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ABSTRACT

An optimal vocational evaluation program is described which was provided as part of a treatment of vocational and school behaviors of 119 reluctant learners from twenty-two rural school districts. (The 60-hour vocational evaluation process involved out-of-school psychometric and work sample testing over a two-week period.) An alternative in-school variation of that program is suggested and the effects (generally positive) of the original program on learners are summarized. Three perspectives are discussed with respect to the use of vocational evaluation in rehabilitation and educational applications: as an information gathering process, as a client-reactive process, and a rehabilitative process. The central components of a variety of educational experiments are examined as catalysts for increasing the relevancy of education and for effecting changes in behaviors of special needs students. Vocational evaluation is identified as a key catalyst for affecting the vocational development and school behaviors of the reluctant learners in the three-step Equal Career Opportunities Program (ECO): (1) in-school identification; (2) out-of-school vocational evaluation; and (3) in-school followthrough. In the alternative model which is suggested, vocational evaluation and career guidance are formally joined into a one- or two-semester course, the terminal objective being that students will establish realistic vocational plans and be provided with necessary school resources to attain these goals. The evaluation of the effects of vocational evaluation on the ECO students' vocational development and school behaviors are summarized and presented as suggested minimum levels for the in-school model. (Author/MEK)

VOCATIONAL EVALUATION WITH ADOLESCENTS: DESCRIPTION AND EVALUATION OF A PROGRAM FOR RELUCTANT LEARNERS

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F.E.M.

ABSTRACT

The intents of this report are to describe an optimal vocational evaluation program provided as part of a treatment of vocational and school behaviors of reluctant learners; to suggest an alternative in-school variation of that program; and to summarize the effects which the original program had on reluctant learner behaviors. First, three perspectives of vocational evaluation are discussed respective to vocational evaluation's use in rehabilitation and educational applications (as an information gathering process, as a client-reactive process, and as a rehabilitative process). Next, the central components of a variety of educational experiments are discussed as catalysts for increasing the relevancy of education and for effecting changes in behaviors of special needs students.

Then, the Equal Career Opportunities Program (ECO) was outlined as a three-step program (in-school identification, out-of-school vocational evaluation, and in-school follow-through) with vocational evaluation as a key catalyst for affecting the vocational development and school behaviors of reluctant leraners in rural schools. Based on the description, the ECO program, and the research and evaluation studies conducted on it, a two component, in-school model is proposed. In that model, vocational evaluation and career guidance and exploration are fully integrated; such that the benefits of each can be complimentary. Evaluation and guidance are formally joined into a one or two semester course, through which students can establish realistic vocational plans and school personnel can obtain those resources msot needed by students to realize their vocational goals. Finally, the evaluation of the effects of vocational evaluation on the ECO students' vocational development and school behaviors were summarized and presented as minimum levels which might be optimized with the model in-school program.

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I. INTRODUCTION

This report is addressed to developers and generators of evaluation programs in both rehabilitative and educational settings. The audience of this report includes personnel dealing with special needs/disabled persons in rehabilitation facilities, in vocational technical schools, and in secondary education evaluation, career development, and guidance programs. The purposes of this report are threefold: (1) to describe an optimal vocational evaluation program provided as part of a "treatment" of the vocational and school behaviors of a group of students known as "reluctant learners;" (2) to suggest an integrated variation of the original program; and (3) to summarize the evaluation of the effects of the optimal program on the students' vocational and school behaviors.

Perspectives on Vocational Evaluation

Since the onset of PL 93-112, vocational evaluation has increasingly been employed by rehabilitation counselors to obtain needed information on their clients' potentials and limitations. The use of this information is obtained at two points in the traditional rehabilitation process. The first point is when the client is still a "prospective client" of the state vocational rehabilitation program. At this point, the information from evaluation is used in the process of determining whether the prospective client is eligible for services. To be eligible, according to federal legislation, the prospective client must have a "severe disability" and a potential for vocational rehabilitation. That is, at this point the counselor is using the information from evaluation (along with the medical, social, etc.) to determine whether the prospective client has rehabilitative potential, given the resources of the system.

The second point at which vocational evaluation is most typically used is after the client has been accepted for services (is eligible). The purpose here is for developing the client's Individual Written Rehabilitation Plan (IWRP). The IWRP becomes the basis upon which all future services (adjustment, skill training, education, prosthetics, medical, psychological, etc.) and supports (maintenance, housing, transportation) are obtained for the client as part of his vocational rehabilitation. This IWRP is developed jointly by the client and counselor based upon the information that is available to the two of them (including the evaluation findings). The long term goal of all IWRP's is to return the client to his optimal level of competitive employment, or if competitive employment is not possible, to an environment in which the client can make his best contributions.

At both these points, the information derived from vocational evaluation is the outcome of vocational evaluation and this information is used in decision-making and for further planning. To many rehabilitation personnel, vocational evaluation is exactly this and as it was originally designed to be: a diagnostic and assessment process from which a succinct and objective appraisal of individuals' vocational and social assets and limitations are to be obtained.

To others, though, evaluation is becoming viewed as a treatment process as well. Direct benefits to clients are anticiapted by those who hold this point of view. Some of the benefits logically deal with the clients gaining new and unprecedented information about their own vocational strengths and weaknesses; gaining new information about occupational outlets and alternatives of which they were previously unaware; gaining new insights as to their own vocational potential for either employment or skill training; gaining new information on their own behaviors, employment history, social

background, educational history, disabilities, etc; and gaining new understandings and insights into how these factors may have an important bearing on previous employment/training and how they may impede or enhance their employment in the future. According to this view, clients are not seen as passive individuals from whom data are gathered and on whom profiles are generated. Rather, clients are seen as reactive. They are recipients and processors of information. They go through the evaluative task and either respond to or ignore information (the scores and other performance data) which are formally or informally reported to them.

Even in this view of clients as reactive and responsive, the focus is upon information gain. Here, though, the clients gain something from evaluation as well as does the counselor who pays for the evaluation. This viewpoint is quite consistent with the prevailing concept that clients actively engage in developing their rehabilitation plan (the IWRP).

The most extreme view held by some is that the client is proactive and has an important bearing on the program described here. Under this view, clients are not only reactive, in that they gain new data, information, and/or insights about themselves, but as they receive this new information, cognitive and affective effects take place. Essentially, learning occurs at what Bloom might refer to in his taxonomy of objectives as the "level of integration."

As a result of such a "true treatment," one might expect that clients would have a different attitude about work, be better able to plan and make decisions as to what they want to do vocationally, have different concepts about themselves as vocational and social beings, be more goal-oriented, look for and pursue more vocationally relevant aspects of the activities

and/or experiences in their daily lives. As even a "quasi treatment," those who hold this view would contend that these same benefits are established or begun by the evaluation process, and should either be formally encouraged as part of the evaluation services or provided adjunct to evaluation.

Educational Experiments

Educators have long recognized the presence of a significant subculture in their schools composed of the disadvantaged, the handicapped, the learning disabled, the underachiever, the youthful offender, the school dropout. This collective group, presently referred to as special needs students, does not respond to the traditional school offerings in the expected fashion. To adequately serve them, a variety of educational experiments have been undertaken to bring greater relevancy to their school experiences.

Many of these experiments, whether under the guise of career education programs, counseling programs, or work experience programs, attempt to integrate the several experiences in which students are involved with respect to the relevancy that their education might have to future vocations or careers. Some of the more successful approaches have attempted to identify a major "catalyst" around which the educational experiences of specific target groups can be coordinated. The intent is that this catalyst will aide in integrating experiences such that the students' education will be as relevant as possible. Many such programs employing a catalyst are contained in educational literature: Richmond planned interdisciplinary courses (Kincaid and Hamilton, 1968) and Wellesley Hills made radical changes in curriculum and physical setting with underachievers (Freeman and Craig, 1970). Suwanee, Georgia used reading, job placement, counseling and super-

vision, health, child care, and social services with school dropouts (Crawford, 1974). Watertown, South Dakota used career orientation and exploration through an occupational information center (Watertown, 1973). Brooklyn (Corenthal & Gold, 1969) and Knoxville (Jolly, 1971) used career exploration, job tryout, and in-school guidance to correlate exploration and experience with schooling for the disadvantaged. St. Louis (1959), Ohio (1967), and Pittsburgh (1968) used work experience programs with a variety of disadvantaged, minority, dropouts, under-achievers and youthful offender groups. Dayton (1974) united academic and vocational lab courses in an attempt to demonstrate interrelatedness and relevancy of school to work. Hartford (1969) used extensive testing and specific occupational training and Minnesota (Krantz, 1960) used vocational evaluation with junior and senior mentally retarded, dropouts, and underachievers to provide them an understanding of their capacities to enter the employment market. Finally, the many in-school and out-of-school work experience programs sponsored by CETA used work as a catalyst with economically disadvantaged youth.

These programs have used work and the integration of school/work experiences as a catalyst to improve a variety of such educationally relevant student characteristics as school performance, attitudes, self-concept, general achievement, potential to graduate, vocational skills, and employ-ability. Strong support for the basic contention that work or focusing on the role of work is an effective catalyst has also been suggested by the research and demonstration findings of Sexton (1961), Deutsch (1964) and Clark (1965) that traditional academic programming has little meaning for disadvantaged youth. Further, Herzberg (1959) and Ford (1969) have found that the context of work itself can be effectively used to motivate workers.

Potential of Evaluation in Education

The view that evaluation has benefits above and beyond information gain for a referring source has a certain attractiveness to it, both logically and practically for rehabilitation practitioners. Given that a person can spend anywhere up to 8 weeks being evaluated, it is quite likely that something is going to happen to him. Too, given the rather high cost of this service, rehabilitative gains accrued by the clients would further help justify continued use of evaluation with different clients in the traditional rehabilitation application in which it is generally used.

In educational applications, the use of vocational evaluation in both the traditional sense and in the sense that it has treatment effects is also quite attractive. Matthew (1971) suggests that motivation and impact of the types of innovative educational experiments with special needs groups, like disadvantaged youth, requires an accurate determination of the capabilities of these youth. Among those commendable programs cited above, the emphasis on integration was predominantly in terms of providing students with a sound connection between the experiences and skills which school provided and their vocational future. While assessment of capabilities was one aspect in many of the programs, it was only in the Hartford (1969) and the Minnesota (Krantz, 1970) programs where testing or evaluation were ascribed a clearly critical role.

In recent years, social and economic changes in our society have fostered a serious consideration of career exploration, career education, career guidance, and vocational and technical education in both secondary and post-secondary schools. A rightful place is now being awarded to schools for preparing students to enter and move around in the world of work. Schools are now seeing that they must concentrate on meeting student needs

to develop employable skills and to develop skills related to vocational decision-making.

A wider range of groups also appears to be in need of special services from education. Along with the culturally disadvantaged and the handicapped, such diverse groups as school dropouts, returning veterans, persons making mid-career changes and women reentering the world of work are also in need of what education can and does offer. Each of these groups are seeking training in new or alternative vocational skill areas. As often as not, they are hampered by a lack of accurate information about their vocational skills, potentials, and appropriate direction. Likewise, the programs which are to serve their training needs lack this same information. Schools need this information to guide these persons into programs which will most efficiently meet their real needs.

Diagnostic assessment is becoming increasingly popular in secondary and post-secondary technical education programs. Vocational evaluation is being seen as an alternative to the traditional paper and pencil diagnostic assessment approach which has been found to have some grave limitations for special needs populations. This consideration of evaluation as an alternative, though, is not without recognized financial drawbacks. These cause some funding agencies to question whether it really is a viable alternative.

The per person cost of evaluation is high, as evaluation requires professional skills (which are often times not possessed by existing guidance personnel), specialized equipment, physical facilities, and a fair amount of time to conduct. If, however, these costs represent not only diagnostic but educational benefits to "student target groups" as well, then the view of evaluation as a treatment or catalyst is as attractive to educators as it is to rehabilitation professionals. Evidence, however, is needed to

demonstrate that important vocational and educational benefits are accrued. The Equal Career Opportunities Program was one such program which used vocational evaluation as a catalyst with high school "reluctant learners."

II. VOCATIONAL EVALUATION WITH ADOLESCENTS

The Equal Career Opportunities Program

The Equal Career Opportunities Program (ECO) used vocational evaluation as the catalyst in an overall program designed to integrate school and potential vocational pursuits. Evaluation was to serve as a catalyst for adjusting existing educational programs and resources in the school for students (the traditional use of vocational evaluation findings in plan development) and as a catalyst from which effects of evaluation might be found to foster greater goal directed behavior among students.

ECO served high school students referred by 22 small rural school districts in Northwest Wisconsin. Students referred by the schools were in their sophomore and junior years and were known as "reluctant learners." Reluctant learners represent approximately 6% of the students in rural schools. According to the criteria used by teachers and counselors for identifying students eligible for ECO (CESA 5 and 6, n.d., C-39), reluctant learners possess five basic characteristics which are relevant to their not fully profiting from the education presently available to them in the schools:

1. High Absenteeism or Tardiness. Misses school to the extent that progress or achievement of a high school education is impaired.
2. Behavior Problems. Manifests type(s) of behavior which cause lack of school progress.
3. Underachievement. Grades are not maintained at a level of performance compatible with abilities.

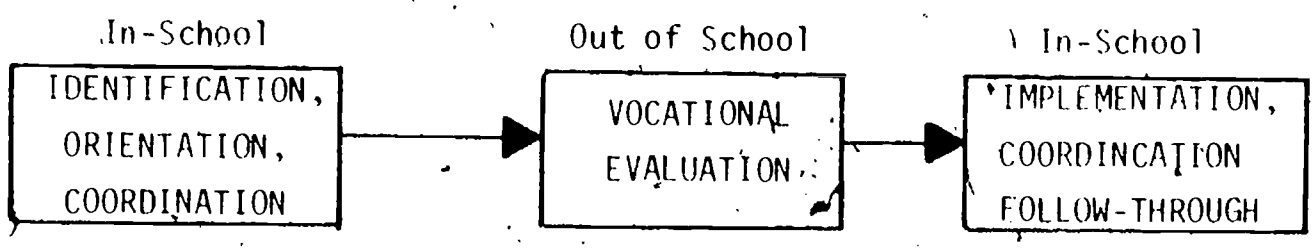
4. Lack of Goal Direction. Is not able to relate his education to future needs of vocational goals.
5. Limited Abilities. Academic problems as a result of being a slow learner, poor reader, etc.

The overall program consisted of the sequence of experiences depicted in Figure 1 and a set of materials. The program made available four sets of materials to teachers, counselors, students, and their parents in the form of guides (CESA 5 and 6, n.d.). Each guide basically covered the same general content, but was directed at the specific concerns which might be had by each. The Teacher Guide and the Counselor Guide provided a description of the program and how evaluation could be used to effect programming for reluctant learners within the existing resources of the school. The Teacher Guide particularly emphasized criteria for identification and referral of those students of whom teachers were aware were reluctant learners in their classes, as teachers were the primary source in the initial identification. The Student Guide, in turn, described what evaluation would involve, what might be expected to happen during evaluation, and how evaluation findings might be incorporated in their school program after they completed evaluation. This guide was used by both students and their parents. The last guide was directed toward counselors and administrators and described the types of work samples and psychometric tests used as part of evaluation and what types of information would be sought from them.

As shown in Figure 1, the sequence of the program involved vocational evaluation as the pivitol catalyst in ECO's working with the schools, students, and parents to maximize educational opportunities for the students. During the pre-vocational evaluation phase, teachers identified reluctant

learners using the criteria listed in the guides and whom the counselors then recommended to ECO for evaluation. As the number of evaluation slots were limited, it was necessary, in some cases, for counselors to randomly select a smaller number from those students which teachers considered eligible. Also during this time, staff provided in-service sessions for teachers and counselors to clarify what the ECO program was, how students were to be selected, and how adjustments might be made in the regular school offerings for these students after evaluatuon.

Figure 1. The ECO Program Structure



Once students were identified, staff met with both students and parents to review what the evaluation program would be, how it might impact on the student's schooling, how the student was selected, what would be required of the student, how the student would be affected, and to obtain parental consent. All data needed from the school for vocational evaluation were then obtained. Students entered vocational evaluation the following semester.

At the conclusion of vocational evaluation, an extensive evaluation report was prepared indicating the psychometrics and work samples used to evaluate the student; immediate and long term vocational recommendations; recommendations as to educational, social, psychological, and training experiences which the student needed; and included other data to support the recommendations. At this stage, ECO staff worked closely with vocational evaluation staff so that the latter recommendations could be phrased in terms of available resources in the student's home and school and the expressed concerns and reactions which the student might have to those recommendations.

Upon return to the school, FCO staff then worked with teachers and counselors on how and when to best implement specific recommendations. At the same time, staff also began follow-through activities with students and parents. This follow-through focused first on reviewing the findings of the evaluation recommendations and the probable changes in the program and the student which would be necessary. Then, regular and periodic in-school sessions were scheduled with the students (individually and in groups) during the semester following evaluation and often times longer.

Finally, staff attempted to serve a facilitative role with teachers and counselors on implementation. This last role in the follow-through was significant. The school system was under no legal obligation to alter their programs and the agreement between ECO and the schools was to utilize existing resources in already heavily extended school budgets. Re-creative uses of available materials and time of individual teachers and counselors was often the most productive vehicle for effecting needed modifications.

The vocational evaluations of the students in the ECO program during 1973-1976 was conducted in the Vocational Development Center (VDC) at the University of Wisconsin-Stout. VDC functions both as a client service program and as a clinical training site at which students of the University's undergraduate and graduate programs in vocational evaluation and adjustment can be provided supervised clinical experience. With this clinical training function nested into and supporting the client services function, an almost ideal 1:1 client/evaluator ratio was obtained. Practicum students and interns principally conducted the evaluations under heavy and constant supervision of key VDC staff and University faculty.

Other factors also caused the ECO evaluations to occur under almost ideal conditions. VDC is one of the best equipped facilities; is located at a university well known for its leadership in service, training, materials development, and research on vocational evaluation; and has facilities for housing clients during evaluation. Next, during the major portion of time the ECO project was funded, ECO offices were housed either in or near the VDC, such that close monitoring of the direction of evaluation and student progress could be undertaken by project staff. Too, the repertoire of psychometrics and work samples and projects which could be drawn upon for a given student's evaluation was extremely extensive and all were catalogued by client functions against the standard codes of the Department of Labor's classification system as presented in the Occupational Handbook and Dictionary of Occupational Titles.

Evaluations were also conducted under a relatively well agreed upon model of vocational evaluation which involved an extensive and comprehensive use of individual work samples and systems and direct observations of work behavior against a backdrop of psychometric assessments and continuous feedback of evaluative findings to clients. A guidance and career exploration function was intended as part of the traditional data gathering function of evaluation such that the client would have the opportunity to collate findings, test out perceptions and tentatively make decisions during the actual course of the evaluation.

Evaluations were conducted over a 2-week period of time for a total of 60 hours of contact in evaluation. Each evaluation cost $240.00, plus $40.00 for room and $55.00 for board. These costs were paid through ECO project funds. During the week, students were housed in the University dormitory (with only minor exceptions of districts quite close to the

University). An advantage of referral to the university setting, rather than a school setting, may then be that students received special attention or were removed from school and social circumstances which could be related to their problems as reluctant learners.

The core evaluation recommended by ECO for reluctant learners is displayed in Table 1 (CESA's 5 and 6, n.d., C-44). It involved a fairly thorough psychometric assessment of the student's abilities, interests, aptitudes and temperaments, complemented by direct observation of these same traits in the six traditional occupational clusters evaluated by work samples and an occasional situational assessment or special project. It was estimated that this core evaluation would require between 30 and 36 hours of the total 60 hour evaluation. The remaining time was to be spent in evaluative and guidance activities determined by the evaluator and his supervisor, based upon needs of interests of the student.

In 1974, a thorough analysis of the evaluation process for the 119 students who completed evaluation that year was conducted. This analysis was undertaken to establish the parameters of the vocational evaluation; to determine the relative emphasis of guidance and counseling to evaluation; and to develop a reduced and potentially transportable program that might be used within the school context. The analysis consisted of cataloguing every psychometric work sample and special project that each of the 119 students took in the 60 hour period, and then estimating time spent in each task using average administration times.

Table 2 summarizes this analysis by evaluative technique used (e.g., psychometrics), person-traits (e.g., intelligence), and DOT job cluster (e.g., structural). Based upon percent of students tested or assessed, the relative emphasis given to assessing a trait (e.g., the intelligence

Table 1. Core Vocational Evaluation Recommended for ECO Students

PSYCHOMETRIC EVALUATION	
Intelligence	Weschler Adult Intelligence Scale or Weschler Intelligence Scale for Children
Aptitude	General Aptitude Test Battery Bennett Mechanical Comprehension or Minnesota Clerical Test
Interest	Interest Checklist Singer - Modified California Occupational Preference Survey
Temperaments	Tennessee Self-Concept Edwards Personal Preference Schedule or Eber's 16 P.F.
Achievement	Wide Range Abilities Test ABLE
Dexterity	Purdue Pegboard
WORK SAMPLE EVALUATION*	
Professional Techincal and Managerial (0__. & 1__.)	Minimum of 2
Clerical and Sales (2__.)	Minimum of 3
Service (3__.)	Minimum of 1 or Special Project
Machine Trades (6__.)	Minimum of 3
Benchwork (7__.)	Minimum of 3
Structural (8__.)	Minimum of 1
SITUATIONAL ASSESSMENT	
Special Project/Activity/ Tour	Minimum of 1

* At least 4 of the 12 work samples from the singer system were to be used and the TOWER and JEV's work samples as appropriate. The numbers in brackets refer to DOT codes for the occupational cluster.

of 97% of the students was assessed) and to evaluating the students in particular occupational clusters (e.g., only 43% were evaluated in the Professional, Technical, and Managerial cluster) can be estimated. By using the adjusted mean number of tests taken, the number of measures generally administered to each student under a trait or cluster can be estimated. Then, based upon the incidences of tests/work samples administered, the most typical ones administered can also be identified. Finally, by totaling the approximate minutes for the work samples and/or tests, as shown at the bottom of Table 2, estimates can be made of the total time and the relative emphasis given to psychometric assessment, work sample evaluation and situational assessment and to guidance, career exploration, review of evaluation findings, or other activities.

The 119 students were administered 754 tests, 1871 work samples, and took part in 121 special projects. Between 16 and 18% (9.5 to 11 hours) of their evaluation was spent in psychometric assessment and generally conformed to that recommended by the ECO program outlined in Table 1; between 26 and 34% (16-20 hours) were spent in work samples, and another insignificant 1% (3/4 of an hour) spent on special projects. In work sample evaluations, the predominant evaluation was on Machine Trades, Benchwork, Clerical, and, to some extent, Structural occupations. Professional, Technical, and Managerial occupations were least emphasized with individual work samples, but were picked up with the Singer, Tower, and JEV's systems. During the evaluation, the average client was administered approximately 10 tests which took between 9.5 and 11 hours and was administered approximately 16 work samples or special projects during an additional 16 to 21 hours. These accounted for 25 to 32 hours of the evaluation time. The remaining 47-58% (28-35 hours) were spent in 1-to-1 reviews, discussion, breaks, preparation, and vocational exploration activities.

Table 2. Psychometrics and Work Samples Most Typically Administered to ECO Students in 1974

EVALUATIVE TECHNIQUES AND EMPHASES	TESTS AND INSTRUMENTS Number Used (1)	Times Administered (2)	STUDENTS INVOLVED Number (3)	Percent (4)	MEAN NUMBER GIVEN TO EACH STUDENT Raw (5)	Adjusted (6)	Approximate Minutes to Administer (7)	(8)	Most Typical Instrument and Estimated Minutes to Administer (9)
PART A. PSYCHOMETRIC ASSESSMENTS									
Intelligence	2	116	116	97	1.00	.97	90.00	90.00	WISC (90)/WAIS (90)
Aptitude-General	2	118	118	100	1.00	1.00	180.00	180.00	General Aptitude Test Battery(180)
Aptitude-Specific	6	87	74	62	1.17	.73	30.00	30.00	Bennett Mechanical Comprehension(30)
								(50.00)	Minnesota Clerical(50)
Interest	6	247	118	99	2.09	2.07	62.50	30.00	California Occupational Preference Survey(30)
								32.50	Interest Checklist(45)/Singer(20)
Temperaments	2	220	110	95	1.92	1.84	60.00	30.00	16 P.F.(30)
								30.00	Tennessee Self-Concept(30)
Achievement	9	272	116	97	2.34	2.26	140.00	20.00	Wide Range Abilities Test(20)
								120.00	ABLE II(120)
								(25.00)	SRA Math(25)/SRA Reading(25)
Dexterity	3	132	98	82	1.23	1.10	7.00	7.00	Purdue Peg Board(7)
								(10.00)	Bennett Hand Tool(10)
TOTAL: PSYCHOMETRIC ASSESSMENTS		754			10.83	9.98	569.50	(654.50)	
PART B. WORK SAMPLE EVALUATIONS									
Professional, Technical, Managerial	5	55	52	43	1.05	.45	---	(67.50)	Surveying(45)/Pen and Ink(90)
Clerical and Sales	18	273	103	86	2.65	2.27	142.50	22.50	Bookshelving(25)/Weigh-Precision (20)
								120.00	Cashier-Checker(120)
								(35.00)	File 90 (35)
Farming, Fishing, Forestry	2	5	5	4	1.00	.04	---	(80.00)	Jig Tying(90)/Soil Test(70)
Machine Trades	19	328	112	94	2.92	2.74	94.00	38.00	Eye-Hand-Foot Coordination(38)
								11.00	Assembly, Mechanical(11)
								45.00	Inspection, Nuts and Bolts(45)
Bench Work	12	324	107	89	3.02	2.68	80.00	8.00	Visual Pursuit(8)
								12.00	Mechanical Aptitude(12)
								60.00	Assembly, Bridge(60)
Structural	5	92	69	57	1.33	.75	30.00	30.00	Silo Ladder(30)
								(100.00)	Welding Arc(100)
Miscellaneous	5	38	27	22	1.40	.30	---	(80.00)	Sorting, Metal Screw(80)
								(15.00)	Packaging and Heat Sealing(15)

	Singer System	12	279	110	92	2.53	2.32	255.00	
								127.50	Electrical Wiring(165)/Welding (90)
								127.50	Drafting(90)/Basic Tools(165)
								(105.00)	Refrigeration(165)/Sales and Office(45)
	Tower System	20	214	76	64	2.82	1.80	195.00	
								100.00	Business Arithmetic(120)/Payroll Computation(80)
								95.00	Typing(90)/Record Keeping(100)
								(60.00)	Free Hand Sketching(90)/Blue-print Reading(30)
	JEVS System	21	263	97	81	2.71	2.19	150.00	
								90.00	Adding Machine(90)
								60.00	Pipe Assembly(90)
								(75.00)	Large Lock Assembly(90)/Payroll Computation(60)
	TOTAL: WORK SAMPLE EVALUATIONS		1871			26.68	15.47	946.50	(1219.00)
	PART C. SPECIAL PROJECTS								
	Projects	15	121	79	16	1.53	.24	---	
								(45.00)	Tour Vocational Technical Institute(45)/Tour Stout (45)
	TOTAL: SPECIAL PROJECTS		121			1.53	.24	---	(45.00)
	SUMMARY								
	PSYCHOMETRIC ASSESSMENT TOTALS		754			10.83	9.98		
	Minutes							569.50	(654.40)
	Hours							9.49	(10.90)
	Percent							15.81	(18.18)
	WORK SAMPLE EVALUATION TOTALS		1871			26.68	15.47		
	Minutes							946.50	(1219.00)
	Hours							15.78	(20.32)
	Percent							26.29	(33.86)
	SPECIAL PROJECT TOTALS		121			1.53	.24		
	Minutes							---	(45.00)
	Hours							---	(0.75)
	Percent							---	(1.25)
	CAREER EXPLORATION/RESIDUAL TOTALS		---			---	---		
	Minutes							2084.00	(1681.50)
	Hours							34.73	(28.03)
	Percent							57.88	(46.70)

INTERPRETIVE NOTES:

Column 4 = (Column 3 ÷ 118) x 100. Column 5 = Column 2 ÷ Column 3.
Column 6 = (Column 4 x Column 5) ÷ 100.

In Column 9, estimated minutes to administer each device are in "()" and when more than one might have been used, they are separated by "/".

Total time given to a particular type of assessment or evaluation is given in Column 7 (e.g., to Temperaments, 60.00 minutes). Average times given to each assessment or evaluation are presented in Column 8 for the devices listed in Column 9. Minutes in "()" in Column 8 indicate that the device in Column 9 was ocassionally used, but those minutes are not included in the totals of Column 7.

Totals for each part of the table are arrived at by adding all values in each column, including values in "()". Therefore, Column 7 gives typical number of minutes and Column 8 gives the maximum number of minutes.

An Alternative Program

In 1974-75, evaluators were asked to catagorize the recommendations they were making to the schools regarding the ECO students into 12 catagories. For 72 students evaluated, evaluators made a total of 344 recommendations to the school for the students. In Table 3 are listed the types of recommendations evaluators offered along with their frequency and ranked order of occurrence.

Table 3. Evaluator Recommendations Ranked by Frequency of Occurence

Types of Evaluator Recommendations	Frequency Recommended	Ranked Frequency
Vocational goal(s) related work-study	49	1
Increased counselor/psychological contact	40	2
Remedial/tutoring programs	39	3
Special vocational courses/programs	37	4
Special academic courses/programs	33	5
Class changes in academic areas	27	6.5
General Exploratory work-study	27	6.5
Special vocated out-of-school experiences	26	8
Increased involvement with parents	24	9
Class changes in vocational areas	19	10
Course requirements waived or modified	15	11
Other	10	12

The complex of recommendations suggested in the five most frequently occurring types of recommendations relate to areas which are generally of concern in the school's career development and guidance emphasis. They reflect dimensions of many of the exemplary programs which have attempted

to integrate school experiences around a student's concept of work and vocational development. These recommendations suggest to school guidance personnel a need to work with students as they establish vocationally relevant goals and to also work with them in identifying those academic and vocational skill areas which are in need of remediation, specialized development, and/or reality testing.

In many of the effective programs employing a catalyst, major changes were introduced into the context of the student's in-school experience. In the ECO program, changes were limited to those which might be integrated into the existing resources of the schools. Ferstenou (1976) studied the relationship between the degree to which evaluation recommendations were implemented and changes in ECO student grade point averages. He found a slight positive relationship at the end of the semester in which the student participated in evaluation, but that the effects faded over time. His findings suggest that absolute changes rather than relative changes in programming may be necessary to sustain the vocational growth and development the student achieved through vocational evaluation.

It could be expected that with evaluation and guidance joined as two components of a single catalyst within the school structure, the effects on students which were demonstrated through the program evaluation of ECO may be significantly enhanced. With a career guidance component as well articulated as is the evaluation component, and the two systematically integrated as a program or course of one or two semesters duration, their mutual contributions should provide a really effective treatment/educative process for students. One model for such a one or two semester in-school program is presented in Figure 2.

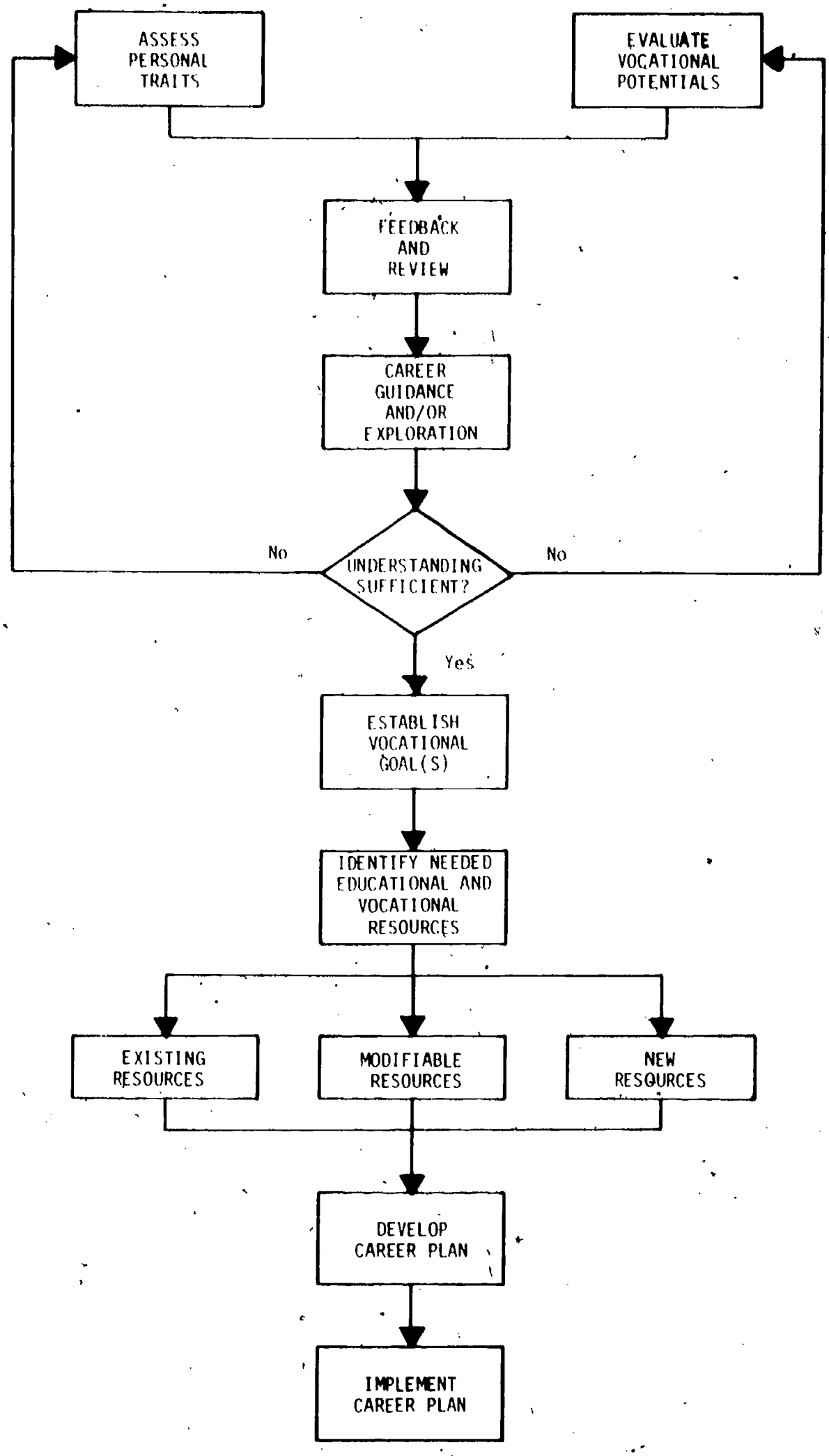


Figure 2. The Alternative Program Structure

The alternative "bare-bones" diagnostic and assessment component in in-school programs might be constructed like that displayed in Table 4. The content of this component is based upon adjusted means and numbers of work samples and tests taken and the predominant tests and administered to ECO students (see Table 2). This alternative component maintains the original scope of the ECO evaluation and the relative emphasis on psychometrics and work samples.

In the model presented in Figure 2, the assessment and diagnostic component is integrated with guidance and career exploration activities. Specific guidance, career exploration, and vocational information activities are systematically interspersed following feedback from specific assessments of traits and aptitudes for different occupational clusters. This provides the student with an opportunity to fully explore the meaning and relevance of the evaluative findings and to maximize the integration of new or reinforced understandings which may result for the student. Similarly, planning of each subsequent step in the evaluation is then built around identifiable reactions and understandings which occur for the student.

Formal vocational goal setting would occur at the conclusion of vocational evaluation and, as in the ECO program, needed educational and vocational resources would be identified. Given that the program takes place within the structure of the school, new or modified resources which might be needed for students' attainment of their vocational goals may be more readily obtained. If this program is conceived as a one or two semester course for students, the developmental effects could be expected to be optimal. Also, as conceived, the educational and vocational resources identified could be provided in the school as needed. Finally, because these resource needs are identified systematically over a relatively extended

Table 4. Psychometrics and Work Samples for an Alternative Program

Personal Traits	Number	Average Time in Minutes	Psychometrics
Intelligence	1	90	Weschler Adult Intelligence Scale or Weschler Intelligence Scale For Children
Aptitude			
General	1	180	General Aptitude Test Battery
Specific	1	40	Bennett Mechanical Comprehension or Minnesota Clerical
Interest	2	30	California Occupational Preference Survey
		33	Interest Checklist or Singer Interest
Temperaments	2	30	16 P.F.
		30	Tennessee Self-Concept
Achievement	2	20	Wide Range Abilities Test on Able II
		25	SRA Math or Reading
Dexterity	1	7	Purdue PegBoard

Vocational Potentials	Number	Average Time in Minutes	Individual Work Samples
Clerical and Sales	2	23	Bookshelving or Weighing-Precision
		120	Cashier-Checker
Machine Trades	3	38	Eye-hand-foot Coordination
		11	Assembly, Mechanical
		45	Inspection, Nuts and Bolts
Bench Work	3	8	Visual Pursuit
		12	Mechanical Aptitude
		60	Assembly, Bridge
Structural	1	30	Sdo Ladder

Work Sample Systems	Number	Average Time in Minutes	Specific Work Samples
Singer	2	128	Electrical Wiring or Welding
		128	Drafting or Basic Tools
Tower	2	100	Business Arithmetic or Payroll Computation
		95	Typing or Record Keeping
JEVS	2	90	Adding Machine
		60	Pipe Assembly

period of time by both student and guidance/evaluation personnel, effective allocation for them may be anticipated and planning for them most easily undertaken.

III. THE EFFECTS OF EVALUATION ON ADOLESCENTS

The program evaluation of ECO was designed around the two goals and performance objectives set by ECO and displayed in Table 5. ECO intended to have impact on both the vocational development of reluctant learners and their school behavior. The evaluation focused on judging ECO's attainment of its performance objectives and on judging ECO's overall attainment of its two goals. Ferstenou (1976) also conducted a study on the relationship of school's implementation to the school performance of reluctant learners.

The general design of the evaluation involved collecting both hard and soft data from several different perspectives and at times most appropriate to the effect predicted in the objectives.

Hard data were in the form of student test scores on the Career Maturity Inventory (CMI) by Crites (1973), the Student Questionnaire (SQ) by De Amico (1972), and data provided from school records by counselors and teachers on student attendance, performance, grades, quantity of work, and social problems. The CMI is a norm-referenced measure of student attitude toward and competence for entering the world of work. Its attitude and 5 competency scales correspond to the 6 vocational development objectives. The SQ, in turn, is a semantic differential measure of student attitudes toward themselves in the context of the school. The SQ total score relates to general attitude toward school and SQ Scale 5 related specifically to students' attitude toward themselves.

Soft data were in the form of ratings of student attitudes, behaviors, vocational development and implementation of evaluation recommendations.

Table 5. The Goals and Objectives of the ECO Program

Goal 1. To Improve Vocational Development of Reluctant Learners	
Objective A:	On the average, ECO students' ability to appraise their vocational and educational capacities will significantly improve.
Objective B:	On the average, ECO students' ability to utilize occupational information will significantly improve.
Objective C:	On the average, ECO students' attitudes toward career choice and entry into the world of work will significantly improve.
Objective D:	On the average, ECO students' ability to solve problems related to school and choosing a career will significantly improve.
Objective E:	On the average, ECO students' ability to formulate and select vocational and educational goals will significantly improve.
Objective F:	ECO students' ability to plan and prepare to enter the world of work will significantly improve.
Goal 2. To Improve the School Related Behavior of Reluctant Learners	
Objective A:	ECO students' effort in and quantity and quality of school work will significantly improve.
Objective B:	ECO students' adjustment to school will significantly improve.
Objective C:	ECO students' attitudes toward and interest in school will significantly improve.
Objective D:	ECO students' attitude toward themselves will significantly improve.
Objective E:	The school's attitude toward ECO students will significantly improve, following vocational evaluation.

Both hard data from school records and ratings of student behaviors were gathered with locally developed questionnaires: the Evaluator Summary (ES), the Project Staff Questionnaire (PSQ), the Teacher Questionnaire (TQ), and the Counselor Questionnaire (CQ). In all cases, ratings of ECO students were to be provided by the respondents with the referant being "the typical student."

Effects on Vocational Development

For each of ECO's Vocational Development objectives, Table 6 presents the perspectives and methods drawn upon to evaluate ECO attainment, the expected effects on the student, and the program evaluation findings.

ECO had a definite impact upon the attitudes of students toward entry into the world of work and career choice. It also tended to have positive impact upon the students' ability to appraise their vocational and educational capacities, to solve problems related to career choice, and to plan strategies for pursuit of a career. These findings are reported by professional (school counselor and teachers) judgments and tend to be corroborated with pre and post measures obtained from the CMI. By the end of vocational evaluation, reluctant learners did not appear to have developed a capacity to utilize occupational information or formulate and select goals based upon the data sources employed in this evaluation. However, there is some evidence to indicate that this capacity does develop within one year of evaluation.

The following observations are offered regarding attainment of each vocational objective:

A. The students' ability to appraise their vocational and educational capacities were at a level commensurate with that of the typical student and change on the associated CMI scale was in the predicted direction

Table 6. ECO Attainment of Its Vocational Development Goal and Objectives

Performance Objective	EVIDENCE		EVALUATION		
	Source	Instrument/ Form of	Anticipated[1] Effects	Observed[2] