program funds have largely been invested in supportive educational services (American Institutes for Research, 1972). Glickstein (1969) reported that in the 1966 fiscal year 20% of the total Title I allotment was spent on educational equipment and 10% on school construction. The National Advisory Council on the Education of Disadvantaged Children noted that in 1969, school districts attempted to reduce the size of their classrooms by "meaningless" numbers, while trying to enlarge their available supply of equipment. Existing academic programs have not generally been affected in structure or content by these federal funds.

A second significant conclusion is that little evidence, other than teacher opinions, exists to demonstrate an overall positive program

impact on participating students. Many programs, e.g., New York City's College Bound Program, San Jose's Project R-3, and Hamden, Connecticut's Independent Study Project (see the appendix for more detailed information on these intervention efforts), have had success in augmenting pupils' academic skills but numerous others have failed to produce similar results (General Electric Co., 1968; McDill et. al., 1972; U.S. Department of Health, Education, and Welfare, 1972; Office of Planning, Budgeting and Evaluation, 1973; Wargo et. al., 1972). A number of states, e.g., Alabama, California, Kansas, Ohio and New York, have reported student cognitive gains of a year or more per year of schooling but these results require more rigorous substantiation due to insufficient control of various input and process variables.

Thirdly, several investigations suggest that less than half of all students qualified to receive Title I funds have actually been reached by the program (Frost and Rowland, 1971; U.S. Department of Health, Education, and Welfare, 1968). Approximately 30% of the elementary and secondary school youngsters on federal aid cannot obtain assistance because their families make an amount in excess of that permitted or because, "they are supposed to graduate from high school without outside aid." (Frost and Rowland, 1971.) Program monies have been thinly spread, but they still leave a substantial proportion of the target population untouched.

Fourthly, a Matthew effect (Merton, 1968) appears to operate in the dispersal of program funds.[1] Those districts which are wealthier are

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[1]This principle states in effect the following: "For unto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath."

receiving proportionately more of the federal monies available than the poorer ones. According to Frost and Rowland (1971):

> The average per pupil expenditure in rich districts was $226 compared to $107 in poor districts. The national average was $141. Thus, rich districts with only 10 percent of the nation's low-income children received 16 percent of the Title I funds.[1]

Finally, evaluation studies have revealed that most state and local educational agencies have not implemented their programs in full accordance with the ESEA guidelines and specifications (American Institutes for Research , 1972; Office of Planning, Budgeting, and Evaluation, 1973).

Upward Bound

Authorized by the Economic Opportunity Act of 1964 and later by the Higher Education Act of 1965, Upward Bound quickly became one of the nation's larger secondary intervention efforts (Valien, 1968). It began in the summer of 1965 with the establishment of eighteen pilot programs involving about 2,000 high school students. By 1966 it had spread to 218 institutions and included some 20,000 youngsters; in 1970, 292 institutions were participating in the program, enrolling 24,201 students and funded for about 28 million dollars (Office of Planning, Budgeting, and Evaluation, 1973). The number of projects had

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[1]Joseph L. Frost and G. Thomas Rowland. Compensatory Programming: The Acid Test of American Education. Dubuque, Iowa: Wm. C. Brown Co., 1971, p. 106. Cites data from U.S. Department of Health, Education, and Welfare. Twenty Successful Compensatory Programs. Washington, D.C.: U.S. Government Printing Office, 1968.

grown to 316 by 1972, with an enrollment of 24,786. Approximately $206 million has been allocated to the program from 1965 through fiscal 1973 and of the 90,805 pupils who have participated, 21% or 19,238 are continuing their studies presently (Comptroller General, 1973). First operated by the Office of Economic Opportunity, the program was transferred to the Office of Education in 1969.

Upward Bound attempts to identify "promising" college students from families having annual incomes which fall below the federal poverty line. Those located would have been overlooked by the normal college selection procedures since they lack the requisite academic qualifications and preparation. Most probably would not have sought a college education (Comptroller General, 1973). To find these students a diverse body of sources is tapped to recommend program participants, from the public schools to community groups and youth authorities (U.S. Office of Education, 1969). Of the 10,000 Upward Bound students graduated from high school in 1968, about 60% were Black and 35% white with a nearly equal distribution of males and females (Greenleigh Associates, 1969).

Once identified and involved with the project, the students are encouraged and supported in their effort to obtain a college degree. They attend a six to eight week summer session at a cooperating college, university or secondary school following their sophomore, junior, or senior years in high school. These are occasions when remedial instruction in reading, writing, and mathematics is worked on and a variety of culturally and motivationally enriching experiences are presented.

After the summer session the program continues in the form of after-school meetings and sometimes Saturday get-togethers. Additional tutoring, counseling, information giving, and culturally broadening experience usually take place during these times (Comptroller General, 1973). While Upward Bound does not provide financial support to students beyond high school, most students are able to obtain financial support for their post-secondary education from their collegiate institutions. Involvement with the program, for the most part, terminates at this time, though some do participate in summer programs which bridge the completion of high school and the beginning of college. Furthermore, some youngsters may be asked to assist the Program in the location and encouragement of other qualified project students.

In the fiscal year 1971, roughly $28,500,000 was spent by the federal government to operate this program. For the 24,000 participants this represents an average per student expenditure of $1,200 (McDill et. al., 1972). From 1965-1973, a total of $206.1 million was obligated to the program. These funds took care of the costs of student stipends and those relating to program instruction and materials. While in college, a participant had to rely on a variety of other means, from Educational Opportunity Grants and NDEA loans, to Federally guaranteed loans and local grants.

Evaluation studies of Upward Bound have not only been numerous but also, on the whole, quite favorable. For example, the U.S. Office of Education reported that of the approximately 64,000 pupils in the program between 1965 and 1969, 73.4% graduated from high school and

70.4% of these high school graduates planned some form of post-secondary education (Melnick, 1971; Shea, 1967; Cohen & Yonkers, 1969). Moreover, 66.5% of this total graduating high school cohort enrolled in two- or four-year colleges, a rate somewhat above the national average and clearly above that for comparable groups (Berls, 1969). This college attendance rate appears to be corroborated by the findings from a number individual programs. Hopkins (1969) found that most of his sampled students went to college and that 75% of them returned their sophomore year. Granowsky (1969) reported that 100% of the Upward Bound class at Marist College went to college and 83% of this group was still there after two years. Glickstein (1969) noted that from 1965-1968, 65% to 80% of them stayed there. He also pointed out, however, that all respondents to an OEO questionnaire in 1967 (a response rate of just 23%) cited insufficient funds and need to work part-time as causes for their inability to devote more time to their studies. Billings (1968) stated that in 1965, 80% of the project students were admitted into college and that 88% of the college freshmen who were part of the program remained in school for at least another year; 79% of the participants returned their sophomore year. In 1966, 78% of the project students went to college and about 80% were still in college after two years. The factor(s) responsible for these heightened college retention rates is unfortunately unassertainable from the literature.

Academically the findings have not usually been encouraging. McDill, et. al. (1972) reported that the students' high school grade point averages did not change as a result of the program. Lang and Hopp

(1967) compared a national sample of 1,853 program students to those participating in a project at Rutgers University. They learned that in both groups motivation for college rose during the summer sessions but not necessarily during the regular school year. Non-Rutgers students achieved lower grades upon their return to high school after the summer meetings and experienced a decline in academic motivation. On the one hand, it has been suggested that such depressed grade performance reflects the students' dissatisfaction with the regular high school program (Greenleigh Associates, 1969). Such disenchantment can be viewed as their resocialization to alternative values and perceptions, quite possibly an unavoidable, unintended consequence of the program's attempt to integrate its participants into the wider social system. The failure to produce improved grades, on the other hand, has been given a more sinister interpretation. Posner (1968) hypothesized that this behavior was an indication that the regular school teachers were attempting to punish the program students for their attempt to "make it" and circumvent the normal system. Regardless of the interpretation placed upon this situation, the problem remains as to how to avoid having the return to the regular high school become an academically debilitating experience.

In 1973 the General Accounting Office reviewed fifteen Upward Bound projects in nine different states. It found that it could not determine the precise effectiveness the projects in equiping participants with academic or motivational skills but that they appeared to be wanting in these areas. Regarding college [illegible] and graduation for the participants the agency felt that the OEO figures were overstated by 10% and

30%, respectively. Projects lacked specific measurable objectives and the curriculums were not designed to remedy student weaknesses. There was no widespread use of formal achievement and diagnostic testing and program monitoring was extremely deficient. It also concluded that 22% of the students were not underachievers and 15% did not come from families meeting the maximum income criteria. Most importantly, by 1973, 20,261 or 28% of the total number of program members had completed the project and were still in college; 21,201, or 30%, had dropped out; 14,935, or 21%, completed the program but did not enroll in college, and the remaining number of students finished Upward Bound, enrolled in college and then dropped out (Comptroller General, 1973).

These findings contrast sharply with those reported by Greenleigh Associates (1969). This organization found college enrollment rates to be about 70% of those actually in the program and retention rates for those in the program between 1966 and 1969 to be equal or better than the national average for all college enrolled youngsters. Program pupils were indeed academically underachieving and economically deprived, although many did not seem to need the program to increase their college aspirations. Only 10.2% of the youngsters, for instance, changed to a college preparatory curriculum.

