THE EVALUATION OF THE LEARNING DISABILITIES/JUVENILE DELINQUENCY REMEDIATION PROGRAM

EVALUATION DESIGN AND INTERIM RESULTS

Ingo Keilitz
Michael J. Saks
Paul K. Broder

August, 1979

National Center for State Courts
300 Newport Avenue
Williamsburg, Virginia 23185

Supported by Grant Number 78-JN-AX-0028 from the National Institute for Juvenile Justice and Delinquency Prevention, Office of Juvenile Justice and Delinquency Prevention, Law Enforcement Assistance Administration, U.S. Department of Justice. Points of view or opinions in this paper are those of the authors and do not represent the official position or policies of the U.S. Department of Justice.

PREFACE

The Learning Disabilities/Juvenile Delinquency (LD/JD) Project is a four-year research and development program which incorporates a complex evaluation of a remediation program for learning disabled, adjudicated delinquents. While one is tempted to wait until all the data are in hand before reporting results and conclusions, it is not realistic to do so, as pointed out by program evaluators, and decision-makers (e.g., McDaniels, 1975). Policy planning must continue, and partial information generally is better than none at all.

It is in this spirit that the following report has been prepared. It presents the mid-term results of the evaluation of the remediation program and tentative conclusions about its effectiveness. Data analysis is continuing and additional results will be released in forthcoming volumes, so that the evaluation ultimately will be responsive, timely and useful.

This report begins with brief descriptions of the context of the LD/JD Project and the remediation program. The evaluation design and analysis plan is described in Section 3.0 in some detail. The interim results and conclusions are presented in Section 4.0. The findings, showing small but reliable effects of the remediation program, are encouraging, setting the stage for more intensive analysis of the data gathered in the evaluation.

THE EVALUATION OF THE LEARNING DISABILITIES/JUVENILE DELINQUENCY REMEDIATION PROGRAM: EVALUATION DESIGN AND INTERIM RESULTS

Contents

	Page
PREFACE	ii
1.0 INTRODUCTION	1
1.1 Background	1
1.2 The Context of Educational Program Evaluation.	7
2.0 THE REMEDIATION PROGRAM	9
2.1 Remediation Program Model.	9
2.2 Program Implementation Strategies.	10
3.0 EVALUATION DESIGN	12
3.1 Sample Description	15
3.2 The Summative Evaluation	18
3.2.1 Test Setting and Administration.	20
3.2.2 The Achievement Tests.	21
3.2.3 Delinquency Measures	23
3.2.4 Summative Evaluation Analysis Plan	23
3.3 The Formative Evaluation	27
3.3.1 Steps in Formative Evaluation.	27
3.3.2 Formative Evaluation Instruments	30
3.3.3 Formative Evaluation Analysis Plan	32
4.0 INTERIM PROGRAM EVALUATION FINDINGS	34
4.1 Remediation Process.	34
4.2 Subject Attrition.	39
4.3 Reading and Arithmetic Achievement	42
4.4 Program Context.	48
4.5 Interim Conclusions.	49
5.0 REFERENCE NOTES	52
6.0 REFERENCES	53
7.0 FOOTNOTES	55
8.0 APPENDICES	
8.1 Monthly Activity Tally (MAT)	
8.2 Student Tracking Form (STF)	
8.3 Director's Weekly Log	
8.4 Instructions for Completing the MAT and STF	

List of Tables

Table 1	Characteristics of the Summative and Formative Components of the Evaluation Design . .	14
Table 2	Comparison of Remediation and Control Groups on Demographic and Psychoeducational Variables	17
Table 3	Supplementary Descriptive Comparison of Remediation and Control Groups: Institutional Status	19
Table 4	Sample Individual Formative Evaluation Report	37
Table 5	Sample Aggregate Formative Evaluation Report	38
Table 6	Comparison of Remediation and Control Groups on Demographic and Psycho-educational Variables After Attrition.	41
Table 7	Mean Group Scores on Subtests of the Woodcock Reading Mastery Test.	43
Table 8	Mean Group Scores on Subtests of the KeyMath.	44
Table 9	Adjusted Posttest Scores and Summary Statistics From Analysis of Covariance	46

List of Figures

Figure 1	Schematic Representation of Study Design . .	5
Figure 2	Schematic Representation of the Coverage of the LD/JD Evaluation.	13
Figure 3	Remediation Effort in Major Academic Areas .	35

1.0 INTRODUCTION

The Learning Disabilities/Juvenile Delinquency (LD/JD) evaluation is a field experiment in which learning disabled, adjudicated delinquent adolescents in a program of remediation of specific learning disabilities are compared to a similar group of adolescents in a control group. The ultimate question posed in the evaluation is, "What are the effects of learning disabilities remediation on the educational achievement, delinquency and related attitudes and behaviors of learning disabled delinquents?" A secondary, yet important question is, "What are the characteristics of a successful remediation program?"

1.1 Background

Like other relatively large-scale educational experiments, the LD/JD evaluation arose in a context of public concern, fueled by disagreements among theoreticians, practitioners and policy makers. This concern led to government intervention, which has provided strong direction to further inquiry. In response to the considerable attention being given to the issue of a possible connection between LD and delinquency, the National Institute for Juvenile Justice and Delinquency Prevention (NIJJDP), of the Office of Juvenile Justice and Delinquency Prevention (OJJDP), an agency of the U.S. Department of Justice, launched an initiative in 1975

which subsequently led to the creation of the LD/JD Project. The NIJJDP commissioned a thorough review of the current state of knowledge about the LD/JD relationship. The review (Murray, 1976) concluded that, while the existing literature clearly indicated that the learning problems of delinquents warranted further investigations, it would be premature and unwise for OJJDP to launch major service delivery initiatives aimed at learning disabled juvenile offenders. The stage was set for a major research effort and field experiment to assess the hypothesized link between LD and JD.

The NIJJDP funded the present LD/JD Project in October, 1976. It consists of three major components: first, a study of the prevalence of LD among samples of officially nondelinquent adolescents and juvenile offenders (as defined by records of adjudication) in several parts of the country; second, a research and development effort aimed at the remediation of groups of learning disabled delinquents, located at the same sites as the prevalence study; and third, the evaluation of the LD/JD remediation program. In commissioning the LD/JD Project, the NIJJDP recognized that the prevalence study and the remediation field experiment were separable, but reasoned that economy of time and resources was achieved by coordinating these efforts. Thus, the sample participating in the remediation program and the program

evaluation was identified as part of the study of the prevalence of learning disabilities among juvenile delinquent adolescents.

Two organizations were funded by grants from the NIJJDP to conduct the project. The Association for Children with Learning Disabilities (ACLD) assumed the sponsorship of and responsibility for the educational program aimed at the remediation of learning disabled offenders in the metropolitan areas of Baltimore, Indianapolis and Phoenix. The National Center for State Courts (NCSC) was awarded a grant to conduct both the prevalence study and the evaluation of the LD/JD remediation program.[1] The National Center contracted with the Educational Testing Service (ETS) to administer psycho-educational diagnostic assessments of the students.

In the latter part of 1976 and early 1977, the ACLD project representatives and the NCSC evaluators met several times with a national advisory group of researchers and practitioners from the areas of learning disabilities and juvenile delinquency, who were appointed by the NIJJDP and assembled by the ACLD. In addition, ACLD and NCSC staff members met with local advisory groups in Baltimore, Indianapolis and Phoenix.

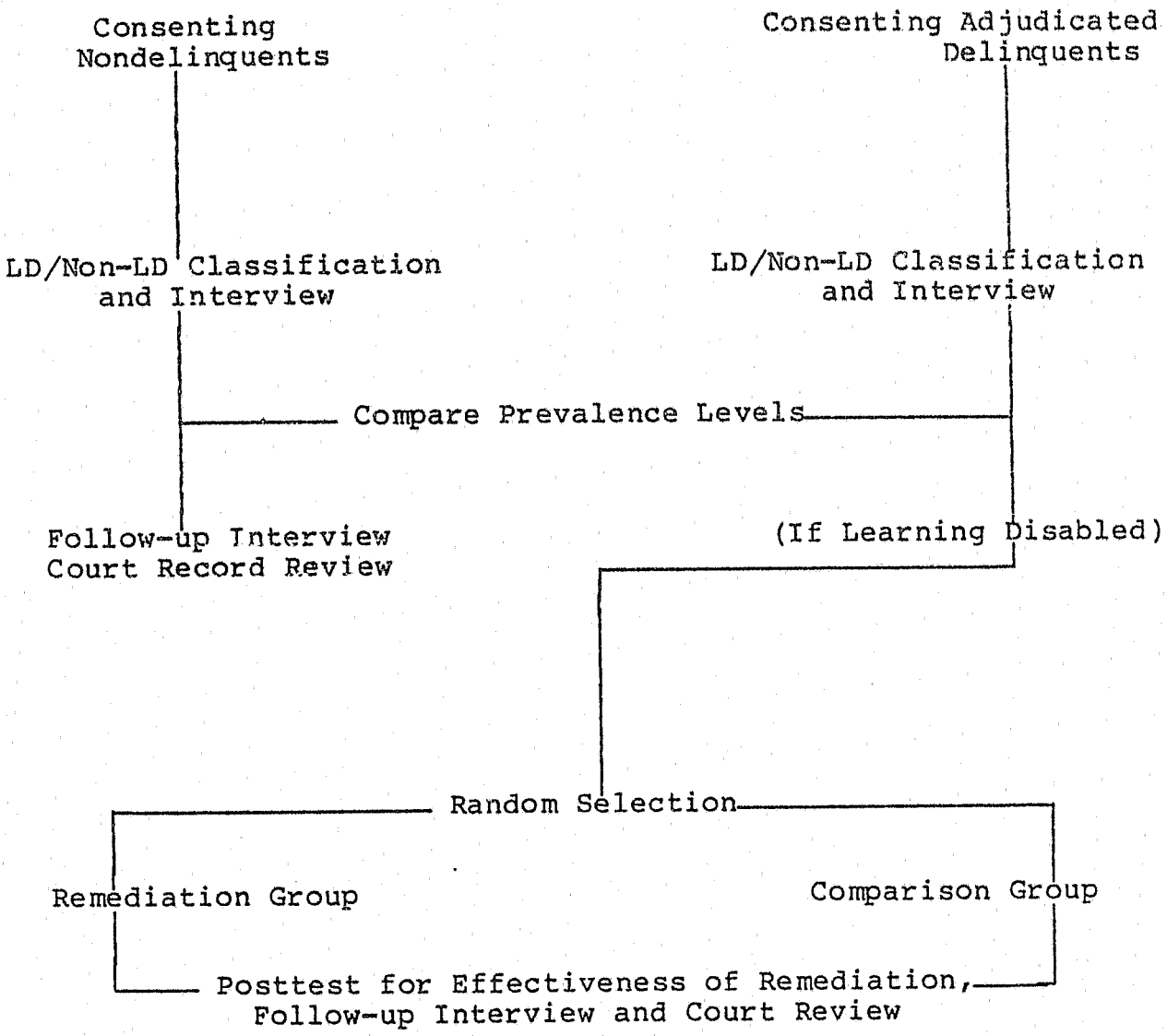
Discussions at these meetings touched upon a gamut of issues. Practitioners feared another federal project that treated educational programs as black boxes, with federal

funds and grand designs as inputs, and achievement scores from restricted, sterile tests as the only outcomes. Others were less concerned with how well the problems of learning disabled juvenile delinquents could be studied, than with how well such troubled adolescents could be helped. Researchers expressed their concerns about the research and evaluation designs, the difficult, inherent definitional issues, the choice of tests, and the sponsorship of a particular educational model.

The give-and-take of these early meetings, to a large extent, shaped the form and course of the entire LD/JD Project. Operational definitions of learning disabilities and juvenile delinquency were forged, an acceptable battery of psycho-educational tests was identified and an academic remediation program was formulated. The basic research and evaluation design depicted in Figure 1 ultimately was adopted. In the spring and summer of 1977, after consent had been obtained from parents and guardians, the educational records of 2,777 boys and girls between the ages of 12 and 17 (including 1,392 who had been adjudicated delinquent, and 1,385 who had no official record of delinquency) were reviewed for indicators of LD. After eliminating youths who did not meet the study criteria[2], further test and interview data were obtained from 693 adjudicated deinquents and 1,006 officially nondelinquent youngsters[3], in order to

Figure 1

Schematic Representation of Study Design



classify them as learning disabled or not. The complete operational definition of LD used in the evaluation is thoroughly documented elsewhere (Barrows, Campbell, Slaughter, and Trainor, Note 1; Campbell, Note 2). Further individual testing was conducted with those youths for whom learning disabilities were not precluded on the basis of the initial screening of educational records. The individual assessments consisted of standardized tests of achievement and ability.[4] In addition, other data were gathered from those whose records were reviewed, as well as from those who were tested, during an interview. The interview included questions about personal characteristics, family background, attitudes toward school, and self-reported delinquent activity. Of 257 adjudicated delinquent youths who were classified as learning disabled[5] half were selected randomly for inclusion in the remediation program, the remainder were assigned to a control group. These youths constituted Cohort I. In the summer and fall of 1978, the process was repeated to obtain a second cohort. An additional 158 12 to 17 year-old learning disabled delinquent youths from Cohort II were assigned to the treatment and comparison groups (Campbell and Trainor, Note 3).

The following sections of this report describe the context, design, and the interim results of the evaluation of the LD/JD remediation program.

1.2 The Context of Educational Program Evaluation

An unmistakably clear trend in educational program evaluation is that a greater recognition is being given to the variety of human experiences that are affected by educational intervention. The use of particularly narrow types of inquiries has met such great criticism that the exclusive use of a true experiment, for example, in the evaluation of large scale educational programs is virtually unheard of today. The experience of the Follow Through Evaluation, an ambitious inquiry into innovative approaches to the early education of disadvantaged children, is illustrative:

> [A] major error [in the evaluation of Follow Through] is narrowness of the evaluators' perspective . . . [T]he evaluators give inadequate attention to results other than child outcomes. They ignore the attitudes of parents, teachers, and teachers aides, for example . . . The insistence that pretest/posttest, treatment-group/control-group comparisons are the only legitimate way to gauge the effectiveness of broad social-educational program is at the heart of the so-called failure of Follow Through. (Hodges, 1978, p. 187)

For the evaluator this trend toward greater coverage has meant multiple-component evaluation designs. Gilbert, Light and Mosteller (1975) have categorized five information-gathering strategies of progressively higher scientific quality which are used in assessing social programs. The first combines intuition, introspection, simulation and theoretical analysis to make sense out of

loosely connected facts. The second is typified by anecdotes, case studies and testimonials. Both the first and the second types lack the rigor of the scientific method. One step up in scientific quality, the third category includes naturalistic observations and surveys with few controls. The final two information-gathering strategies are the more rigorous controlled inquires, typified by quasi-experimental field trials and true experiments.

The LD/JD evaluation design includes components of each of these information-gathering strategies, including a true experiment. It also follows the general recommendations of House, Glass, McLean and Walker (1978) for the conduct of large social-educational programs:

* Evaluations should be sensitive to a wide range of outcomes which may be important to different audiences.

* Evaluations should be sensitive to local conditions.

* Multiple information gathering strategies, multiple measures, and multiple analysis techniques should be employed.

The design and implementation of the LD/JD remediation program evaluation is a compromise between control and coverage, between fixed and flexible design components, between quick feedback to program staff and pre-post change and between anecdotal, non-replicable data and a controlled, true experiment.

2.0 THE REMEDIATION PROGRAM

This section, briefly describes the focus of the evaluation, the program of remediation for learning disabled juvenile delinquents.[6] As anyone familiar with educational programming knows, there frequently is considerable difference between a project's stated goals and those it actually pursues. The possibility that program outcomes may reflect both a program's stated goals and implicit, evolving, operational goals underscores the importance of describing both.

2.1 Remediation Program Model

The LD/JD remediation program was administered in the metropolitan areas of Baltimore, Indianapolis and Phoenix. The program began in September 1977, and ran through July 1979, with the goal of providing at least one school year (i.e., 10 months) of remediation to each youth served. The program was based on an academic treatment model, as contrasted with behavioral or medical remediation models. The academic model is based on the premise that learning disabilities cause poor achievement in school, poor achievement creates frustration, and the combined effects of learning disability, poor achievement and strain result in juvenile delinquency.[7] Remedial methods focus on school subjects directly and are largely concerned with ameliorating students' deficiencies in particular school subjects.

> The remediation planned is designed to provide individualized remedial instruction in the basic skills. The individualized program is written for student preferred learning patterns: auditory, visual, motor activities (or a combination thereof) and includes appropriate techniques. Skills necessary for control in coping plus developing adequate self concepts with the ability to have interpersonal relationships are accomplished through improving academic skills. Creating academic success normally improves self-concepts and self-esteem, thereby reducing strain (part of the working assumption of this demonstration project). (ACLD, Note 4, p. 49)

2.2 Program Implementation Strategies

At each site, a team of learning disability specialists performs remediation activities. Learning disability specialists (LDSs) are certified teachers of special education in the states in which the remediation is performed. Each site team is directed locally by a program director, also a certified teacher of special education, and nationally by the project director in Phoenix, Arizona.

The remediation program in each site does not operate in a central school setting, but instead arranges the location for remediation with the student, school officials and family members. Remediation sessions have taken place in school facilities, libraries, correctional facilities, detention centers, city jails, and the project site offices, as well as the homes of the students. In most cases, LDSs travel by car to meet their students in the various remediation locations. Typically, an LDS has a caseload of 6 to 12 students, with 3 to 4 remediation

sessions of one-hour duration scheduled per week with each student.

The remediation program commenced following the identification and location of the student, after the site program director received the psycho-educational diagnostic information and prescriptive recommendations from Educational Testing Service (ETS). Once the student was identified as part of the target population, the following sequence of activities typically took place:[8]

* Review of psycho-educational diagnostic information provided by ETS. Information conveyed to the LDSs, at a minimum, included achievement testing results, and a general psychological report summarizing intellectual ability and perceptual functioning.

* Location and initial contact with student.

* Administration of additional formal and informal tests to supplement assessments provided by ETS.[9]

* Writing of formal remedial prescription.

* Planning of remediation schedule and location.

* Writing of lesson plans and identification of instructional materials.

* Provision of ongoing remediation.

* Ongoing assessments and monitoring of individualized remedial prescriptions.

3.0 EVALUATION DESIGN

Figure 2 depicts schematically the coverage of evaluation inquiry. Three levels of inquiry are recognized: the remediation process, the program context, and the social context. The remediation process (i.e., student behaviors, teacher behaviors, remediation activities, the curriculum and the materials used) is highly dependent on the program context; the program, in turn, is greatly influenced by aspects of the social context such as the community, schools, and political factors. The design of the evaluation, recognized the interdependency of the remediation process, the program context and the social milieu, and attempts to provide adequate data to draw valid inferences at each level of evaluation inquiry.

The design has summative and formative components, which are summarized in Table 1. The distinction between hypothesis discovery and hypothesis verification made by Glaser and Strauss (1967) is useful in describing the differences between the summative and formative components of the evaluation. Formative evaluation involves the discovery of hypotheses. Questions asked in formative evaluation include, "What is going on in the program?" and "How can the program be improved?" Hypotheses and concepts have to be discovered and formulated, and explanations need to be suggested. Most formative

Figure 2

Schematic Representation of the Coverage of the LD/JD Evaluation

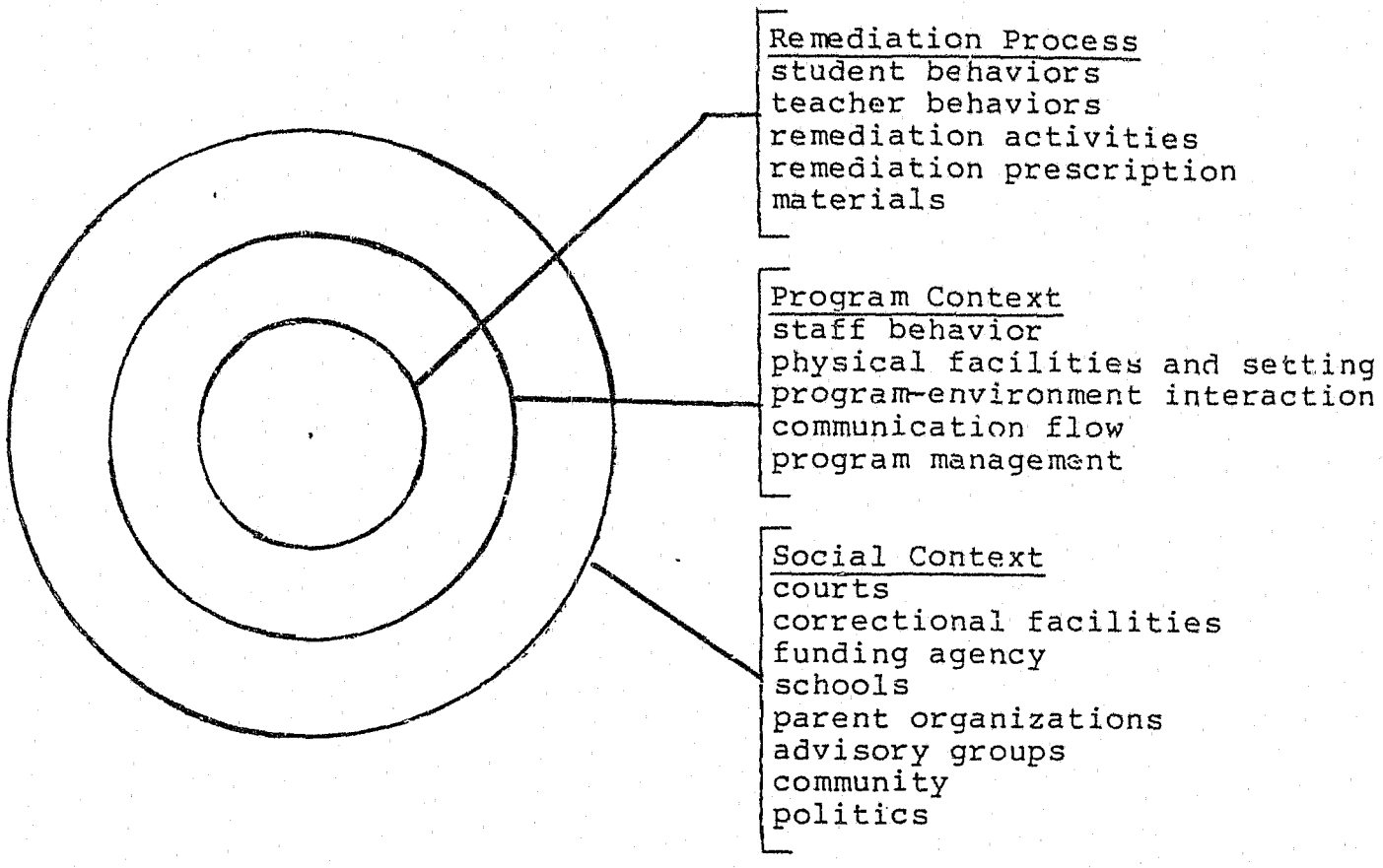


Table 1

Characteristics of the Summative and Formative Components of the Evaluation Design

Design Components	Characteristics
Summative	Pretest/posttest
	Control group
	Prior measurement of two randomly constituted groups
	Application of experimental treatment to one group
	Subsequent comparison of control and experimental scores (academic achievement; delinquent behavior and school attitudes)
	Application of inferential statistics
	Hypotheses verification
Formative	Naturalistic observation
	Case Study of sub-groups receiving experimental intervention
	Emergent and responsive
	Descriptive analysis
	Ongoing
	Hypotheses discovery

evaluation activities (e.g., program monitoring, information feedback) are viewed as hypothesis discovery processes.

The overriding purpose of the summative evaluation, on the other hand, is to verify hypotheses about the remediation program. The program is designed in order to test the hypotheses that are derived from the evaluation questions that have been posed. The springboard of summative evaluation, then, is the verification of stated or implied hypotheses. The program evaluation was designed to provide a balance between the summative and formative components, permitting both a rigorous assessment of overall program success and the description of the processes operating in the program.

3.1 Sample Description

The subjects of the program evaluation are groups of learning disabled, adjudicated delinquent adolescents who were identified as part of the prevalence study. The process of classifying the youths as learning disabled has been described in detail by Barrow, Campbell, Slaughter, and Trainer (Note 1), and by Campbell (Note 2). Subjects were assigned as participants in the program evaluation in two separate cohorts.

Cohort I, on which this interim report focuses, consisted of a total of 256 youths randomly assigned to either a remediation (treatment) group or control group.

A total of 132 subjects were initially assigned in Phoenix; 84 in Indianapolis; and 40 in Baltimore. In Phoenix, 65 subjects were assigned to the remediation group and 67 were assigned to the control group; equal numbers of subjects were assigned to the two groups in each of the other cities.

The composition of the remediation and control groups is compared in Tables 2 and 3. Ideally, the groups should be identical prior to the introduction of the remediation program, to insure that any observed posttest differences can be attributed to the effects of the remediation program and not to initial differences between the remediation and control groups. Table 2 shows the compositions of the two groups on major demographic and psycho-educational variables. With respect to Wechsler Intelligence scores, percents of males in the groups, and nearly all categories of officially recorded delinquency offenses, the groups are clearly comparable, with none of the differences departing from chance fluctuations. In comparing experimental and control groups, prior to an intervention, one is testing the hypothesis that the groups are not different, and expecting to conclude that indeed they are not. For such a comparison, a conservative test requires that the null hypothesis be easy to reject, that the test be highly sensitive to any differences. In an analogy to model testing, this has

Table 2

Comparison of Remediation and Control Groups on Demographic and Psycho-education Variables

Variable	Remediation	Control	df	F	p
WISC-R Verbal[a]	37.88	38.74	1,255	0.98	.323
WISC-R Performance	45.05	44.95	1,255	0.01	.938
WISC-R Full	40.57	40.92	1,255	0.15	.698
Age	15.42	15.16	1,240	3.08	.080

	Remediation	N[b]	Control	N	df	Chi-square	p
Sex-% Males	85.0%	127	86.8%	129	1	0.05	.818
Race-%							
Native American	7.0	115	5.1	117	3	5.09	.166
Latin American	14.8		7.7				
Black	33.0		29.1				
White	45.2		58.1				
Offense Adjudications[c]-%							
Status	33.3	120	41.7	127	1	1.51	.219
Miscellaneous	29.2	120	37.8	127	1	1.69	.194
Alcohol	1.7	120	2.4	127	1	0.00	.949
Drugs	8.3	120	3.9	126	1	1.39	.238
Automobile	7.5	120	7.9	126	1	0.01	.912
Criminal	44.2	120	37.8	127	1	0.79	.374
Violent	10.8	120	13.4	127	1	0.18	.675

[a]All WISC means are reported as standard T-scores; that is, the WISC scores have been transformed to a distribution with a mean of 50 and standard deviation of 10.

[b]Refers to the base on which the percentage is calculated.

[c]Offenses from court records were combined into categories according to the following system:

Status--Truancy, runaway, curfew violation, incorrigable youth;
Miscellaneous--disorderly conduct, petty theft, carrying burglary tools, shoplifting, possession of stolen goods, malicious mischief, vandalism loitering, statutory rape, prostitution;
Alcohol--possession, drunk;
Drugs--possession, use, or sale of marijuana, narcotics, inhalants, or dangerous drugs;
Automobile--joyriding, tampering, theft from auto (but not auto theft);
Criminal--breaking and entering, strong-arm robbery, theft, fraud, forgery, arson, larceny;
Violent--forcible rape, murder, kidnapping, assault, battery, aggravated assault, carrying a weapon.

been accomplished by setting the alpha level at p=.200. With this in mind, one may observe that a difference in age between the groups exists (p=.080), and that the distribution of juveniles by race is not entirely comparable (p=.166). The effects of these differences will be removed statistically in later analyses of posttest scores.

Table 3 shows an additional comparison between the remediation and comparison groups, with respect to the institutional status of the youngsters in the groups at the time of initial records reviews. An inspection of the table reveals that the two groups are comparable in this regard, with a slightly higher proportion of the remediation group being in training schools. This and other variables will be examined more systematically in forthcoming analyses.

3.2 The Summative Evaluation

The summative component of the program evaluation consists of a comparison of two groups of learning disabled delinquent youth, only one of which is receiving remediation. The summative evaluation design is depicted schematically below, where A denotes formal assessment and R denotes remediation. For purposes of remediation evaluation, assessments consist primarily of the administration of standardized tests (the Woodcock Reading Mastery Test and the KeyMath Diagnostic Arithmetic Test)

Table 3

Supplementary Descriptive Comparison of Remediation and Control Groups: Institutional Status

Status	Remediation	Control
Training school	46%	40%
Probation, parole or community placement	54%	60%
Total N	127	129

and the self-reported delinquency scale. Reviews of the subjects' involvement with the juvenile courts also will be incorporated into the evaluation. These instruments are described in more detail below.

Sample		Condition				
Cohort I	Experimental	A	R	A	R	A
	Control	A		A		A
Cohort II	Experimental			A	R	A
	Control			A		A

The effects of the remediation on academic achievement will be evidenced by comparisons between posttest scores of remediation and control youths and internal comparisons within the remediaton group. The educational significance of changes will be gauged by consideration of available normative data on the standardized assessment instruments and the information gleaned from the formative evaluation.

3.2.1 Test Setting and Administration. Ability and achievement tests, and a structured interview were administered individually to each of the subjects in each of the cities by staff supervised by ETS. No information was available to the testers during the pretest period concerning the future assignment of subjects to groups. At the time of posttesting only necessary information was provided to the testers, to minimize the possibility of bias in test administration.

(Although group membership may have been discernible in many posttest cases, on-site supervision revealed no reason to suspect any systematic bias in test administration.) While some changes occurred in staff from the pretest to the posttest, uniform procedures in the administration of all tests were sought by means of briefings, which were conducted by ETS. The settings of test administration varied from pretest to posttest, between sites and among subjects, depending on accessibility of the subjects for testing and the availability of testing space. The administration of the tests, quality control procedures and other administrative arrangements are described in detail by Barrows et al. (Note 1) and by Campbell and Trainor (Note 3).

3.2.2 The Achievement Tests. The two achievement tests that were selected for this research and evaluation are criterion-referenced tests that had been standardized on norming samples. The Woodcock Reading Mastery Test (Woodcock, 1973) consists of a battery of five individually administered reading tests for use from kindergarten to grade 12. The five tests are Letter Identification, Word Identification, Word Attack, Word Comprehension, and Passage Comprehension. The Woodcock was designed for general school use and teacher training, as well as for clinical and research purposes. The

norming of the test involved approximately 5,000 students from regular kindergarten through grade 12 classrooms in 141 schools and 50 school districts. Demographic and socioeconomic data of the norming sample closely match that of the U.S. population. Test reliability and validity are discussed in the manual accompanying the test.

The KeyMath (Connolly, Nachtman, and Prichett, 1976) is an individually administered test designed to provide diagnostic assessments of skill in mathematics. Test items are divided into 14 subtests organized into three major areas -- Content, Operations, and Applications. As with the Woodcock, most items in the KeyMath require subjects to respond verbally to open-ended items that are presented orally by the examiner. Illustrations generally accompany the oral presentation. The KeyMath norming sample consisted of 1,222 subjects drawn from kindergarten to grade 7. Supplementary norms tables based on the testing of approximately 2,500 pupils in grades 2-6 were published by American Guidance Service in 1978. Although early pilot tests of the KeyMath involved the testing of 1,400 educable mentally retarded youths, the norming sample appears to have been drawn from regular classes. According to the manual accompanying the test, the sample of schools contained a wide range of geographic and racial representation from urban, suburban, and rural settings. Reliability and validity indicators, as well as the brief

review of current research involving the KeyMath are provided in the manual accompanying the test.

The individual administration of the KeyMath takes approximately 30 to 40 minutes, the same amount of time that it takes to administer the Woodcock.

3.2.3 Delinquency Measures. Measures of delinquent behavior, which have not yet been analyzed (and consequently are not included in this report) took two forms. Reviews of court records provide information on "official delinquency" -- referrals to juvenile court, petitions drawn, and adjudication decisions. A second measure is self-reported delinquency, obtained through structured interviews with the remediation and control youths.[9] The effects of the remediation program on delinquency will be discerned in the same fashion as on academic achievement: by posttest comparisons between remediation and control groups.

3.2.4 Summative Evaluation Analysis Plan. Data collected about the remediation program during its operation, apart from their potential utility to a formative evaluation, provide information about the remediation process, which is relevant both to descriptive and analytic (i.e. predictive, causal) conclusions. Descriptive data include the amount and quality

(teacher-rated success) of the remediation effort in the various academic skill (prescription) areas, using the various materials, over time. A process analysis of the remediation group further shows the relationship between level of effort invested in remediation and outcome, and would answer questions, such as whether there is a threshold level of effort below which no gains are made, or a pattern of diminishing returns where increased levels of effort yield decreasing marginal gains. This analysis may include measures of the quality which may be done overall, or broken down by prescription area, sites, or for particular categories of juveniles (e.g., those with a minimal vs. a high number of disruptions in their domicile). A process analysis also could examine patterns of effects over time; looking, for example, at ups and downs in performance in relationship to other variables.

Of course, the summative evaluation will answer the "bottom line" question: How well does the program work? The remediation and control groups will be compared on the standardized tests at the end of the program. In addition, the groups in the first cohort have been compared midway through the program. In making comparisons between groups, fortuitous initial differences will be removed through the incorporation of those variables as covariates. Further, the comparisons can be sharpened by removing from the remediation group those

juveniles who receive little or no remediation. Excluding them from the analysis, we learn the potential impact of the program; including them, we learn the practical impact on the target population. (It also may be possible to remove comparison group juveniles whose parents, as a result of the intitial screening, diagnosis, and assignment of the project, secured for their children some kind of remediation, such as through the schools. Such a "John Henry" effect would artifactually attenuate the observed difference between experimental and control groups.)

Of equal or greater importance for the present study is an assessment of the effect of the remediation program on official and self-reported delinquency. Much of the same pattern of analysis can be applied to these data as to the analysis of academic performance: comparing treatment and control groups, statistically removing any pre-treatment differences. As mentioned earlier, the present report includes analysis of only academic achievement measures.

Thus far, only the simple main effects of remediation have been discussed. The juveniles in the program also can be systematically disaggregated into the subgroups most susceptible to improvement in response to the remediation program. The sample can be stratified by the juveniles' characteristics (i.e., age, expectation of

success, prior level of academic performance, prior level of delinquency, race, social status), or by events occurring coincidentally with the remediation period. These latter may be events either outside of or within the program's control.

Even if no effects are found with these conventional analytic approaches, it may be that because the program is tailored to individual juveniles' needs, univariate tests on any given dependent variable may be a test of highly diluted measures. That is, if different students made gains in different areas, the aggregate analysis of a measure in any one of these areas would include the "noise" of those experimental group youths who made no gains in that area along with the "signal" of the minority who did. Alternatively, a measure could be developed which would capture gain in any area and assembles it into a single index. For example, for each youth, the one subtest of greatest gain could become that person's measure of growth. Thus, if $Juvenile_1$ improved on Dependent Variable, (DV_1), and $Juvenile_2$ improved on DV_2, and $Juvenile_n$ on DV_n, all would show improvement on DV_{index}. Such a measure might be more sensitive to a highly individualized treatment package such as this remediation program featured. This index then could be used as a dependent variable in the main effect and interaction analyses described above.

3.3 The Formative Evaluation

While summative approaches in program evaluation have a tradition in research and measurement, formative program evaluation has no such strong guiding influences. In the design of the LD/JD evaluation, guidelines for the formative evaluation were set in the planning stages of the evaluation.

As this study employs it, formative evaluation is the process of discovering hypotheses, issues, concerns, and effects about a program, especially while it is ongoing, for the purpose of:

(a) improving the program by identifying strengths and weaknesses;

(b) providing timely feedback to decision makers for program decisions;

(c) monitoring and maintaining a record of procedures, outcomes, unintended happenings and other events during project and program implementations; and

(d) providing explanatory concepts supplementing inferences based upon summative evaluation, as well as generating new hypotheses about the program that may be tested as part of the summative evaluation.

3.3.1 Steps in Formative Evaluation. With these four major purposes of the formative evaluation, and the conceptualization of formative evaluation as a hypothesis discovery process, the formative evaluation component was planned, more or less, along the following eight-steps.

Step 1. Development of draft of the formative evaluation plan. Prior to the intitiation of the remediation program, a preliminary draft of the formative evaluation plan was presented in the form of a memorandum to the ACLD project director, site program directors, and teachers. The plan was cast first in draft form to permit flexibility and responsiveness to programmatic change.

Step 2. Obtaining input from program staff. The program managers and program staff who were directly involved in the remediation program were encouraged to contribute to the preliminary formative evaluation plan. This step seemed critical, and was taken seriously by the evaluators. It was important that the plan not only was correct, but also that it seemed correct to those directly involved with it. We found it crucial to meet personally with program managers and staff. At the outset of the project, several such meetings were scheduled during which several critical issues were addressed, among them: (a) the purpose of program evaluation and its relevance to program staff; (b) the importance of program staff as primary data collectors; (c) the assignment of specific responsibilities for data collection; (d) the provision of feedback to program participants; (e) the assignment of responsibilities for answering evaluation questions during the course of the program.

While it clearly did not preclude friction between the evaluators and program staff, the early presentation of the evaluation plan to the ACLD program staff clarified the focus of the remediation program evaluation. At the initiation of the remediation program, the learning disability specialists tended to view their task as the remediation of the "whole individual." The evaluation focus, however, was clearly on the effects of "academic skills" remediation. After this distinction was made clear, the learning disability specialists were better able to restrict their efforts to remediation of academic skills. Further, the early discussion of this potential problem area led to the development of remediation area prescription codes (see Appendix 8.4) which drew attention to the distinction between academic and non-academic skills and facilitated reporting of information to the evaluators.

Step 3. Preparation of a procedures document. The interaction of the evaluators and program staff prior to the initiation of the remediation program shaped the development of three data collection instruments, which were administered by program staff. One, designed for recording remediation activity and skill progress on a daily and monthly basis, was completed by the learning disabilities specialists. A second form was completed by program staff as the students moved through critical points in the remediation. Another instrument, completed by the project and program directors, described the flow of general program activities in the larger context. The data collection forms are discussed further below.

Step 4. Communication of formative evaluation procedures to project staff. The advantages to documenting and disseminating the details of the formative evaluation to program staff seemed clear: (a) it communicated a clear direction for the formative evaluation by documenting some of its elements; (b) it provided for more completeness of procedures by giving greater opportunity for input; (c) it brought out inconsistencies in the perceptions of the evaluators and the program staff, thereby allowing all available time for resolutions of problems; (d) it focused the tasks to be performed in the formative evaluation to a definable, manageable set; and (e) it focused the organization of limited resources.

Step 5: Monitoring and Documentation of Program Process. This step involved the identification and continuous monitoring of all elements and events of the remediation program and its context that may be potential sources of program success or failure. The elements within the three levels of evaluation inquiry suggested in Figure 2 (i.e., remediation process, program context and social context) indicate the focus of the information gathering effort of this step.

This step was accomplished by means of the administration of the three data collection instruments that were mentioned above and which are described in more detail below. It was intended that the techniques, procedures and instruments should guide the achievement of program objectives, not interfere with them. Although every effort was made to streamline the data collection and minimize the burden placed on the program staff, the ongoing reporting requirements were often viewed as intrusions on the remediation effort by program staff.

Step 6: Feedback to Decision Makers. The objective of this step was to provide timely feedback to decision makers and decision influencers (i.e., funding agency, program staff and evaluation staff). Several points should be noted with respect to the implementation of this step in a formative evaluation. First, the feedback needs to be timely; the best information, coming too late to inform a decision, is all but useless. Second, the feedback medium, format, and style should be congruent with the requirements of the recipients of that feedback. If relevant evaluative information is imbedded in cumbersome format, or transmitted by an inefficient delivery vehicle it doesn't serve the purposes of formative evaluation. Finally, the feedback needs to make its mark on the appropriate audience.

Unfortunately, the recognition of these points did not preclude considerable slippage in the accomplishment of this step. The feedback to program staff did not meet the expectations of either the program evaluators or the program staff, particularly with respect to timeliness. This step was the most talked about, yet least adequately implemented, aspects of the formative evaluation.

Step 7: Description of program process. The objective of this step is to answer the basic evaluation question, "What are the characteristics of a successful remediation program?" This step included the monitoring, maintenance and organization of process data, including unintended events during the course of program implementation, which may inform the inferences drawn from summative evaluation.

Step 8: Discovery of Hypotheses. This last step in the formative evaluation involves the ongoing generation of new hypotheses, concepts and explanations relevant to the program, which may yield a new perspective for evaluating the program as a whole. For example, monitoring and data collection of the modifications in the remediation schedule, location, and learning disability specialist may lead to the generation of explanatory concepts concerning achievement outcomes.

3.3.2 Formative Evaluation Instruments. Measurement in the formative component was achieved by employment of three instruments: the Monthly Activity Tally (MAT); the

Student Tracking Form (STF); and the Director's Weekly Log (Log). Examples of all three forms are shown in Appendices 8.1, 8.2 and 8.3. The instructions for the completion of the first two forms are contained in Appendix 8.4.

The MAT was designed to monitor the remediation process (i.e., student progress, learning disability specialist behaviors, remediation activities, remediation materials used, and teacher-generated ratings of success) for every remediation session of every student in remediation. The MATs were completed by the LDSs, checked by the site program directors, and mailed monthly to the program evaluators, who organized the data for analysis. The Student Tracking Form (STF) tracked the students within the program, measuring and describing student-program-environment interactions, critical remediation dates, program modifications, changes in physical facilities and remediation settings, and patterns of communication flow.

The Director's Weekly Log, as the name implies, was completed on a weekly basis by the program directors at each site, as well as by the ACLD project director. The Log elicited weekly program plans and schedules, program activities, major accomplishments and significant events for the week and, finally, unanticipated events and problems in the program. Each week, the four logs were

received and reviewed by the evaluators. Then, feedback and corrective actions, were suggested on a form designed for that purpose, and actions to improve the program were taken, completing the feedback cycle.

3.3.3 Formative Evaluation Analysis Plan. The plan for data management and primary analysis with respect to the formative evaluation consisted essentially of the complete feedback loop. Using the raw data provided by each LDS to the evaluators on the Monthly Activity Tally, the evaluators planned to enter the information into a computerized database and produce selected analyses that would be helpful to the LDSs. The scope of the reports was to include the amount of remediation in each prescription area, LDS ratings of activities' success, materials found to be associated with successful remediation activities, changes in Skill Progress Ratings, and so on, for individual juveniles, as well as aggregated by site and overall. Through successive cycles of providing feedback to the remediation staff and soliciting reactions to the information provided, the reports were to come progressively closer to providing the staff with the data that would best meet their needs for making program decisions.

As stated above, the implementation of the formative evaluation did not meet these expectations. Nevertheless,

the data that have been collected will be invaluable in attaining the other objectives of the formative evaluation of the remediation program, namely describing in detail the content and process of the remediation program, and providing explanatory concepts for use in the summative evaluation. The variety of analyses that it will be possible to conduct with these data have been alluded to above. The results of preliminary analyses are summarized below. They will contribute ultimately to a thorough and responsive evaluation of the remediation program.

4.0 INTERIM PROGRAM EVALUATION FINDINGS

This section outlines the interim results of the formative and summative components of the evaluation of the LD/JD remediation program, with respect to academic achievement. It is emphasized that these results are presented not as definitive statements, but as preliminary findings that will be used to sharpen the final program evaluation.

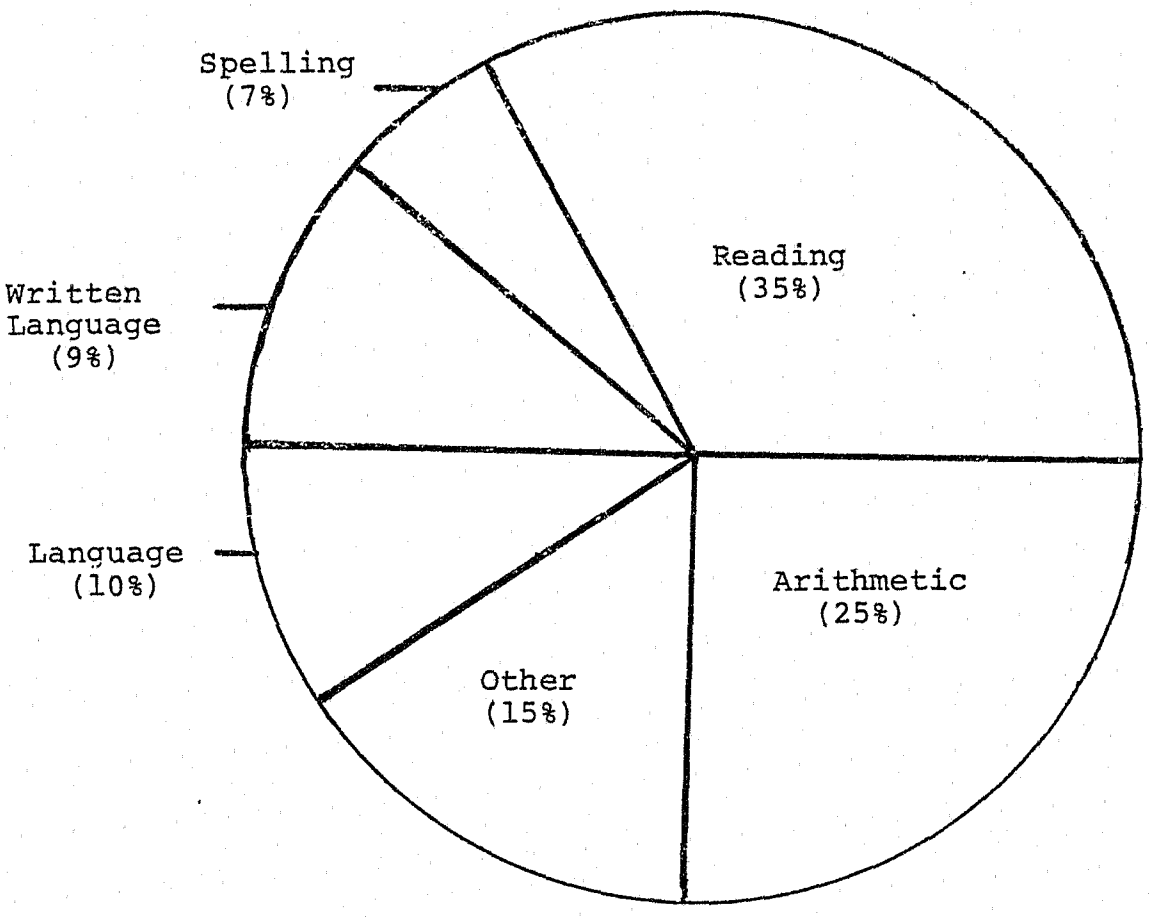
4.1 Remediation Process

The goals and operational plans for remediation were described in an earlier section. Figure 3 illustrates the distribution of effort in remediation in the major academic areas -- the content of remediation as of the end of 1978. Each LDS was asked to record not only the time spent in remediation with each student, but also the content areas that the remediation activity covered. Each teacher in the program also was asked to record the duration of every remediation activity and to code each activity by giving it a number corresponding to a specific prescription area. For example, a teacher might have recorded that he or she spent twelve minutes in an activity coded as 21.4, "Making inferences in reading comprehension."

The remediation effort began September, 1977. Systematic filing of the MAT forms began shortly thereafter, but planning, organizing, and data entry for

Figure 3

Remediation Effort in Major Academic Areas



the development of a computerized data base from which to generate formative evaluation reports was not begun until October, 1978. Before the development of the computerized data base, some manual compilations of MAT and STF data were summarized and submitted to program staff. Field observations of remediation sessions were made and process feedback was given during site visits.

The MATs submitted through the end of 1978 required over 30,000 records (card images) of 24 or 36 columns each. The first computerized feedback report was delivered to the program on 5 December 1978, and included data for approximately the first half of the remediation program. Several subsequent reports were sent through winter and spring, 1979.[10]

Sample individual and aggregate feedback reports are shown in Table 4 and Table 5, respectively. The individual report illustration shows that this particular juvenile received a total of 3,602 minutes of remediation through 1978, of which 26% were in arithmetic, 21% in comprehension, and 14% each in expressive and receptive language. In the area of most intense effort, a teacher-rated skill gain of 5.5 points occurred. These Skill Progress Ratings were made monthly for each academic area taught on a ten point scale ranging from "much teacher help needed, and child regressing", through "child has mastered skill and can apply it in new situation."

Table 4

Sample Individual Formative Evaluation Report

Prescription Area		Amount of Activity			Activity Ratings[a]		Skill Level[b]		
		Number of Sessions	Average Length (min)	Total Time	Number of Ratings	Average Ratings	Earliest	Latest	Difference
51.00	Arithmetic	98	9.6	0.26	98	3.00	2.5	8.0	5.5
21.00	Comprehension	88	8.7	0.21	88	3.02	4.6	6.0	1.4
22.00	Word Attack	14	5.1	0.02	14	3.14	2.0	6.0	4.0
32.00	Written Spelling	44	6.4	0.08	44	3.23	2.0	3.0	1.0
11.00	Receptive Language	96	5.2	0.14	96	3.00	3.0	3.0	0.0
12.00	Expressive Language	99	5.2	0.14	99	3.00	0.0	0.0	0.0
42.00	Syntax	0	0.0	0.0	0	0.0	2.0	2.0	0.0
41.00	Productivity Wr	40	5.4	0.06	40	3.50	3.0	3.0	0.0
23.00	Study Skills	0	0.0	0.0	0	0.0	0.0	0.0	0.0
54.00	Motivation	0	0.0	0.0	0	0.0	0.0	0.0	0.0
53.00	Arith Problems	0	0.0	0.0	0	0.0	0.0	0.0	0.0
52.00	Arith Concepts	0	0.0	0.0	0	0.0	0.0	0.0	0.0
43.00	Abstraction	0	0.0	0.0	0	0.0	0.0	0.0	0.0
31.00	Oral Spelling	38	5.4	0.06	38	3.26	1.0	3.0	2.0
44.00	Vocabulary	0	0.0	0.0	0	0.0	0.0	0.0	0.0
0.0		5	21.0	0.03	1	3.00	0.0	0.0	0.0
		522	(Total Time =	3602)					

Note: Includes all remediation through the end of 1978.

[a]Activity ratings calculated from a four-point scale.

[b]Skill levels calculated from a ten-point scale.

Table 5

Sample Aggregate Formative Evaluation Report

Prescription Area		Amount of Activity				Activity Ratings[a]		Skill Level[b]		
		Mean	Sum	Proportion	N	Average	N	Earliest	Latest	Change
51.00	Arithmetic	11.78	61022.	0.21	5181.	3.15	5180.	5.04	5.58	0.54
21.00	Comprehension	12.53	45960.	0.18	3653.	3.20	3729.	4.72	5.39	0.66
22.00	Word Attack	10.39	35752.	0.14	3441.	3.14	3411.	4.09	4.85	0.76
32.00	Written Spelling	9.72	15063.	0.06	1549.	3.14	1533.	4.20	4.81	0.61
11.00	Receptive Language	8.77	13954.	0.05	1592.	3.04	1592.	4.93	5.40	0.47
12.00	Expressive Language	8.69	13940.	0.05	1604.	3.06	1593.	4.88	5.42	0.54
42.00	Syntax	8.61	9337.	0.04	1084.	3.01	1077.	4.11	4.56	0.46
41.00	Productivity Wr	9.33	8101.	0.03	868	3.04	865.	4.05	4.24	0.19
23.00	Study Skills	10.95	5992.	0.02	547.	3.08	543.	4.26	4.20	-0.06
54.00	Motivation	8.29	4917.	0.02	593.	3.34	587.	3.50	3.50	0.0
53.00	Arith Problems	10.81	2584.	0.01	239.	3.21	232.	4.23	4.23	0.0
52.00	Arith Concepts	10.39	2244.	0.01	216.	3.14	213.	4.30	4.66	0.36
43.00	Abstraction	10.28	2427.	0.01	236.	3.31	239.	4.46	4.49	0.03
31.00	Oral Spelling	7.68	2740.	0.01	357.	3.06	356.	5.33	5.78	0.45
44.00	Vocabulary	11.19	1231.	0.00	110.	3.10	109.	6.25	6.25	0.0
0.0		16.34	35449.	0.14	2169.	2.89	1517.	0.0	0.0	0.0

Note: Aggregated: total for all sites includes all remediation activity through the end of 1978

[a]Activity ratings calculated from a four-point scale.

[b]Skill levels calculated from a ten-point scale.

For initial analytic purposes, these ratings were coded 1 through 10 respectively.[11] The individual activity ratings were made on a scale coded 1 through 4, respectively.

The aggregate report shows several aspects of the remediation effort for all sites through the end of 1978. Of the more than 260,000 minutes of remediation, 86% were in "academic" activity. Over 50% were distributed among the three areas of arithmetic (23%), comprehension (18%), and word attack (14%). Skill level ratings indicated an average gain ("change") of over half a point.

Virtually no feedback was received from the sites about the reports of the MAT data. The absence of suggestions, inquiries, substantive criticisms, responses to prompting for advice and comment during site visits, reinforce the impression that the reports contributed little to decision-making about remediation. Thus, in addition to a lack of timeliness, or perhaps as a result of it, there is a question about the substantive usefulness of the feedback.

4.2 Subject Attrition.

Differential attrition[12] of subjects in the remediation and control groups potentially could destroy the comparability of the two groups that was achieved through random assignment. Yet, as in any large scale study of some duration, subject attrition was almost

inevitable. Of the 256 learning disabled, juvenile delinquents in Cohort I assigned at the time of the pretests, 94 subjects or 36.7% could not be posttested. The research concern is whether the remediation and control groups were still comparable at the time of posttesting or whether there was differential attrition in the two groups.

At the time of pretesting, 127 subjects were assigned to the remediation group and 129 to the control group. Attrition was greater in the control group (44.2 percent) than in the remediation group (28.9 percent). This is understandable in view of the fact that the control group had relatively little contact with project staff in the time between pretesting and posttesting. Were the remaining remediation and control groups comparable with respect to a variety of demographic and psycho-educational measures?

Table 6 presents the same comparisons made in Table 3, this time after attrition. The remaining remediation and comparison group juveniles are no less comparable than they were at the time of pretesting. Although more subjects were lost from the control group, the attrition did not differentially affect these demographic and psycho-educational variables. Or, more precisely, to the extent that the loss was differential, it moderated the differences observed earlier. The absolute difference between mean age of the groups is virtually unchanged,

Table 6

Comparison of Remediation and Control Groups on Demographic and Psycho-educational Variables After Attrition

Variable	Remediation	Control	df	F	p
WISC-R Verbal[a]	38.05	38.32	1,161	.058	.810
WISC-R Performance	44.99	44.35	1,161	.180	.672
WISC-R Full	40.71	40.35	1,161	.103	.749
Age	15.24	14.97	1,151	1.874	.173

	Remediation	N[b]	Control	N	df	Chi-square	p
Sex-% Males	87.0%	92	87.8%	74	1	0.004	.948
Race-%							
Native American	7.1	84	6.0	67	3	1.307	.727
Latin American	13.1		9.0				
Black	34.5		31.3				
White	45.2		53.7				
Offense Adjudications-%							
Status	33.7	86	41.1	73	1	.631	.427
Miscellaneous	31.4	86	34.2	73	1	.045	.832
Alcohol	0.0	86	2.7	73	1	.690	.406
Drugs	10.5	86	5.5	73	1	.728	.394
Automobile	7.0	86	8.3	73	1	.0004	.985
Criminal	46.5	86	32.9	73	1	2.51	.113
Violent	11.6	86	11.0	73	1	.014	.906

[a]All WISC means are reported as standard T-scores; that is, the WISC scores have been transformed to a distribution with a mean of 50 and standard deviation of 10.

[b]Refers to the base on which the percentage is calculated.

although it is less statistically reliable (due to the reduced sample size and perhaps also due to increased variation within the groups). But there is greater comparability of groups with respect to racial composition. The absolute differences for each race classification is smaller than at the time of pretesting.

4.3 Reading and Arithmetic Achievement

Tables 7 and 8 show the mean raw scores for the subtests of the Woodcock Reading Mastery Test and the KeyMath Diagnostic Arithmetic Test, respectively, for the remediation and control groups. Table 7 shows the mean performance in the pretest and posttest on the subtests of the Woodcock Reading Mastery Test, and the mean gain scores for both groups. The numbers in parentheses following the names of the subtests indicate the number of items in each test. The scores are the mean number of items answered correctly by each group.

Table 8 shows the performance of the two groups on the fourteen subtests of the KeyMath Diagnostic Arithmetic Test. The numbers in parentheses indicate the number of items in the subtests.

Are any of these observed differences greater than what would be expected by chance alone? In order to answer this, performance on the KeyMath and on the five subtests and the total Woodcock were compared for the remediation and control groups for Cohort I by analysis of

Table 7

Mean Group Scores on Subtests of the Woodcock Reading Mastery Test

Subtest	Remediation			Control		
	Pre	Post	Gain	Pre	Post	Gain
Letter Identification (45)	43.57	43.55	-0.02	43.90	44.15	0.25
Word Identification (150)	102.48	109.43	6.95	107.03	112.15	5.13
Word Attack (50)	26.91	30.45	3.55	28.22	29.32	1.10
Word Comprehension (70)	27.69	30.28	2.59	27.75	30.75	3.00
Passage Comprehension (85)	43.97	48.78	4.82	45.49	47.64	2.15

Table 8

Mean Group Scores on Subtests of
the KeyMath Diagnostic Arithmetic Test

Subtest	Remediation			Control		
	Pre	Post	Gains	Pre	Post	Gains
Numeration (24)	17.31	18.12	0.81	17.43	17.86	0.44
Fractions (11)	5.48	5.79	0.31	5.96	6.58	0.63
Geometry & Symbols (20)	16.12	16.65	0.53	16.74	17.39	0.58
Addition (15)	11.21	11.95	0.74	11.49	11.73	0.31
Subtraction (14)	9.06	9.78	0.72	9.26	9.54	0.28
Multiplication (11)	6.75	7.32	0.56	6.81	7.00	0.19
Division (10)	5.06	5.99	0.93	5.46	5.59	0.13
Mental Computation (10)	6.45	7.14	0.69	6.56	6.94	0.39
Numerical Reasoning (12)	8.79	9.13	0.34	8.22	8.83	0.61
Word Problems (14)	9.53	10.02	0.49	9.86	10.38	0.51
Missing Elements (7)	5.76	5.96	0.20	6.03	5.89	-0.14
Money (15)	11.00	11.27	0.27	10.90	11.36	0.46
Measurement (27)	18.49	19.70	1.30	19.09	19.78	0.75
Time (19)	14.80	15.19	0.39	15.29	16.18	0.89

covariance, using the pretest scores as covariates. Standard T-scores were used rather than raw scores for these analyses; that is, the raw score scales were mathematically converted to a distribution having a mean of 50 and a standard deviation of 10. The mean and standard deviation used were those of the population on which the tests were normed, so that the present scores stand in relation to the norming population. Table 9 summarizes the analysis of covariance. The differences between the Woodcock Passage Comprehension Subtest and the Total Woodcock are marginally statistically significant, with the remediation group having scored higher.

Using age norms data supplied by the developers of the KeyMath, the mean standard posttest scores of 39.37 and 39.14 obtained by the remediation and control groups would rank their performance in the 15th and 14th percentiles, respectively, among students in grade 7.6, the highest grade for which normative data are available. (This means that only about 15 percent of the pupils in the norming sample received lower scores than those in the remediation, while about 85 percent of the grade 7.6 pupils scored higher.) These scores are about typical of the average performance of students in the early part of grade six.

Similarly, using Woodcock performance norms, the mean posttest scores of the remediation group in total reading,

Table 9

Adjusted Posttest Scores and Summary Statistics From Analysis of Covariance

		Remediation	Control	df	F	p
KeyMath		39.37[a]	39.15[b]	1,155	0.07	.794
Woodcock:	Letter Identification	51.15[c]	51.99[b]	1,159	0.45	.505
Woodcock:	Word Identification	40.03[c]	39.19[b]	1,159	1.51	.220
Woodcock:	Word Attack	43.57[c]	41.95[b]	1,159	2.11	.148
Woodcock:	Word Comprehension	40.13[c]	40.06[b]	1,159	0.01	.934
Woodcock:	Passage Comprehension	40.66[c]	39.33[d]	1,160	3.10	.080
Woodcock:	Total	39.90[c]	38.29[d]	1,160	3.86	.051

$a_{\overline{n}} = 87$
$b_{\overline{n}} = 71$
$c_{\overline{n}} = 91$
$d_{\overline{n}} = 72$
$*_{\overline{p}} = .05$

39.90 and 39.29 for the remediation and control groups, places them in the 17th and 12th percentiles respectively, among students of similar age-grade placements. These scores are roughly equivalent to the performance of students in the middle of grade four.

These differences in reading and arithmetic achievement in favor of the remediation group, although small, are encouraging for at least several reasons. First, these results suggest a reliable effect of the remediation program on reading scores after approximately 10 months of operation, at the midway point of the program. Further, since some students entered the program late, 10 months represents the maximum duration of remediation. If one assumes that the remediation effects are lasting and cumulative, it might be expected that the effects will increase with time.

Second, even these modest results are encouraging in light of some educational researchers' view that standardized achievement tests frequently result in no significant diffences (Popham, 1978; Hodges, 1978).[13] Third, the remediation program constitutes a relatively small portion of the subject's lives. Even modest effects, seen in the context of a myriad of competing influences, are worthy of further scrutiny.

4.4 Program Context.

As those familiar with the evaluation of educational programs know all too well, programs are influenced not only by the treatment that is being tested or demonstrated, but also by the context in which the program is placed. All too often, contextual influences are dealt with only in retrospect by critics to explain program failure, or as a convenient springboard for another program. Without traces of contextual influences left by the evaluators or program staff, any statements regarding the appropriate context for a program are pure conjecture.

As part of the formative evaluation, problems, significant events, and major accomplishments in the remediation program were documented in the Director's Weekly Logs (see Appendix 8.3). Descriptive analysis of the program context will be performed using this information. In addition to the descriptive value of the logs to the evaluators, they served as a self-management vehicle whereby the program directors organized their thoughts about the work they were doing each week and communicated among themselves and the evaluators. By means of the logs, important events were brought to the staff's attention, recurrent problems were highlighted, and program directors were kept aware of situations requiring their attention.

Various issues of program context relevant to the program's operation and outcome, difficult to capture by traditional measurement and evaluation techniques, are highlighted by the entries in the logs. Some of these issues concerned antecedent conditions and predate the initiation of the remediation program, e.g., gaining the cooperation of participating school districts, gaining access to the particular schools, acquiring the informed consent of the subjects and their parents or guardians, and the hiring of program staff. Other issues, such as program disruptions, management problems, communications between sites, and subject attrition, concerned the remediation process itself.

The data gathered from the logs will be analyzed qualitatively, not only to describe the program context, but also to highlight the issues of program administration and management that may be characteristic of programs of this type. In this way, other programs will benefit from the experience of this one.

4.5 Interim Conclusions

The evaluation of the Learning Disabilities/ Juvenile Delinquency remediation program can be viewed in two ways. One may view it straight forwardly as an assessment of a learning disabilities remediation program, which seeks to learn how effectively such a program ameliorates the problems of learning disabled youths who happen to be

delinquent. The interim answer to that evaluation question is that the program appears to be effective to a small degree in certain skill areas.

A second conception of the evaluation places it in the broader context of understanding the relationship between LD and JD, and the possible reduction of JD through LD remediation. This view would hold that regardless of the nature of the correlation between LD and JD (be it an intrapsychic etiology, or the product of differential treatment or labelling by the juvenile justice system), or even if there were no correlation between them at all, there still exists a population of learning disabled juvenile delinquents. It may be hypothesized that that population, if its learning disabilities are successfully remediated, will have a reduced incidence of delinquency. From this perspective, the evaluation of the remediation program's effect on academic ability and achievement is clearly secondary to evaluation of its effect on delinquency. From this viewpoint, the evaluation of the effects on academic ability are really a manipulation check. That is, to test the hypothesis that the remediation of learning disabled juvenile delinquents results in decreased delinquency, it must first be established that the learning disabilities have been remediated effectively. To the degree that the remediation program has not succeeded, the hypothesis

remains untested. A further possibility is that delinquency will decline in the remediation group, even though the learning disabilities have not been effectively remediated. In this case, the hypothesis remains untested, but it nonetheless will have been learned that some components of the remediation effort have had a salutary effect on delinquency.

The analyses described earlier in the report, and the issues discussed here will, of course, be addressed by the analyses to be done in the next several months.

5.0 REFERENCE NOTES

1. Barrows, T. S. Campbell, P. B., Slaughter, B. A., and Trainor, M. L. Psycho-educational diagnostic services for learning disabled youth. Princeton, N.J.: Educational Testing Service, 1977.

2. Campbell, P. B. The definition and prevalence of learning disabilities. Presentation to the ACLD Annual Conference, Kansas City, Missouri, March, 1978.

3. Campbell, P. B. and Trainor, M. L. Psychoeducational diagnostic services for learning disabled youth: Final pretesting report, 1978. Princeton, N.J.: Educational Testing Service, 1978.

4. Association for Children with Learning Disabilities. Research and demonstration project: Policy manual. Phoenix: ACLD & R&D Project, 1978.

5. Zimmerman, J., Rich, W. D., Keilitz, I., and Broder, P. K. Some observations on the link between learning disabilities and juvenile delinquency. Williamsburg, Virginia: National Center for State Courts, 1978.

6.0 REFERENCES

American Guidance Service, KeyMath Diagnostic Arithmetic Test supplementary norms tables: Grade 2-6: percentile ranks and normal curve equivalents. Circle Pines, MN: American Guidance Service, 1978.

Connolly, A. J., Nachtman, W., & Pritchett, E. M. Keymath Diagnostic Arithmetic Test: Manual. Circle Pines, Minnesota: American Guidance Service, 1976.

Gilbert, J. P., Light, R. J. & Mosteller, F. Assessing social innovations: An empirical base for policy. In C. A. Bennett & A. A. Lumsdaine (Eds.), Evaluation and experiment: Some critical issues in assessing social programs. New York: Academic Press, 1[illegible].

Glaser, B. G. & Strauss, A. L. The discovery of grounded theory: Strategies for qualitative research. Chicago: Aldine Publishing Co., 1967.

Hodges, W. L. The worth of the Follow Through experience. Harvard Educational Review, 1978, 48, 186-192.

House, E. R., Glass, G. V., McLean, L. D., & Walker, D. F. No simple answer: Critique of the Follow Through evaluation. Harvard Educational Review, 1978, 48, 128-160.

Koppitz, E. The Bender-Gestalt Test for Young Children. New York: Grune, 1963.

McCullough, B. C., Zaremba, B. A., and Rich, W. D. The role of the juvenile justice system in the link between learning disabilities and delinquency. State Court Journal, 1979, 3 (2), 24-26, 44-47.

McDaniels, G. L. The evaluation of Follow Through. Educational Researcher, 1975, 4 (11), 7-11.

Murray, C. A. The link between learning disabilities and juvenile delinquency: Current theory and knowledge. Washington, D.C.: U. S. Government Printing Office, 1976.

Popham, W. J. The case for criterion-referenced measurements. Educational Researcher, 1978, 7(11), 6-10.

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R. and Karp, S. A. Psychological differentiations. New York: Wiley, 1974.

Woodcock, Richard W. Woodcock Reading Mastery Tests: Manual. Circle Pines, Minnesota: American Guidance Service, 1973.

7.0 FOOTNOTES

[1]The first phase of the project was conducted at Creighton University and ended on August 31, 1978. The two-year continuation of the research and evaluation components is being conducted by the National Center for State Courts.

[2]Study criteria set age limits for the youths who were to be included and specified that the subjects be primarily English-speaking and not have evidence of mental retardation, severe emotional disturbance or physical handicap as primary exceptionalities.

[3]Through a succession of double checks of the data and removal of erroneous cases, the number of people who met the study's criteria and could be classified as learning disabled or not dropped from 1709 to the present 1669.

[4]At a conceptual level, LD is considered to be evidenced by a significant discrepancy between a child's expected achievement (based upon intelligence test scores) and his or her actual achievement. Additionally, the discrepancy must not be attributable primarily to mental retardation, physical handicap, emotional disturbance, or environment disadvantage. The discrepancy is presumed to result from interference in the processes of receiving information, using it in cognition, or communicating the cognitive result.

Two major procedures were used to operationalize this concept. First, a review of educational records was done to screen out children who obviously were not learning disabled. Second, the children who could not be screened out were given a battery of standardized tests.

In the review of each child's school records, trained reviewers searched for any evidence of discrepancies in test scores or school grades, any clinical or anecdotal observations suggesting LD, and evidence of factors that would rule out LD as a primary classification (e.g., mental retardation, emotional disturbance, etc.). The interviewers were trained to err on the side of caution; if there were insufficient records or doubt about the proper judgment, the child was to be referred for complete testing. Children for whom sufficient data were available and who showed no recorded indications suggesting LD were classified as not learning disabled and referred only for interview.

Those children who were not classified as non-learning disabled on the basis of the records review were given a three-and-one-half hour battery of tests. The main testing instruments used were a children's test of Intelligence (Wechsler Intelligence Scale for Children - Revised), tests of reading and mathematics achievement (the Woodcock Reading Mastery Test and the KeyMath Diagnostic Arithmetic Test), and a test of perceptual-motor ability (the Bender-Gestalt).

Based upon the test scores (and including ratings of observations of the child's behaviors during the testing session), each child was then classified as learning disabled or not. The classification decision was made by a computerized algorithm to ensure a consistent application of the decision rules. Briefly, a child was classified learning disabled when the protocols revealed three independent discrepancies among the following: a two-year or greater discrepancy among three WISC-R factor scores, (Witkin, 1974), between the WISC-R scores and the achievement scores, or between the achievement scores; a Bender-Gestalt score of three or more (Koppitz [1963] scoring); two or more ratings of pronounced difficulties on the WISC-R observations; and three or more ratings of pronounced characteristics in the behavioral observations. (Approximately 74% of the LD classifications were made on the basis of the WISC-R and achievement test scores exclusively.) Finally, children whose achievement test scores were at or above age-appropriate grade levels were classified as non-learning disabled, and those having a full-scale IQ less than two standard deviations below the mean (T score of 32 or less) were classified as primarily mentally retarded, rather than learning disabled.

[5]Using the algorithmic definition of LD, 221 youths were classified as learning disabled delinquents. An additional 35 adjudicated delinquents were classified as LD by clinical decision, which was used before the adoption of the computerized algorithm, bringing the total to 256.

[6]Additional information about the remediation program can be obtained from Dorothy Crawford, Project Director, ACLD R&D Project, 2701 East Camelback Road, Suite 450, Phoenix, Arizona 85016.

[7]A test of this premise, often referred to as the school failure hypothesis, is a part of the LD/JD Project. Some preliminary observations concerning

this have been made by Zimmerman, Rich, Keilitz, and Broder (Note 5); and McCullough, Zaremba, and Rich (1979).

[8]The average time and range of time required to accomplish this sequence of activities will be learned from analysis of the Student Tracking Forms (see Appendices 8.2 and 8.4).

[9]Formal assessment included the administration of standardized diagnostic tests and the collection of writing samples. Informal assessments of specific skill levels in the various academic remediation areas also were conducted. Additional information concerning the composition of the self-report questionnaire may be obtained from the authors.

[10]Subsequent reports were sent in late January, 1979 (including about three-fourths of the MAT data through 1978), March 1, 1979 (including almost all of the MAT data through 1978), and April 1, 1979 (including approximately the first two months of 1979). Although feedback reports eventually were produced with some regularity, the first report was not sent until the remediation program was well over one year old. These delays resulted from initial delays in data entry. The time taken to clean data once entered, transferring from one computer service bureau to another, travel schedules and changes in personnel, all contributed to delays in subsequent reports.

[11]These scores are not readily interpretable as gains in overall skill. As a result of a validity assessment recently completed on the Skill Progress Ratings, it was concluded that instead of measuring student skills against a cumulative background of all students, the LDSs were using the measures to rate a child's performance against that child's own recent past performance. Thus, the measures are comparable, at best, within students but not between students.

[12]Attrition, as used here, refers to the absence of pretested subjects during posttesting.

[13]These criticisms are moderated somewhat by the selection of criterion-referenced tests for use as dependent measures in the evaluation.

APPENDIX 8.1

MONTHLY ACTIVITY TALLY (MAT)

Name of Student: ____________ Name(s) of Teacher(s): ____________

Code No.: ____________ ____________

Place of Remediation: ____________ ____________

Date	Activity	Codes: Prescription	Codes: Material	Duration	Rating (– 0 + ++)

MONTHLY ACTIVITY TALLY (Page 2)

Reporting Period ____________ to ____________

Name of Student: ____________ Code No.: ____________

Skill	Prescription Code	Progress Rating*

*I=Instructional Level, C=Independent Level, M=Skill Maintenance Level, X=Mastering Level; use (+), (0), or (–) after I, C, M or X indicates increasing, maintaining, or decreasing proficiency.

Comments:

APPENDIX 8.2

STUDENT TRACKING FORM (STF)

Student's Name _____ Case # _____ Birthdate: _____ (CA _____)

Guardian's Name: _____ Address: _____

_____ _____

Home Telephone: _____ Business Telephone: _____

School Corporation: _____ School: _____

Class Placement/Grade: _____

Probation Officer: _____ Phone: _____

Diagnostic Summary Reviewed Date: _____

Comments: _____

_____

_____

_____

Terminated Program Date: _____

Reasons: _____

_____

_____

Final Report Filed Date: _____

STUDENT TRACKING FORM (Page 2)

Student's Name: _____

Case #: _____

Initial Contact with School Date: _____

Person making contact: _____ Telephone In Person

Outcome: _____

_____

_____

Initial Contact with Student Date: _____

Person making contact: _____

Location: _____ Duration: _____

Outcome: _____

_____

_____

☐ Initial Contact with Parents or Guardians Date: _____

Person making contact: _____

Telephone In Person Student Present

Location: _____ Duration: _____

Outcome: _____

_____

_____

Comments: _____

_____

_____

Student's Name: _____

Code #: _____

☐ First Impression Planning for Remediation (Describe briefly): _____

_____

_____

_____

☐ Initiate Remediation (first classroom encounter) Date: _____

☐ Remediation Prescription Written Date: _____

☐ Success Rating - Teacher Date: _____

☐ Contract Negotiated Date: _____

Informed Consent Non-Consent ☐

Explain: _____

_____

☐ Success Rating - Student Date: _____

Comments: _____

_____

_____

_____

STUDENT TRACKING FORM (Page 4)

Student's Name: _____

Code #: _____

Modifications in Remediation Program
Setting, Location, Personnel, and Schedule

Date	Modification	Explanation
_____	_____	_____
	_____	_____
	_____	_____
_____	_____	_____
	_____	_____
	_____	_____
_____	_____	_____
	_____	_____
	_____	_____
_____	_____	_____
	_____	_____
	_____	_____
_____	_____	_____
	_____	_____
	_____	_____
_____	_____	_____
	_____	_____
	_____	_____

APPENDIX 8.3

DIRECTOR'S WEEKLY LOG

Indianapolis ☐
Phoenix ☐
National ☐

DIRECTOR'S WEEKLY LOG

Week of _____ to _____

Director: _____

Instructions: Many factors can impact on the course of a project: students, teachers, curriculum, time schedules, communication flows, the community, physical arrangements, agency policies, staff problems, unanticipated happenings, and any interaction thereof. As a project director your responsibility is to track and control the above to achieve optimal program operation and effectiveness. Please use this perspective to address the four topics and questions below and mail the completed form to: Ingo Keilitz, Institute for Business, Law and Social Research, Creighton University, Omaha, Nebraska 68178.

1. What were your major intents for this week? _____

2. Briefly list your major activities this week. _____

3. Major accomplishments or significant events for this week: _____

4. Problems and/or unintended outcomes: _____

(Attach additional sheets if necessary)

APPENDIX 8.4

INSTRUCTIONS FOR COMPLETING THE MAT AND STF

INSTRUCTIONS

Formative Evaluation Forms

The following are instructions for completing the Monthly Activity Tally (MAT), the Student Tracking Form (STF) and the Director's Weekly Log (LOG) as part of the Formative Evaluation of the Learning Disabilities-Juvenile Delinquency Research and Demonstration Project. Please complete the MAT, STF and LOG as carefully and accurately as practically possible. Where and when the flow of remediation program information is incongruent with the forms, use them as general guides until appropriate revisions of the forms can be made. Mail the completed forms, according to the schedule noted below, to: Ingo Keilitz, Institute for Business, Law and Social Research, Creighton University, Omaha, Nebraska 68178.

Monthly Activity Tally (MAT)

General

The MAT (yellow) should be completed for every student involved in LD-JD remediation activities. Ideally, the LD-Specialist should complete the MAT on an ongoing basis throughout the reporting period. Site Program Directors should send all completed MAT forms to Creighton Institute on the following monthly schedule:

Baltimore - first Friday of each month
Indianapolis - second Wednesday of each month
Phoenix - third Friday of each month

MAT forms should be filed with Creighton Institute every month for each student in remediation, even though some youths may not have received remediation for the entire monthly reporting period.

Step 1.

Reporting Period - The indicated monthly reporting period should begin with either (1) the first day of remediation activity for the youth, or (2) the day following the last reporting day of the previously filed MAT for that youth.

Step 2.

Name of Student.

Step 3.

Name of Teachers - Indicate the name of the teacher(s) involved in the remediation effort for this reporting period.

Step 4.

Place of Remediation - Indicate the location of the remediation activities for this reporting period. If more than one location was used indicate all locations.

Step 5.

Date - Indicate the calendar date of the activity.

Step 6.

Activity - Briefly describe the activity involved. All interactions with the youth should be described.

Step 7.

Prescription Code - Match the appropriate prescription item to the activity described in Step 6 and indicate the code using the Prescription Codes listing. An activity may not be matched with a prescription item, in this case no code is indicated. It is anticipated that quite a few remediation activities will not be linked to prescription items. On the other hand, some activities may encompass several prescription items; this should be appropriately indicated on the MAT form with multiple codes.

Material Code - Indicate the materials utilized for the described activity in Step 6 by using the Material Codes listing (to be made available as soon as possible). Teacher made materials should be noted by "TM."

Step 8.

Duration - Indicate the length of time engaged in the activity in minutes.

Step 9.

Rating - Rate the activity as very successful (++), moderately successful (+), and neutral (0), unsuccessful (-).

Step 10. (page two)

Skill - Describe the skill or task which the activity or activities described on page 1 of the MAT were designed to develop in the youth.

Step 11.

Prescription Code - Indicate the link between the skill described in Step 10 and the prescription by using the Prescription Code listing.

Step 12.

Progress Rating - Indicate the skill level achieved for the skill described in Step 10, using the ratings T, C, M, X, and O as described below:

T - Instructional level: student needs teacher help (demonstration, instruction, physical guidance, etc.) at least 85% of the time in order to complete the task correctly.

C - Independent level: student can correctly complete the task with minimal teacher involvement.

In indicating a "T" or "C" progress rating further denote whether the student is making positive progress (+), is maintaining the same skill level (O), or is dropping in skill level (-). For example, a student achieving the independent level on a particular skill with increasing proficiency would receive a progress rating of C+.

M - Skill Maintenance level: student can perform the skill completely and independently.

X - Mastery level: student is able to apply the skill in new learning situation without difficulty and without review.

O - Not worked on: skill has been listed as a weakness for the student but it hasn't been worked on this month.

Step 13.

Comments - Note any comments.

Student Tracking Form (STF)

General

The STF (white) is used to monitor the movement of the student through the remediation program. Site Program Directors should complete the form for every student and submit completed pages to Creighton at

the following remediation milestones:

STF Page 1: "Diagnostic Summary Reviewed" and once again at the time of filing of the final report.
STF Page 2: Completion of initial contacts with student, school and/or parents.
STF Page 3: "Student Success Rating" filed with Creighton Institute.
STF Page 4: When modifications are noted.

Copies of completed pages of the STF should be filed with Creighton Institute on an as available basis, mailed with the monthly MAT or Weekly Log mailings.

Step 1. (Page 1)

Student Information - Self explanatory.

Step 2.

Diagnostic Summary Reviewed - Check box and note date when the ETS student diagnosis has been reviewed. Comment.

Step 3. (Page 2)

Initial Contacts - Indicate the nature, extent and outcome of the initial contacts made with the student, student's school, and the student's parent(s) or guardian(s). These are contacts made prior to the initiation of remediation. If no contacts are made with the school, student or parents prior to remediation indicate as such and submit STF Page 2 to Creighton Institute.

Step 4. (Page 3)

First Impression Planning - Briefly describe planning of remediation approach after initial contact with student but before the first individual prescription is written. Indicate the general approach to be taken in the first remediation session.

Step 5.

Initiate Remediation - Check box and date to indicate the initiation of remediation with student.

Step 6.

Remediation Prescription Written - Check box and date indicating that the individual prescription has been written.

Step 7.

Contract Negotiated - Indicate if a formal or informal (verbal) contract or agreement has been completed between the student and the LD-Specialist detailing the remediation program to be pursued. Check the appropriate box indicating whether the student gave his consent to the agreement, formally or informally. Explain as necessary or desirable.

Step 8.

Success Rating - Student - Student indicates his/her expected success in the remediation program. Details of procedures for Step 8 will be furnished by Creighton Institute.

Step 9.

Success Rating - Teacher - LD-Specialist indicates expected success of the remediation program. Details of procedures for Step 9 will be furnished by Creighton Institute.

Step 10. (Page 4)

Modifications in Remediation Program - Note and explain any changes in program setting, location, remediation personnel and/or schedule. For example, a change of remediation from one classroom or school to another, or from 10:00 a.m. to 2:00 p.m. should be indicated.

Director's Weekly Log (LOG)

Self explanatory as noted on green Log forms.

Prescription Codes

Language

11 Receptive
12 Expressive
- 12.1 Phonology
- 12.2 Morphology
  - A. Nouns
  - B. Verbs
  - C. Pronouns
  - D. Adjectives
  - E. Adverbs
  - F. Prepositions
  - G. Possessives
  - H. Conjunctions
- 12.3 Semantics
  - A. Word Association-Synonyms, Antonyms, Homonyms, Puns, Multiple Meanings.
  - B. Logical Statements
  - C. Classification
  - D. Verbal Analogies
  - E. Inclusion-Exclusion (some, none, all, etc.)
  - F. Detect Errors
  - G. Non-Literal Understanding (idiom, metaphor, simile, proverb)
  - H. Problem-Solving
- 12.4 Syntax
  - A. Word Order
  - B. Types of Sentences
  - C. Transformations

Reading

21 Comprehension
- 21.1 Main Ideas
- 21.2 Sequence (time, place, ideas, events, steps)
- 21.3 Comparison
- 21.4 Inference
- 21.5 Distinguish Fact and Fiction: Fact and Opinion
- 21.6 Character Traits
- 21.7 Sense Relationships (time, place, cause-effect, events, characters)

21.8 Anticipate Outcomes
21.9 Recognize Author's Tone, Mood, Intent--Interpret Emotions
21.10 Draw Conclusions; Make Generalizations
21.11 Critical Judgments
21.12 Word Meanings (Antonyms, Synonyms, Homonyms, Multiple Meanings, Figurative Meanings)

22 Word Attack
- 22.1 Sight Vocabulary
- 22.2 Context Clues
- 22.3 Phonetic Analysis
  - A. Consonants
    1. initial, medial, final
    2. consonant blends
    3. consonant digraphs
    4. silent consonants
  - B. Vowels
    1. short
    2. long
    3. digraphs
    4. dipthongs
- 22.4 Structural Analysis
  - A. Compound Words
  - B. Contractions
  - C. Inflectional Endings
  - D. Suffixes
  - E. Prefixes
  - F. Syllables
- 22.5 Dictionary Skills
  - A. Alphabetizing
  - B. Use of Guide Words
  - C. Definitions-Multiple Word Meanings
  - D. Pronunciation
  - E. Special Usage (abbreviations, plurals, homonyms, etc.)

23 Study Skills
- 23.1 Following Directions
- 23.2 Using Reference Skills
  - A. Table of Contents and Index
  - B. Dictionary
  - C. Encyclopedia
  - D. Glossary
  - E. Library
- 23.3 Outlining
- 23.4 Skimming
- 23.5 Note Taking
- 23.6 Reading Schedules
- 23.7 Map Reading

<u>Spelling</u>

31 Oral
32 Written
- 32.1 Sound Symbol Integration (phonic)
- 32.2 Structural Analysis

A. Root + Affix
B. Root + Inflectional Ending
C. Syllabication

Written Language

41 Productivity
- 41.1 Mechanics
- 41.2 Appearance

42 Syntax
- 42.1 Word Order
- 42.2 Noun-Verb Agreement
- 42.3 Verb Tense
- 42.4 Descriptive Words (adjective, adverb)
- 42.5 Sentence Variety
  - A. Simple
  - B. Compound
  - C. Complex
- 42.6 Paragraph Formation
  - A. Topic Sentence
  - B. Development (supporting details)
  - C. Transitions
  - D. Conclusions

43 Abstraction - Ideation
- 43.1 Concrete-descriptive (simple descriptions, names of objects, simple sentences, denotation of size, color, appearance)
- 43.2 Concrete-imaginative (infer ideas, generalize)
- 43.3 Abstract-descriptive (stories dealing with time and sequence, characters assigned roles)
- 43.4 Abstract-imaginative (stories with plot, imaginative setting, figures of speech, moral values, continuity, relationships)

Arithmetic

51 Computation
- 51.1 Addition of Whole Numbers
  - A. No regrouping
  - B. Regrouping
  - C. Vertical
  - D. Horizontal
  - E. Columns
- 51.2 Subtraction
  - A. No regrouping
  - B. Regrouping
  - C. Verticle
  - D. Horizontal
- 51.3 Multiplication
  - A. No regrouping
  - B. Regrouping
  - C. Verticle
  - D. Horizontal
- 51.4 Division
  - A. Even
  - B. Remainder
  - C. Set up for student
  - D. Student sets up
  - E. Averaging

- 51.5 Fractions
  - A. Reducing to lowest terms
- 51.6 Addition of Fractions
  - A. Like denominators
  - B. Unlike denominators
  - C. Mixed numbers
  - D. Vertical
  - E. Horizontal
- 51.7 Subtraction of Fractions
  - A. Like denominators
  - B. Unlike denominators
  - C. Mixed numbers
  - D. Vertical
  - E. Horizontal
- 51.8 Multiplication of Fractions
  - A. Simple fractions
  - B. Mixed numbers
- 51.9 Division of Fractions
  - A. Simple fractions
  - B. Mixed numbers
- 51.10 Addition of Decimals
  - A. No regrouping
  - B. Regrouping
  - C. Vertical
  - D. Horizontal
  - E. Columns
- 51.11 Subtraction of Decimals
  - A. No regrouping
  - B. Regrouping
  - C. Vertical
  - D. Horizontal
- 51.12 Multiplication of Decimals
  - A. No regrouping
  - B. Regrouping
  - C. Vertical
  - D. Horizontal
- 51.13 Division of Decimals
  - A. Even
  - B. Remainder
  - C. Decimal in division
  - D. Set up for student
  - E. Student sets up
- 51.14 Percent
  - A. Application
- 51.15 Measurement
  - A. Linear
  - B. Liquid
  - C. Weight
  - D. Dry
  - E. Metric
  - F. Temperature
  - G. Time (e.g. calendar)
- 51.16 Telling Time (clock skills)
- 51.17 Money
- 51.18 Square Root
- 51.19 Exponents
- 51.20 Ratio
- 51.21 Graphs

To: Chris ...

cc: Sydney ...

UNITED STATES DEPARTMENT OF JUSTICE
OFFICE OF JUVENILE JUSTICE AND DELINQUENCY PREVENTION
WASHINGTON, D.C. 20531

Chris, please ... NCJ numbers ... send to J. Smith ... & John ...
ASAP.
Thanks
Emily

October 29, 1979

Ms. Emily Johnson
National Criminal Justice
Reference Service
1015 20th Street, N.W. 4th Flr
Washington, D.C. 20036

Dear Emily:

Enclosed are the latest reports from the Learning Disabilities - Juvenile Delinquency R&D Project entitled "A Comparative Analysis of Standardized Achievement Tests with Learning Disabled and Non-learning Disabled Adolescent Boys" and "The Evaluation of the Learning Disabilities/Juvenile Delinquency Remediation Program: Evaluation Design and Interim Results." 62074 - 62075

Please enter these into the NCJRS data base and advise me when access numbers have been assigned. I am having 50 copies made of the Comparative Analysis and 150 of the Evaluation report for distribution.

Thank you.

Sincerely,

Pam

Pamela Swain
National Institute for Juvenile Justice
and Delinquency Prevention/OJJDP

cc: Paul Broder
National Center for State Courts

51.22 Interest
51.23 Geometry
- A. Shapes-Recognition
- B. Circumference of a circle
- C. Perimeter
- D. Area
- E. Angles
- F. Volume
- G. Surface

52 Concepts
- 52.1 Counting
- 52.2 One to one correspondence
- 52.3 Numerals
- 52.4 Sets
- 52.5 Seriation
- 52.6 Spatial relations
- 52.7 Place value
- 52.8 Odd-even numbers
- 52.9 Properties (commutative, associative, distributive)
- 52.10 Symbol/Abbreviations
- 52.11 Roman Numerals

53
- 53.1 Mental Arithmetic
- 53.2 One step word problems
- 53.3 Two step word problems
- 53.4 Problems with irrelevant information
- 53.5 Problems with missing information

END