Upward Bound has also been examined in terms of its noncognitive and nonbehavioral consequences. Hunt and Hardt (1969) used cross-sectional data to assess the program's effects on students in grades 9-12. Looking at a variety of attitudinal measures these researchers discovered that program involvement increased an individual's self-esteem, strengthened

his/her internal locus of control, and promoted his/her future orientation. As noted in previous studies by St. John (1972) and Coleman (1966) such changes may be critical in determining future educational attainments and perhaps as critical or even more so than immediate formal achievement gains, particularly for minority children. Black students in this study consistently scored higher than whites on measures of the importance of college graduation, self-evaluated intelligence and self-esteem. White pupils, however, scored better on items determining motivation for college, interpersonal flexibility, internal locus of control, and non-alienation.

Of the poverty level students enrolled in pre-college programs in Davis's study (1973) more than 75% felt these intervention efforts did not affect their decision to go to college.

In one of the rare cost-benefit analyses of intervention programs Garms (1970) found net private benefits for white and nonwhite males and females at discount rates of 5 and 10 per cent. Social net benefits were positive at a discount rate of 5% but negative at 10%. He noted that the program may function more as a means of locating those disadvantaged students who are inclined to go to college rather than as a means of assisting individuals who would otherwise be unable to continue their education.

Garms's article has encountered some justifiable criticism. Christoffel and Celio (1973), for example, pointed out that in Garms's original report for the Office of Economic Opportunity he reached the following alternative conclusion:

> (1) Upward Bound students are generally representative of the academically underachieving and economically disadvantaged youth in America; (2) the Upward Bound program is an effective dropout prevention program as well as a channel to college; and (3) college retention rates of Upward Bound graduates are equal to or greater than the national average.[1]

They then note that the use of Upward Bound siblings as a control group deflates the benefits of the program since a similar delayed college entrance rate is not taken into account for program participants. Moreover, the inclusion of siblings with vocational-technical training overestimates their college attendance rates, while a similar procedure was not followed in classifying the Upward Bound students; similar problems are noted with Garms's determination of high school graduation rates. Finally, Christoffel and Celio criticise the use of a 10% discount rate on the basis that it is entirely arbitrary and, coupled with the previous deficiencies, tends to underestimate the impact of the program upon its participants.

Educational Talent Search Program

The Educational Talent Search Program was intended as a companion intervention effort to Upward Bound.[2] Created by the Higher Education

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[1]Pamela Christoffel and Mary Beth Celio. "A Benefit-Cost Analysis of the Upward Bound Program: A Comment," Journal of Human Resources, 1973, 8, pp. 110.

[2]This program is not to be confused with one of a similar name but earlier origin. A number of independent schools in the 1960's were involved in their own "Talent Search" programs (Rees, 1968). These efforts were generally characterized by summer study sessions for "disadvantaged" high school students and the awarding of special grants. In 1966 Dartmouth College joined in these efforts by inaugurating an eight-week session known as Project ABC. One thousand two hundred and eighteen students took part in this program from 1964-1968.

Act of 1965 and amended in 1968, the program sought to discover, recruit, and assist "exceptionally" capable students for admission to college. Program members were given informational, financial, cultural and motivational assistance to achieve this end. Most came from economically deprived backgrounds and ranged from seventh to twelfth graders (Office of Planning, Budgeting, and Evaluation, 1973).

Project grants are given to colleges or public and private agencies and organizations. These groups are responsible for locating qualified students and encouraging them to join the program. Contracts and grants to such organizations are limited to $100,000 per year. Total funding for this program in 1972-1973 amounted to about $5 million and was allocated to some 82 different projects. Approximately 125,000 youngsters were served by this project with 28,612 going on to some sort of post-secondary schooling. In addition, 1,684 high school dropouts were located and persuaded to continue their education, while 2,039 others were stimulated to enroll in high school equivalency programs (Office of Planning, Budgeting, and Evaluation, 1973). Talent Search has recently directed its efforts to Vietnam veterans, 20-25% of whom have earned less than a high school education.

Evaluation studies of this program are currently underway. Mulligan (1970) reports that one project in the South has counseled over 13,000 individuals and "provided" financial assistance to approximately 3,500--from the payment of a college application fee to the awarding of a full college scholarship. Unfortunately information on most of the other projects is unavailable presently. The most wide-ranging comparative

evaluation of these programs is currently underway (Pyecha, et. al., 1974). More conclusive determination of the impact of Talent Search programs must await the result of such studies.

Secondary Education Opportunity Programs

Not all intervention programs have received federal funding or had to conform to federal guidelines. Many in fact have been set up and operated by organizations, agencies, school districts and foundations interested in making their own attempts to raise the academic performance of the "disadvantaged" secondary school child. In this section some of these efforts will be considered.

The programs described and discussed are not representative of existing, nonfederal efforts. If anything, they are perhaps largely unrepresentative since they tend to be relatively large, relatively established, and somewhat successful in bringing about cognitive changes. Two of the programs receive a substantial proportion of their funds from federal sources. They have been included here because one, the College Bound Program, began as a locally funded project and the other, the Gary Job Corps Diagnostic Reading Program, works with a different population, the school dropout, than the projects previously considered. Information on both federally and non-federally funded programs is offered in Appendix A, while Appendix B suggests material on projects not presented elsewhere in this report. As with the programs discussed in this section, those in Appendix A are not representative of secondary school intervention efforts. Most tend to be of the more successful types.

College Bound

In the summer of 1967 the New York City Board of Education began a project to locate and prepare students within economically deprived neighborhoods for college. Approximately 2,000 high school students participated in this effort. Half were Black and about one-third were Puerto Rican. Virtually all had demonstrated good school attendance and posed no "behavioral problem," as judged by their teachers. These student characteristics point out the high academic focus of this program. About half of the students selected were at least a year behind in reading and mathematics as determined by their performance on standardized achievement tests.

Initially begun with a grant from the Carnegie Corporation of New York, the program is currently funded under Title I of the Elementary and Secondary School Act. Over 100 institutions of higher education and about twenty-seven academic high schools participate (Capone et. al., 1970). Eight and one-half million dollars was invested in operating the project in 1969.

The intent of College Bound was twofold. First, as its name clearly suggests, it attempted to encourage students to seek and attain college admission. Secondly, it wanted to equip them with the skills and motivation necessary for remaining in college once they were there. To promote this goal program members took part in a seven-week summer session to improve their English and mathematics skills before beginning high school. During the high school years participants were furnished with guidance counselors, college student aides, and community personnel to them with their academic work. Classes were kept small.

An important feature of the program was its "adoption" plan. Local colleges and universities made a commitment to offer admissions counseling, tutoring and other services to a particular program high school. Moreover, these institutions agreed to accept any student from the project who earned an academic diploma, met the Regents Examination requirements, and earned a grade point average of at least 70 (Capone et. al., 1970).

While evaluations of full year programs are generally unavailable, studies of summer College Bound projects are. Hawkridge et. al. (1968), for example, reported that project students demonstrated statistically significant gains during a six-week summer session on alternate forms of the Stanford Achievement Test. Another study showed that students in the 1967 six-week summer session gained in reading and mathematics in excess of that which would be expected for month-by-month instruction (American Institute for Research, 1969). These gains were also indicated by the performance of the participants on the New York State Regents Examinations. Over 700 students graduated from the program and high school in 1970.

Project ABC

Independent secondary schools have been involved in locating and assisting "disadvantaged" students for some time. In 1963, twenty-one such schools joined with Dartmouth College in a summer transitional program funded by the Ford Foundation. This program provided intensive work in reading, English, and arithmetic, as well as in such areas as music, creative dramatics and physical education. From 1963-1968, 1,218

were enrolled in the program, known as Project ABC (A Better Chance), and the number of colleges participating quickly expanded to five, with the number of secondary schools growing to 114 (Wessman, 1969).

The students selected for the project were predominantly Black. They were considered not only the most academically promising but also highly motivated. Those who did well during the summer were given full scholarship aid to continue their education at private secondary schools the following fall.

In a two-year follow-up of 82 male participants at the 1965 Dartmouth College summer project, Wessman (1973) found an attrition rate of 20% . By the beginning of the fourth year this rate had increased to 26%. Forty-one per cent of the students were continuing their education in independent schools and 33% were enrolled in institutions of higher learning. About 30% of the 82 students demonstrated distinct gains in their academic performance, while 54% made consistently good school progress.

Summer Study Skills Program

Many Black students, particularly those from the rural South, do not continue their schooling beyond the age of compulsory attendance. To help remedy this situation, a summer compensatory education program was started in 1961 by the Educational Counseling Service of the Board of National Missions of the United Presbyterian Church. Program participants, largely of Southern backgrounds, attend a six-week session at Knoxville College, Knoxville, Tennessee where they took classes in reading, English and mathematics. Small group instruction and

individualized attention are emphasized, though the program's methods can by no means be considered innovative. Cultural enrichment in the form of trips, teas, picnics, and dramatic presentations is also a major component of the project. Students are recommended to the program by their high school guidance counselors and participate in the session following tenth grade. Some students attend several Summer Study-Skills sessions but this is not generally the case.

A study of 159 of the 212 program participants between 1964-1966 revealed some important characteristics of the project (Comer, Harrow, and Johnson, 1969). The average Lorge-Thorndike IQ score for students beginning the program was 120 and most ranked in the top 10% of their class. The average family income is $6,000 per year, with 20% falling below the federal poverty line. Program students domonstrated significant gains in all three academic areas (reading, English and mathematics) during the course of the program, though reading speed and comprehension did not change significantly. Gains were evident in students regardless of their level of intelligence or socioeconomic background. Part of the program success seems to lie with the relatively high standards it has for admitting students into the program. But just how much of this success can be accounted for by this selection artifact is difficult to determine.

Junior High School Summer Institutes

In 1960 New York City established a number of summer schools to work with junior high school students who were reading below their grade

level. These pupils were recommended to the program by individuals at their local schools who felt a summer emphasizing work in academic areas, as well as in the arts, typing, and English as a second language, would be of benefit to these youngsters. Program participants attended sessions five days a week for 90 minutes a day; the program lasted for five and one-half weeks. Regular school personnel conducted the classes, which averaged about twenty pupils.

Fox and Weinberg (1967) noted significant gains for the 479 program students in both reading and mathematics. In the former area, gains averaged about one-third of a year and in the latter about one-half. Students of similar background would be expected to show gains of only 0.1 year in both reading and mathematics achievement.

The Gary Job Corps Diagnostic Reading Program

Intervention programs have not always tried to work with "disadvantaged" youngsters attending junior and senior high schools. Some have directed their resources and efforts at reaching the secondary school dropout. The Gary Job Corps Diagnostic Reading Program in San Marcos, Texas is an example of a program targeted at this particular population.

Over 3,000 men between the ages of 16 and 21 participate in the Gary Job Corps project. Most are from economically deprived families and all have dropped out of school. Upon entering the program the individual is given the Intermediate Stanford Achievement Test to determine his reading capabilities. If his performance ranks him below the sixth grade

level on the combined vocabulary and comprehension test areas, he is given a Revised Beta Intelligence Test and referred to the Reading Center. It is at the Center that, after undergoing additional testing, the corpsman experiences an intensive, individualized program to improve his reading ability. Once he is capable of handling material at the sixth grade level or above the individual is moved into a program featuring vocational and academic classes. About four hours a day is spent in these instructional settings.

Studies of the program were instituted by Frost and Pilgrim (1969) in 1967 and 1968. Examination of pre- and post-test reading scores indicated gains in vocabulary development of 1-2 months and in reading comprehension of about four months, for every four months of participation in the project. Nineteen sixty-eight program members showed even larger gains, ranging from about 5-7 months. While these results are quite encouraging, it must be remembered that a representative sampling of corpsmen was not obtained, that a "Hawthorne effect" may have accounted for some of the progress, and that the testing was done by the Gary Job Corps staff.

Secondary School Intervention Programs: A Critique of the Research

As was indicated earlier in this report, the evaluation studies of intervention programs have almost always been inadequate. This is clearly the case with those that have looked at secondary school intervention programs. For the most part they have been "ex-post facto"

efforts that cannot identify and clarify a program's objectives or monitor its operation. They usually report on such matters as high school completion rates, college retention rates, program and school dropout rates, and attendance rates. These measures are certainly of some assistance in determining the success of a program, but they are by no means adequate. They are not generally used to form indicators of a particular program outcome, and they are not logically or theoretically tied to a program's techniques. Rates may be high or low because of factors outside a program's control. The evaluation studies, however, cannot reveal this situation. Obviously this inherent weakness in the use of rate measures is applicable to Title I projects as well as Upward Bound, Educational Talent Search, College Bound, and College Discovery and Development.

These studies, moreover, suffer from weaknesses in their designs and measures. They have infrequently utilized pre-post test scores and, if they have, the absence of control or comparison groups makes it difficult to determine whether gains resulted from the program treatments, maturation, intervening variables, or falsification of data. Title I evaluations are particularly susceptible to design deficiencies. The failure to account for intake groups, self-selection, and variability in the types, degrees and frequency of treatment modalities also contributes to the great difficulties in determining the effectiveness of an intervention effort. Finally, the tests and measures used in these evaluation studies have a decidedly cognitive emphasis. While this may increase the validity, reliability and sensitivity of the findings, it is obviously

not a situation designed to give credit to programs with a non-cognitive impact such as those relating to perceptual and motivational learnings.

CHAPTER FOUR

HIGHER EDUCATION INTERVENTION PROGRAMS

Intervention programs directed at "disadvantaged" post-secondary school students have one overriding concern, to keep the participant in the institution he is attending. Even though these programs have a common goal, they do not have common means to achieve that goal. Some see the problem of maintaining a "disadvantaged" student in college as a problem of finances. Thus the attempt is to provide this youngster with grants, loans, and part-time work. Other programs, however, may view the problem as one of academic preparation and the consequent need to provide remedial instruction and tutorial sessions. They may try to integrate the student only gradually into the regular college program, or they may offer a somewhat different program altogether. Still other approaches to this problem may focus on the youngster's motivation. They see an inability on a student's part to get involved with his course work or, perhaps to identify with the other college students. Some programs perceive the participant in need of confidence and determination, and they therefore emphasize measures to foster these attitudes.

Whatever the diagnosis, the means employed to keep the "disadvantaged" in college are quite similar from program to program. Most programs offer some financial assistance, though the amount of this aid depends upon the importance a program attaches to this problem. Most programs also provide remedial instruction, tutors, and counseling

services. Programs differ in the degree to which they try to integrate their participants into college activities or in the extent to which they will go to accommodate the demands of these students. But like secondary school intervention efforts, post-secondary intervention has not had a major impact upon the organization and operation of colleges.

Special Service Programs

The Higher Education Amendments of 1968 authorized several categories of post-secondary school intervention programs. One of these, termed "Special Service Programs," was designed to increase the numbers of students who, once admitted, remained in college or who, "by reason of deprived educational, cultural, or economic background, or physical handicap, are in need of such services so as to assist them to initiate, continue, or resume their post-secondary school education."[1]

To achieve these diverse ends, Special Service Programs provided for the use of remedial instruction, tutoring, counseling, guidance, special summer programs, placement services, curriculum modifications, and other educational resources. And though these services were not characteristic of all the differing campus projects, they were generally quite commonplace.

By 1970-1971 over ten million dollars was appropriated for special service programs to support some 121 projects with nearly 30,000 "disadvantaged" students (Davis, 1973). Funding grew to fifteen million dollars in

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[1]Higher Education Amendments of 1968 (Title I, Part A, Section 105, P.L. 90-575), as cited in J. A. Davis (1973).

1971-1972 for 190 projects involving approximately 51,500 students (110 of these projects having been carried over from the previous year). By 1972-1973, nearly 48,700 students were being aided in some 208 projects with an average per pupil expenditure of nearly $300. Despite this sizeable expenditure, it has been estimated that less than 19% of the estimated pupil target population requiring Special Service programs was being reached at that time (Office of Planning, Budgeting, and Evaluation, 1973).

An extensive evaluation of these programs has been carried out by Davis (1973) with generally mixed results. Overall, little positive indication was found of any significant impact of Special Service programs upon the academic achievements of the target populations. In terms of grade point average, for instance, Special Service students were unable to close the gap between their own achievements and those of regularly admitted students, differences between their high school grade point averages and college grade point averages remaining approximately the same. Even more disappointing was the finding that Special Service students did little better overall than did similarly disadvantaged students not in Special Service programs. And this finding did not appear to be affected by any differential emphasis upon specific programatic activities such as tutoring or counseling.

Nevertheless, it was reported that substantial changes had apparently occurred in the attitudes, values, and motivational orientations of the program participants. Changes in non-cognitive program outcomes which were viewed as a positive consequence of Special Service

programs. Indeed, nearly one-half of the program students were believed to have graduated from college and roughly 10% to have gone on to graduate school. And though one can expect some inflation of actual completion rates, these figures nearly parallel those for all college students and certainly exceed those for disadvantaged students as a group.

Differences between institutions and between differing ethnic groups within institutions were also noted, especially in the domain of attitudes, values, and expressed satisfactions. Suggested, in particular, was the notion that a program which may work well with one particular ethnic group may not work equally well with another group. The need for group-specific programs (e.g., for Native Americans, Chicanos, etc.) appears to have been a commonly held position among surveyed administrators.

It was further noted that students participating in pre-college programs demonstrated somewhat greater success and relative satisfaction on a number of issues than did students not participating in such programs. More importantly, where Special Service programs had a high degree of campus visibility, a "special stigma" was attached to the students in the program, a stigma that appeared to be the single most important impairment to their academic success. Students in these very visible programs, tended to be isolated from the mainstream of academic and social life of the college and tended to perform less well and be considerably less satisfied than did students in more centrally located programs. The most productive programs, in terms of students' achievement, appeared to be those with a "strong leader (usually a member of a minority group) with a secure position within the institutional administrative hierarchy and a

voice in admissions and financial aid decisions" (Davis, 1973, pp. 45-46). The more integrated the program was into the academic system of the college, the more successful the program seemed to be; the more satisfied and successful its students tended to be relative to the regularly admitted student body. It is noteworthy in this respect, that similar types of conclusions were voiced by Gordon (1969) in a study of an Upward Bound graduating class.[1]

In other respects, programs in differing institutions were rather alike, the counseling and tutorial components of these programs being the most ubiquitous services offered. Grants, work study, and loans were also popular, existing at about 55% of the responding institutions. Approximately 35% of the students majored in the "soft sciences" and the humanities, and 29% in such professional fields as engineering and business.

To what extent the Special Services, singularly or in combination, were partly responsible for the program's limited success was, however, undetermined. The analysis simply did not permit the independent determination of the impact of differing treatments upon differing types of program students. And though cognitive academic performances seemed to be unaffected by Special Services, it was unclear to what extent changing attitudinal and motivational orientations would alter future attainments.

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[1]A striking parallel exists in the literature regarding the effect of school and classroom racial integration upon the achievement of Black students. Again the notion of significant social and academic integration emerges.

Educational Opportunity Grants Program

The Educational Opportunity Grants Program (EOG), Educational Talent Search, was created by the Higher Education Act of 1965. The principal purpose of this program was to provide financial assistance to qualified high school graduates who lacked the resources to obtain a college education, persons who, presumably, would not otherwise be able to attend college.

Program funds, for the most part, come from the Federal government. Funds are allocated to the program participating colleges and universities which subsequently locate eligible students to receive funds for college attendance. The total amount of funds a particular college obtains depends upon a percentage of its federally approved program allotment (Friedman, 1971). In 1968, the average grant under this system for each participating individual was $460.00 (Glickstein, 1969); in 1972 this average rose to $580.00 (Office of Planning and the Budget, 1972). Individual support ranged from a low of $200 to a maximum of $1,000 during the late 1960's.

Part of the federal guidelines call for the federal funds to be matched by monies from the participating colleges. Federal funds, by stipulation, cannot account for more than half of the student's college aid package.[1] Thus, at the University of California, Riverside, in 1970, the college provided program students with funds in a 1 to 5 proportion

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[1]To be more precise, Federal aid cannot exceed $1,400 or half of the student's college aid package.

The study also noted institutional attempts to compensate for the academic deficiencies of the aided pupils. Remedial instruction, counseling, and tutoring were most frequently provided to those students identified as being in need of such services. Retention rates for program participants were noted to be about equal to those of non-program students, highest rates occurring in the private universities, lowest in the public two-year colleges.

Despite a number of apparent successes, nearly 60% of all EOG institutions reported their federal funding allocations to be insufficient to the tasks of the program. This feeling was especially strong among Black colleges with over 72% of those institutions (which have about two-thirds of their students receiving financial aid) reporting a need for additional federal monies. It is noteworthy, in this respect, that the most recent EOG programs call for the provision of additional student aid to the colleges and universities being served.

Higher Educational Opportunity Programs

Included in this category of post-secondary intervention efforts are a variety of college, local, and state programs to assist students from economically deprived families. Such assistance has generally been in the form of financial aid, special instruction, and counseling as a means of assisting program students to adjust academically, socially, and psychologically to the demands of the college environment. While many such efforts exist across the country (Egerton, 1968), only a few of the more important ones will be discussed here. Discussions of additional

projects can be located by refering to the supplementary references in Appendix B.

SEEK

In 1966 the New York State Legislature and New York City set up an educational program to reach high school graduates from low-income families. Referred to as SEEK (Search for Education, Elevation, and Knowledge), the project initially enrolled 110 students, over 90% of whom had grade point averages of C.[1] All came from neighborhoods considered economically depressed and were thought to have experienced deficient high school training. Most had obtained commercial or general diplomas rather than academic ones. Nearly 90% were of Black or Puerto Rican backgrounds. Had these students not participated in the program, it was estimated that a large majority would never have been admitted to the sponsoring institution, the City University of New York.

The main goal of the SEEK program was to integrate selected students into the regular academic program of the college and thereby gradually assist their attainment of a college degree. To do this, special classes were formed on the basis of participants' ability level and academic background. Tutors were provided and intensive remedial work undertaken to make up for insufficient high school training. Classes met more frequently than did regular college courses and focused upon the improvement of the students' basic skills. At the same time, during this

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[1]To become members of the program, students had to come from officially designated poverty neighborhoods, be under thirty years of age, possess a high school diploma, and have resided in New York City for at least a year. Those meeting these requirements were placed in a selection pool and a lottery system determined who was admitted to the Program.

period of introduction into the academic life of the college, participants were required to take at least one regular university course as part of the academic program. As students became more able to handle the work, they took more regular course credits.

Programs were designed, however, to meet the special needs of program participants. English was taught as a second language where needed. Books were free and weekly stipends of no more than $50 provided to cover expenses. SEEK classes ranged between 10 and 15 in size with a considerable leeway in program format, characteristics markedly different from those of regular program courses. Once students had matriculated from the program by accumulating 60 credits with an average of C, 30 credits with an average of 2.75 or 50 credits with an average of 2.25, they were entered in the regular academic program and treated the same as other regular college students (Melnick, 1971).

The program seems to have had mixed results. Of the original 110 students, 59 (or 54%) were still enrolled at the University in 1968. After two and one-half years they had garnered an average of 45 credits, but had done so at a level of academic performance (gpa) substantially below that of non-program students (Dispenzieri, et. al., 1969b) and had done so at a considerably slower pace than had regular college entrants. Berger (1968) determined that 78% of the 1966 SEEK members enrolled for a fourth term and 88% of these students obtained an average of C or better. More importantly, from the perspective of program participants, was the finding by Melnick (1971) that 1968 SEEK students showed high levels of motivation and expectations for future academic success. Not

surprisingly, their dropout rate, as a class, was relatively low. As noted earlier, high levels of motivations and future career expectations are strong predictors of college completion.

A question remains, however, as to the program's reach into the estimated target population. A 1969 survey of 1,175 community agencies purportedly involved in the referring of needy students to the program, drew a very low response rate; only 23% of the surveyed agencies responded (Dispenzieri, et. al., 1969b). And of those replying, 67% indicated that they had referred individuals to the program. Clearly, much needs to be done to increase the range of students selected for the SEEK program.

The College Discovery and Development Project

Like the College Bound Program, the College Discovery Program originated in New York City in 1964. It was jointly planned and administered by the New York Board of Education and the City University of New York. Project participants were chosen on the basis of their academic potential for college level instruction and their location in a disadvantaged area of the City. Most of those selected for the program would not have been admitted to a college or university because, in addition to deficient aptitude test scores and meager economic resources, their academic records were some ten points below the minimum required for acceptance.

Youngsters were chosen for the program by principals and teachers on the basis of their grades, test scores and recommendations. Attention centered on the selection of those students whose academic record, though

deficient in many areas, indicated potential for heightened future attainments. From 1964-1968, 2,325 were involved in the project (Melnick, 1971). Approximately 42% of these individuals were Black and 25% Puerto Rican; about 50% were males.

The specific intent of College Discovery and Development was the provision to students of services like counseling, individualized instruction, culturally enriching activities, and financial aid so that they could complete a four-year college program. Participants were expected to enroll first in a community college and transfer after two years to a senior college for the duration of their schooling (Melnick, 1971). Throughout the program remedial work in reading, mathematics and science was emphasized. This work took place not only during the school year but also at a selected community college immediately prior to an individual's entrance into college.

Over 70% of the 1968 Discovery and Development graduates were accepted by the City University of New York. No more than 18% of these students are presently dropping out of the program (Office of Education, 1968).

An evaluation study by Dispenzieri, et. al. (1969a) offers only qualified support for the project. In this research comparisons were drawn between program and nonprogram students attending community colleges. It was found that the nonprogram pupils were greatly superior to program students in terms of their grade point averages. In addition, it was noted that 23% of the 1964 Discovery class and 28% of the 1965 class had completed community college by the beginning of 1968, a finding also

arrived at by Kweller (1971). Those 1964 and 1965 program participants who did go on to a senior college had a mean grade point average of 2.11 on a four-point scale. Comparison of this academic achievement with that of the nonprogram students, however, is impossible since the mean grade point averages for this latter group was not provided.

Hawkridge, et. al. (1968) discovered that comparisons between first year project students and a control group of randomly selected college preparatory students revealed no differences on such items as problem solving, reading, verbal reasoning, attained academic averages, or abstract reasoning. During the second year of program involvement, however, program students were surpassed by control youngsters on academic average and performance on the Foreign Language, Science, and Math Regents Examination, another indication perhaps, of the particular program's meager impact.

Other Opportunity Programs

Kitano and Miller (1970) in a study of California Educational Opportunity Programs found that about 90% of the participants in 1967 and 1968 remained in college for at least a year. In the University of California system, regularly admitted students achieved a 2.67 freshman grade-point average; while EOP students only a 2.00. Inferences from these data are difficult, however, because of the absence of controls for differential student input characteristics (e.g., measured ability).

In an evaluation of a western public college Klingerhofer and Longacre (1972) discovered that the fifty-two students in the project progressed and persisted in college on an equal basis with students not

in the program and matched on sex and high school of graduation. Like the regularly admitted, non-financially assisted students, however, about half of the project participants dropped out of college. Unlike these other students, program students usually produced mediocre academic averages.

Higher Educational Intervention Programs: A Critique of the Research

Like the evaluation research of secondary school intervention programs, the studies of higher education programs are less than satisfactory. They too usually suffer from a singular attention to retention and dropout rates and tend to overlook the deficiencies in these measures. Moreover, the studies do not provide a detailed description of the treatment programs or make an attempt to determine which type of treatments are effective with which types of clients. Self-selection, maturation, and testing artifacts are again factors which may be contaminating the evaluation results. Response bias, and participant mortality, evident in all programs, are additional reasons to question the validity and reliability of these studies. In summarizing, while these evaluation studies tend to demonstrate some overall intervention success in recruiting and keeping "disadvantaged" students in college, they do not adequately describe or explain the factors which contribute to this situation. As in the evaluation of secondary school intervention programs, much needs to be done in order to ascertain which specific program components or combination of components have direct impact upon such outcomes.

CHAPTER FIVE

CONCLUSIONS AND POLICY RECOMMENDATIONS

Conclusions

The Quality of Evaluation Research

For the most part, evaluation of secondary and higher educational intervention programs has been quite poor. Excluding the studies by Davis (1973) of the Special Service Programs, and by Friedman (1971) of the Educational Opportunity Grants Program, most evaluation studies have suffered from a wide variety of shortcomings. First, the design of most evaluation research has been inadequate. Little, if any, attention has been given to the utilization of control groups for purposes of comparative analyses and/or the regulation of the application of treatments during the program. As a result, it is virtually impossible for an observer (indeed for the program administrators) to ascertain the independent impact of differing treatments upon the target population. This inadequacy in design applies as well to the failure to design feedback mechanisms which provide constant monitoring of program operation to administrators responsible for the continuation and/or alteration of program activities.

A second common weakness in evaluation research has been the rather poor specification, conceptualization, and operationalization of

program objectives.[1] Many evaluative studies have tended to be rather loose in their definitions and conceptualization of outcomes. Terms such as "self-confidence," "satisfaction," and "achievement" are frequently left unspecified. And when so specified, often poorly operationalized in terms of measures which can be monitored during a program's duration. Thus, even when a design is found to be adequate (which it very rarely is), it is frequently impossible to determine what outcomes are to be expected and what measures are to be employed to determine if those outcomes are being achieved.

Equally important, in this respect, has been the very limited conceptualization of the process of educational attainment. With very few exceptions, as noted earlier, evaluation research has tended to limit its focus to formal program outcomes, such as those measured by cognitive measures (e.g., grade point averages and achievement tests) and/or by gross behaviors, such as retention rates and expressed opinions. The equally important, if not more important, informal learnings, such as indicated by self-concept and sense of control over the environment, have been virtually ignored.[2] Yet these measures, for instance, have been shown by Coleman (1966) and by St. John (1971) to be significant

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[1]Though this clearly applies to the process of program planning as well, if not more so, it is argued here that evaluation research cannot ignore the specification of program goals as part of that evaluation process. Evaluation and planning must be integral processes.

[2]One must exclude here the evaluations of the Upward Bound programs cited earlier. Even here, however, operationalization of informal learnings was far from adequate.

independent predictors of future achievement. Clearly, a more broadly conceptualized notion of the achievement process is called for in future evaluation research.

Another shortcoming of past evaluation research lies in the failure of evaluation to specify, more clearly, the formula for determining the success or failure of a program. Involved are two distinct problems. On one hand, little attention has been given to the differential weighting of different program outcomes in a manner which would allow overseers to compare success in one outcome with failure in another. On the other hand, little thought has apparently been given to the development of those criteria to be utilized in the determination of successful achievement of a given program objective. Most often, program administrators simply do not know when to alter a program or to reinforce a particular treatment simply because they cannot tell if the treatment has been successful.

But even if particular evaluation studies were not limited in these respects, evaluation of intervention programs would still be flawed by their failure to carry out longitudinal multi-program analysis; analysis which would follow programs from the moment of inception to final completion and do so in a manner which would permit researchers to compare similar programs in different settings and different programs in similar settings. At the moment, most evaluation research has been of the ex-post-facto variety and has limited itself to single program evaluations. With the exception of Davis' study of Special Services (1973), for instance, no attempt has been made to compare programs in differing

institutions. And even in that instance, the analysis did not permit the observer to trace out the independent and interactive effects of differing treatments in differing institutional environments.[1] For instance, it would be useful to know under what conditions special curricula materials help or retard the academic attainment of youth in college programs. As suggested, not demonstrated, by Davis (1973), the degree of integration of the program into the academic mainstream of the college may be an important aspect of program success. It would also be useful to determine, for example, whether there exist particular time sequences of assistance which promote maximum attainment and whether these sequences differ for different groups of students in different academic settings. As evaluation research stands, at the present, these and many other questions are simply unanswerable.

The underlying root of these shortcomings in evaluation research, we suspect, is the failure of evaluators to develop and utilize theoretical models of educational attainment. Models of attainment which would specify the longitudinal process of attainment in a manner which relates individual, institutional, and interactional variables to each other and to the end-point of educational attainment and which would serve as guidelines for the development and evaluation of intervention programs. Hopefully, competing theoretical models of attainment can then serve as initiating forces for the development of alternative ways of

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[1] In this respect, an upcoming evaluation of Upward Bound and Talent Search Programs by the Research Triangle Institute is a welcome addition to the field (Pyscha, 1974).

attacking the complex problems of educational intervention. To date, most, if not all, programs have come at the problems of intervention in very much the same manner. They have tended to utilize, as noted earlier, old strategies to meet the demands of new problems. There has been, in effect, very little experimentation with alternative modes of educational intervention.

Program overseers have argued, however, that many of the shortcomings of evaluation research are due to external constraints. Often cited are limitations in funding, shortages of well-trained researchers competent in evaluation, and time limitations imposed by outside authorities. But while these constraints are undoubtedly part of the problem, they cannot excuse the failure of past evaluation research to produce any substantial body of research findings. This is particularly true when such large amounts of social resources have been invested in programs whose successful attainment is viewed as an important part of a wider societal goal of equality of opportunity among diverse social groups.

Several other comments regarding evaluation are called for before proceeding to the programs themselves. First, there has been a tendency for evaluators to focus upon positive outcomes more so than upon negative outcomes. While this may be understandable in one sense, in another it seems somewhat unwise. There can be as much to learn from unsuccessful attempts at intervention as there can be from positive ones. While the latter are obviously more appealing and attract more attention from funding agencies, the former can be as useful in the avoidance of future mistakes at intervention. As noted, there seems to have been too little of this "learning by past mistakes" in past evaluation research.

Finally, there appears to be a real need for evaluation research to be carried out by agencies which are midway between being entirely external to the program and being entirely subsumed within the program. Quite often evaluation carried out by external agencies appears to have missed much of the dynamic fabric of intervention (often coming on the scene sometime after the program has begun). In-house evaluations, however, seem to have been frequently affected by the desire to produce positive outcomes and thereby validate the efforts of the program. And though pre- and post-test measures are more frequent in "in-house" evaluations, objectivity of perspective has not always been a strong point of their evaluations.[1]

The Effectiveness of Intervention Programs

Given the problems of evaluation noted above, it is difficult to say how effective intervention programs have been at the secondary and higher educational levels. This is especially true when one seeks to disentangle the independent effects of differing treatments in different educational settings. The data are simply not available. Nevertheless, some very broad impressions can be stated regarding their general impact upon the targeted populations.

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[1]The growth of research institutes concerned primarily with program evaluation is, in this respect, a welcome development. And when brought into the design process before the beginning of intervention programs, their presence could markedly improve the quality of evaluation research.

Secondary education intervention programs. Despite all the difficulties in assessing past evaluations, it seems to be a reasonable conclusion that a number of programs (most notably Upward Bound and College Bound) have been somewhat successful in increasing the numbers of economically disadvantaged youth graduating from high school and enrolling in college. The problem remains, however, of ascertaining why such findings obtain. It is entirely possible that a self-selection artifact is operant here. Namely, success is to be found in the very selection of program participants and not in the program itself. As noted, the process of participant selection has rarely been one which results in a representative sampling of disadvantaged youth in the high school age bracket. It is likely, however, that both effects are present in evaluation outcomes; that beyond selection effects, the programs themselves are having some impact upon student behaviors.

But once more, one is faced with the complex problem of ascertaining why such effects occur and which of the variously applied treatments, singularly or in combination, are responsible for those effects. Past evaluations have been, for instance, quite mixed regarding the impact of intervention upon formal cognitive outcomes such as measured by I.Q. scores and achievement tests. For the most part, one suspects that the success of certain programs in increasing school completion lies less in increasing formal learnings than it does in the motivational and expectational learnings which occur in program settings. But while testimonials are positive in this regard, the use of testimonials remains a highly suspect device in evaluation research. We simply do not know

enough about the effect of intervention programs at the secondary school level on such informal learnings.

What does appear to be more secure is the observation that successful programs are frequently those which are functionally tied into a particular higher educational institution. In those instances where colleges have had some form of meaningful affiliation with the high school and/or with its students, the programs appeared to be more successful in both retaining students until high school completion and in promoting them to some form of higher education. Not surprisingly, it has been to the affiliated college that most program students have gone. The need for institutions to be functionally committed to the success of intervention programs again seems apparent.

Higher educational intervention programs. Higher educational intervention programs have also been shown to have some positive impact upon program participants. Specifically, they appear to have been somewhat effective in decreasing dropout rates and increasing retention rates among disadvantaged youth. But while academic achievement of program participants appears to have been heightened, in some instances, their academic attainments remain below institutional averages for regularly admitted students.

But as in evaluations of secondary intervention programs, evaluations of higher educational intervention programs have not permitted the disentanglement of the independent effects of various treatments, settings, and sequences of treatments upon program participants. Thus, we are unable to say why retention rates increase or why academic attainments

appear to show some gains relative to other disadvantaged youth not participating in such programs. While it is unavoidable that these programs have had some effect, it is entirely possible for self-selection to intervene in program outcomes. It is undeniable that college-level programs have tended to "take the cream off the top of the barrel." What such programs would accomplish with a more representative population of high school graduates from disadvantaged backgrounds remains an unanswered question. In any event, that these programs appear to assist some persons seems to be a reliable finding.

But even here, the self-fulfilling prophesy could help explain program impacts. Namely, that programs tend to be successful when institutions want them to be so. In this respect, Davis' (1973) study of Special Service Programs is most intriguing. As noted earlier, the more effective programs appeared to be those which were more functionally integrated into the academic and social mainstream of the institutions in which they were housed. Marginal programs, which tended to place program participants outside institutional life, were also those which appeared to be less successful in retaining and promoting students from disadvantaged backgrounds. This was so despite the apparent similarity in treatments applied to the target populations. As suggested in secondary education programs, the need for institutional commitment is again apparent.[1]

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[1]In this regard, findings concerning the positive relationship between an individual's commitment to the goal of college completion and the likelihood of his actually finishing that degree program are indeed revealing (Tinto and Cullen, 1973).

In this respect, there is little evidence of colleges rushing to pick up the financial costs of running Special Service Programs on a wider basis. Whether this reflects a lack of genuine support by institutions for the goals of these programs or simply the low priority assigned to these programs relative to other institutional needs is unanswerable. Nevertheless, such behaviors may be an important indication of the source of the failure of these programs to show more positive overall results.

All this leads us to suspect that one of the main constraints to greater program effectiveness lies within the very fabric of the schools and colleges within which those programs are housed. Specifically, they may lie in the values and attitudes of faculty, administrators, students, and parents concerning the aiding of disadvantaged youth in education and in the institutional structures and organizational frameworks which reflect those values. Programs which neglect this aspect of program functioning may limit their ability to assist program students. Suggested therefore is a need for programs to supplement their provision of additional educational inputs with policies designed to alter the perceptions of teachers and administrators regarding the disadvantaged youth in education.

Policy Recommendations

In view of the unsatisfactory state of current evaluation literature on educational intervention programs we offer, in this concluding section, some recommendations for future research. These recommendations concern a variety of topics, from the administration and organization of

instructional strategies to the restructuring of evaluation research. Recommendations will be presented in two sections: the first dealing with the evaluation of intervention programs, the second with the intervention programs themselves.

Recommendations for Future Evaluation Research

1. Future evaluation research should be planned as an integral and continuing part of ongoing intervention programs.

Recommended here are several things. First, that evaluation research, and therefore program evaluators, participate in intervention programs from the very beginning stages of program planning through to its final completion. Ex-post-facto research should be avoided at all costs. Second, that evaluation should be a continuous process of monitoring program activities, not one which limits itself to simple pre- and post-test measures of behavior. Implied here is the development of a continuing evaluation structure which provides relatively constant feedback of information to program administrators concerning the operation of the program. And third, evaluation should be planned as an integral part of the total intervention program. Planned in a manner which reduces the distinctions between evaluators and program personnel.

2. Future evaluation research should include both single and multiple program evaluations in ways which permit longitudinal comparative analyses of program effectiveness.

Evaluation research should go beyond the single program studies so common in the literature to studies of a range of supposedly similar

programs in a variety of institutional settings. The objective of such research being the disaggregation of the independent and interactive effects of treatments and settings upon program participants. At the moment we do not know which type(s) of treatment(s) works best in which setting(s) and for which types of students such treatments are most effective. Implied here as well is the notion of control group comparisons which would permit researchers to determine the relative impact of programs upon individuals in similar and different settings.

Such comparative analyses would also span the variety of "disadvantaged" groups being served by intervention programs and would therefore permit researchers to ascertain which treatment(s) in which setting(s) works best for specific types of individuals. As noted by Davis (1973) not all ethnic-racial groups are equally well served in higher educational intervention programs. Implied then in this recommendation is the notion that evaluation be geared to the development of programs which are situationally specific in setting and in target population.

3. Future evaluation research should examine both cognitive and non-cognitive, intended and unintended consequences of intervention programs.

As noted earlier, past evaluation research has been quite narrow in its focus upon program outcomes, focusing almost entirely upon formal cognitive outcomes (e.g., I.Q. scores and achievement tests) and rather gross behaviors (e.g., retention rates and completion rates). Though such outcomes are important components of educational attainment, they are only a subset of a wider range of factors which go into the attainment

process. Informal learnings such as the learning of attitudes and values, the restructuring of one's perceptions of oneself and of the environment, and the reorientation of future aspirations and expectations are among the other important factors. Factors which have gone virtually unnoticed in past evaluation research.

Other outcomes of intervention go unnoticed because they are unintended and therefore frequently unexpected. Nevertheless, such unintended consequences are often the most important outcomes of intervention. Evaluation then, should be so structured so as to allow the monitoring of such unexpected outcomes. Flexibility and breath of observation would be a requirement of such evaluation.

4. Results of future evaluation research should be coordinated and made available through the development of a centralized evaluation research center.

A common feature of most intervention programs has been the utilization of very much the same types of treatments (tutoring, counseling, special curricula, etc.). Unfortunately, this has also meant the frequent duplication of efforts which have already been shown to be ineffective for certain types of problems. A centralized evaluation research center which would serve as a data bank of information concerning past evaluation efforts would be, in this respect, of great value. Of value not only for other evaluation researchers, but also for program planners looking for alternative means of dealing with the complex problems of intervention or simply for means which have been shown effective in similar situations. At the moment, most of research on past intervention efforts is quite scattered and therefore quite difficult and time consuming to accumulate.

Recommendations for Future

Intervention Programs

1. Future intervention programs should be expanded to include a wider, more representative sample of disadvantaged youth in education.

In the past, most intervention programs have been limited to a numerically small, rather select ("most promising") population of disadvantaged youth. They have, in effect, taken only the "cream of the crop," of potentially reachable students from disadvantaged backgrounds. And as long as they do so, the impact of intervention programs upon inequality of educational opportunity among diverse social and racial groups will always be marginal in both quantitative and qualitative terms. In this respect, it would be valuable for intervention programs to deal, for instance, with an entire senior high school class rather than with a select subgroup of that class.

2. While funding for future intervention efforts should be increased, it should be done so in a manner which permits greater experimentation in the development, running, and evaluation of intervention programs.

In order to reach a larger proportion of the disadvantaged student population, it is clear that additional funding will be required. This does not mean, however, that future funding should occur in the same manner as it does now. Indeed, it is strongly recommended that future funding be so structured so as to allow for the greatest possible experimentation in intervention. At the present, intervention programs appear

to be largely repeating the techniques which first marked intervention efforts in the early 1960's.

More importantly, they have done so without sufficient information to indicate that these techniques can effectively deal with the problems of disadvantaged youth. As noted repeatedly in the preceding pages, past evaluation research has not been of sufficiently high quality to indicate to program planners which techniques or treatments work best in which settings. It would seem unwise then to increase funding to those programs when we are unsure as to their effectiveness. Hand-in-hand with increased funding must come the types of evaluation research suggested in the preceding section, evaluations which are comparative in nature and which focus on a variety of intervention efforts. Those programs thus determined to be effective, should then be funded at a higher rate.

3. Future intervention programs should be based upon a variety of theoretical models of educational attainment which specify the longitudinal causal relationships between differing input, process, and output variables.

Recommended here are several things. First, that future intervention programs be based upon theoretical models of the educational attainment process, models which map out the causal sequence of behaviors which lead differing individuals in differing settings to varying levels of educational attainment. Such models would then permit program planners to rationally select and sequence treatments to most effectively assist individuals further their education. Of equal importance, the utilization

of such models would also direct planners to distinct sets of program outcomes functionally related to the selected treatments.[1] As a consequence, evaluation of such programs would become more integrally related to the conceptualization of the program itself, evaluation and development being natural by-products of the model upon which the program is based. Both negative and positive findings of evaluation are then of equal importance in their furtherance of the search for more effective intervention techniques.

The utilization of alternative theoretical models of educational attainment (of which there are a number, e.g., Spaeth (1974)), would then serve as a rational basis for the development of alternative modes of intervening in the educational experiences of disadvantaged youth. Even now, one can envision a number of alternative approaches, not currently being extensively employed, simply on the basis of what we currently know about the process of educational attainment. For example:

a. Intervention programs should utilize peer-group interactions as a means of reorienting students' aspirations and expectations for their future attainments.

b. Intervention programs should work toward the restructuring of students' environments in all its multiple dimensions, educational and social.

c. Intervention programs should employ program participants as homework helpers for participants in elementary and junior high school level programs.

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[1]The problem of unspecified assumptions would also be solvable here. Assumptions would be stated as explicit components of the theoretical model and be therefore exposed to objective scrutiny. Their impact upon evaluation would also be thereby lessened.

In the first instance, we have become increasingly aware of the impact of peer groups (both reference and comparative) in the process of attitude, value, and expectation formation. Careful selection and structuring of the peer group could prove of immense value in the academic and social integration of disadvantaged youth. In the second instance, it is recommended that the total school environment within which program participants exist be restructured, not only their academic one. This implies something more than the utilization of peer groups alone. It suggests the broader restructuring of the attitudinal motivational, and expectational climate of the program including peers, teachers, administrators, program evaluators, and external social groups (e.g., families) as they interact with the school environment. But, as will be discussed briefly, this should not be done in any way which sets program participants apart from the mainstream of academic and social life of the institution. Finally, the third suggestion takes a clue from research that indicates that the academic attainments of homework helpers improve apparently as a direct outcome of their helping others to study (Hawkridge, et. al., 1968).

4. Future intervention programs should be functionally integrated into the academic and social mainstreams of the institutions with which they are associated.

This recommendation applies both to secondary and higher educational programs. In the former instance, it suggests that high school intervention programs designed to encourage youngsters to go on to college should be integrally associated with specific sponsoring colleges.

Having a specific higher educational institution committed to the program appears, from past research, to be a critical dimension of program success. In the latter instance, the recommendation suggests that such programs not be placed at the margin of academic and social life of the colleges within which they exist. The evidence from Davis' (1973) study of Special Service Programs seems clear enough. Marginal programs are stigmatizing ones which do little to integrate program participants into the life of the institution. This means, however, that future intervention programs must also deal with the perceptions, attitudes, and values of administrators and teachers which are largely responsible for those programs being so placed in the administrative and academic fabric of the institution. Training sessions for administrators and teachers alike appears to be one such requirement for the development of effective programs. Hopefully, such integration of intervention programs into the ongoing structures of the home institutions will then lead to a restructuring of those institutions, a restructuring which may get at a major source of inequality in educational opportunity.

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APPENDIX A

TARGET GROUP AND PROJECT CHARACTERISTICS OF SELECTED SECONDARY AND HIGHER EDUCATION INTERVENTION PROGRAMS

PROJECT NAME: College Bound Program

LOCATION: New York, N.Y.

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): About 50% Black and 30% Puerto Rican

AGE OR GRADE LEVEL: Ninth-Tenth Grades

NUMBER SERVED: Approximately 7,000

DATES: Summer and full year programs since 1967

OTHER PUPIL CHARACTERISTICS: Good attendance at school; Good school behavior; Likely to enter only a general high school program; 35% initially scored above grade level; 50% scored at least a year below grade level; From poor neighborhoods.

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on achievement tests in reading and mathematics; Encouraging participants to seek and attain admission to college.

FACILITIES: Centers

TREATMENT DURATION: Three hours daily for six weeks during summer sessions

PERSONNEL: Each guidance counselor served 100 students during the summer; community aides served as family-program liaisons; College student aides served as teaching assistants. Special program librarian.

CURRICULUM: Developmental and remedial reading and math.

STRATEGY: Motivation of students to pursue a college preparatory curriculum and provision of intensive individualized instruction to assist them in realizing this goal; Local colleges and universities committed themselves to admitting and providing financial aid for a certain number of the participants; Use of homogeneous groupings.

ENVIRONMENT: Varied

MATERIALS: Unknown

PUPIL-TEACHER RATIO: About 20:1

TRAINING: Unknown

PARENT INVOLVEMENT: Community aides explained program to families and assisted them in finding medical services.

TESTS USED: Stanford Achievement Tests in reading and mathematics.

PROJECT NAME: College Discovery and Development Program

LOCATION: New York, N.Y.

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): About 42% Black, 23% Puerto Rican

AGE OR GRADE LEVEL: 10th Grade

NUMBER SERVED: About 550

DATES: Late 1960s

OTHER PUPIL CHARACTERISTICS: From low income areas of the city; Average grade point average some ten points below minimum requirement for college admission; High academic potential.

MEASURED COGNITIVE CHARACTERISTICS: To generate a new learning environment for disadvantaged high school pupils; to remove educational and socioeconomic deficiencies so that improvement in school and college possible, i.e. improvement in reading and mathematics skills.

FACILITIES: Classrooms and cultural places

TREATMENT DURATION: Several years

PERSONNEL: Employed qualified teachers; qualified counselors; parents; professionally qualified reading specialists; tutors.

CURRICULUM: Remedial reading, mathematics and science

STRATEGY: Arranged with local colleges and universities to have at least a substantial proportion of program graduates accepted into college; Tutoring on a 1:1 basis; Field trips; Creative writing activities; Round table discussions.

ENVIRONMENT: Varied with a moderate degree of structure

MATERIALS: Unknown

PUPIL-TEACHER RATIO: Unknown

TRAINING: Inservice training for paraprofessional program participants

PARENT INVOLVEMENT: Yes; Usually in the form of meetings

TESTS USED: Stanford Achievement Tests, Differential Aptitude Tests, Test for Problem Solving

PROJECT NAME: Communication Skills Center Project

LOCATION: Detroit, Michigan

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): 80-85% Black, 10-15% White

AGE OR GRADE LEVEL: Second-Twelfth Grades

NUMBER SERVED: Approximately 2,850

DATES: 1966-1967

OTHER PUPIL CHARACTERISTICS: Not provided

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on reading achievement tests

FACILITIES: Clinics and classrooms

TREATMENT DURATION: About two hours per week for one or two semesters; Summer session involved one hour of daily instruction

PERSONNEL: Reading diagnosticians; Psychologists; Social therapists; Lay aides; Reading teachers for remedial instruction

CURRICULUM: Remedial reading

STRATEGY: Individual diagnoses conducted at clinics; Remediation provided individually or in small groups at clinics or in special classrooms.

ENVIRONMENT: Moderately to highly structured.

MATERIALS: Specially developed at a reading laboratory in one of the clinics; Use of audio-visual equipment.

PUPIL-TEACHER RATIO: 8:1 in classrooms; 3:1 in clinics.

TRAINING: Inservice training for teachers and specially prepared information materials for these teachers; Regular staff meetings.

PARENT INVOLVEMENT: Unknown

TESTS USED: Stanford Reading Achievement Tests

PROJECT NAME: Expanded Language Arts Program

LOCATION: Buffalo, N.Y.

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Unknown

AGE OR GRADE LEVEL: Seventh-Twelfth Grades

NUMBER SERVED: 1,884

DATES: 1966-1967

OTHER PUPIL CHARACTERISTICS: 50% spoke Southern rural dialect; 20% spoke Italian and 1% spoke Spanish; 29% spoke Standard English; 85% achieving in the lower third of their class.

MEASURED COGNITIVE CHARACTERISTICS: Improvement in performance on tests of language achievement.

FACILITIES: Regular classrooms

TREATMENT DURATION: One class period daily for nine months

PERSONNEL: No special personnel

CURRICULUM: Remedial language arts

STRATEGY: Decreased the pupil-teacher ratio in language arts classes; Provided an individualized program; Teachers closely supervised.

ENVIRONMENT: Moderately structured

MATERIALS: Commercially available; Heavy use of audio-visual equipment

PUPIL-TEACHER RATIO: 10:1

TRAINING: One week pre-service; Monthly inservice meetings; Weekly observations and discussions

PARENT INVOLVEMENT: None noted

TESTS USED: Sequential Tests of Educational Progress;
California Language Test

PROJECT NAME: The Lafayette Bilingual Center

LOCATION. Chicago, Illinois

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Mostly Puerto Rican

AGE OR GRADE LEVEL: Sixth-Eighth Grade

NUMBER IN PROGRAM: 65

DATES: 1969-1970

OTHER PUPIL CHARACTERISTICS: Spoke Spanish at home; Recent arrivals to the United States; normal I.Q.s

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on tests of IQ, ability, and achievement in reading, language and mathematics

FACILITIES: Laboratory school - "school-within-a-school"

TREATMENT DURATION: Six hours daily for eigth months each year up to three years

PERSONNEL: Classroom teachers and supervisors were bilingual and most were credentialed to teach English as a Second Language (ESL). Bilingual aides assisted teachers but not with instruction. Resource teacher and school-community representative worked closely with parents.

CURRICULUM: Developmental reading and language; minimum of two hours daily.

STRATEGY: A full school program was offered, initially taught in Spanish with eventual transition to English; nongraded; individual diagnosis preceded remediation; individualized or small group instruction; 15 volunteer Anglo students participated in program serving as models and tutors.

ENVIRONMENT: Academic sessions highly structured; other sessions low to moderately structured.

MATERIALS: Most were specially developed by the staff.

PUPIL-TEACHER RATIO: 16:1

TRAINING: Pre-service training for aides; in-service training for everyone one hour, twice a month.

PARENT INVOLVEMENT: Yes; home visitations; attended adult classes in English; served on advisory council; informally evaluated program.

TESTS USED: Short Test of Educational Ability, Test of General Ability, Metropolitan Achievement Tests in reading, mathematics, and language.

PROJECT NAME: Gary Job Corps Diagnostic Reading Program

LOCATION: San Marcos, Texas

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Unknown

AGE OR GRADE LEVEL: 16-21 years old

NUMBER SERVED: Over 3,000

DATES: 1967-1968

OTHER PUPIL CHARACTERISTICS: All dropouts; Largely from economically deprived families; Most were "functionally illiterate"

MEASURED COGNITIVE OBJECTIVES: Improvement of reading skills sufficiently to take place in advanced vocational classes

FACILITIES: Classrooms and laboratories

TREATMENT DURATION: Approximately five hours a day; Two hours were spend in the Reading Center and two hours in the language laboratory for phonics instruction.

PERSONNEL: Apparently used regular school teachers

CURRICULUM: Reading, developmental and remedial

STRATEGY: Use of reading work modules (programmed instruction); When able to read at the sixth grade level, students placed in regular vocational and academic classes; Team instructional approach.

ENVIRONMENT: Apparently moderately to highly structured

MATERIALS: Unknown

PUPIL-TEACHER RATIO: ?:1

TRAINING: Unknown

PARENT INVOLVEMENT: Apparently none

TESTS USED: Intermediate Stanford Achievement Test; Revised Beta Intelligence Test; Gates MacGinitie and Botel Reading Inventory

PROJECT NAME: Homework Helper Program

LOCATION: New York, N.Y.

TITLE I SUPPORT: No

CONTEXT: Urban

TARGET ETHNIC GROUP(S): At least 50% Puerto Rican and 30% Black students; Tutors were about 19% Puerto Rican and 18% Black.

AGE OR GRADE LEVEL: 3rd-6th, students
10th-12th, tutors

NUMBER SERVED: 410 students; 240 tutors.

DATES: 1963-1964

OTHER PUPIL CHARACTERISTICS: Students were behind in reading; Lacked independent study skills; Tutors had IQs over 100 and were reading at grade level or better; Potential dropouts; Not necessarily economically disadvantaged.

MEASURED COGNITIVE CHARACTERISTICS: Improvement in performance on reading tests

FACILITIES: After school classes; classrooms

TREATMENT DURATION: 2-4 hours per week for five months for student participants; 2-4 hours per week for seven months for tutors.

CURRICULUM: Remedial reading

STRATEGY: High school students were paid an hourly wage to tutor elementary school students in reading and assist them with homework; Assumed that both students and tutors would benefit from the program

PERSONNEL: Master teachers supervised the centers and trained the tutors, but did not themselves do any teaching; Grade school students served as clerical aides.

ENVIRONMENT: Low to moderate degree of structure

MATERIALS: Commercially available but generally not used in regular classrooms

PUPIL-TEACHER RATIO: 1:1

TRAINING: Tutors trained using specially developed manual during a two week orientation period and weekly Monday workshops.

PARENT INVOLVEMENT: None indicated

TESTS USED: New York Tests of Growth in Reading for the student participants; Iowa Silent Reading Test for the tutors

PROJECT NAME: Higher Horizons 100

LOCATION: Hartford, Conn.

TITLE I SUPPORT: No

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Unknown

AGE OR GRADE LEVEL: Ninth grade

NUMBER SERVED: 100

DATES: 1969-1970

OTHER PUPIL CHARACTERISTICS: Average intelligence; One to three years behind in reading; Willingness to participate in the project

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on tests of achievement in reading and writing skills.

FACILITIES: Laboratory school; "School-within-a-school"

TREATMENT DURATION: Three and three-quarters hours daily for eight months

PERSONNEL: Two teachers were language specialists; one counselor working full time with 100 students; One graduate student assisting with clerical duties, testing, and instruction.

CURRICULUM: Developmental and remedial writing and reading

STRATEGY: Provided a comprehensive full day program in a demonstration school with intensive language training included in all academic areas; Special instructional team

ENVIRONMENT: Moderately structured

MATERIALS: Plentiful and commercially available

PUPIL-TEACHER RATIO: 12 or 13: 1

TRAINING: Unknown

PARENT INVOLVEMENT: Counselor visited parents when necessary

TESTS USED: Metropolitan Achievement Test; Iowa Silent Reading Test; SRA Writing Skills Tes+

PROJECT NAME: Project R-3

LOCATION: San Jose, California

TITLE I SUPPORT: No

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Mostly Mexican-American

AGE OR GRADE LEVEL: Eighth-ninth Grades

NUMBER SERVED: 70

DATES: 1967-1968

OTHER PUPIL CHARACTERISTICS: English speaking; At least one year below grade level but not more than two below in either reading or mathematics

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on achievement tests of reading and mathematics

FACILITIES: Classrooms

TREATMENT DURATION: Three morning class periods daily for one year

PERSONNEL: Full-time reading specialist; Full-time electronic technician; No aides; Full-time project director; Parent helping in some of the nonacademic activities

CURRICULUM: Developmental and remedial reading and mathematics

STRATEGY: A special morning academic program in reading and mathematics set up; Normal junior high school program held in the afternoon; Several extended and highly structured field trips to supplement instructional lessons

ENVIRONMENT: Moderately to highly structured

MATERIALS: Some commercially available; Others specially developed by Lockheed

PUPIL-TEACHER RATIO: 15:1

TRAINING: Unknown

PARENT INVOLVEMENT: Active participation in classroom activities, field trips and meetings

TESTS USED: California Achievement Tests in reading and mathematics

PROJECT NAME: Remedial Reading Laboratories

LOCATION: El Paso, Texas

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Mostly Mexican-American

AGE OR GRADE LEVEL: Fourth to twelfth Grades

NUMBER SERVED: 824

DATES: 1969-1970

OTHER PUPIL CHARACTERISTICS: Of average intelligence; One to one and one-half years below grade level in reading

MEASURED COGNITIVE OBJECTIVES: Improvement in performance on tests of basic skills

FACILITIES: Classrooms

TREATMENT DURATION: Approximately one hour daily for eight months

PERSONNEL: Counselors trained in diagnostic techniques referred students to lab teachers; Half of the lab teachers were credentialed reading specialists; No aides.

CURRICULUM: Remedial reading

STRATEGY: Use of special selection and scheduling procedures when diagnosing problems at labs; Provision for systematic instructional planning and individualized instruction in labs; Access to reading resource centers.

ENVIRONMENT: Highly structured

MATERIALS: Plentiful and commercially available

PUPIL-TEACHER RATIO: 8:1

TRAINING: Approximately 27 hours of pre- and inservice training

PARENT INVOLVEMENT: Unknown

TESTS USED: Comprehensive Test of Basic Skills

PROJECT NAME: Small-Group Basic Education Program

LOCATION: Albion, Pennsylvania

TITLE I SUPPORT: Yes

CONTEXT: Urban

TARGET ETHNIC GROUP(S): Black and White

AGE OR GRADE LEVEL: Seventh to Twelfth Grades

NUMBER SERVED: About 100

DATES: 1965-1966

OTHER PUPIL CHARACTERISTICS: Underachievers; From low-income families

MEASURED COGNITIVE OBJECTIVES: To raise performance level in reading, writing, and computation; To augment self-images of the participants; To improve their school attendance; To provide medical, dental, and nursing care; To offer program concerned with socialization and the development of physical fitness.

FACILITIES: Classrooms; Libraries

TREATMENT DURATION: At least one hour a day

PERSONNEL: Qualified secondary school teachers; Half-time administrators; Community social workers; Qualified counselors; Teachers specializing in remedial reading and mathematics; Adult aides.

CURRICULUM: Remedial reading and arithmetic

STRATEGY: Small group instruction; Some tutorial work and home visitations; Individual and group counseling; Expanded use of volunteer psychological services.

ENVIRONMENT: Moderate to low degree of structure

MATERIALS: Audio-visual equipment

PUPIL-TEACHER RATIO: Unknown

TRAINING: Inservice training for teachers

PARENT INVOLVEMENT: Yes

TESTS USED: Metropolitan Achievement Tests

APPENDIX B

SUPPLEMENTARY REFERENCES ON INTERVENTION IN SECONDARY AND HIGHER EDUCATION

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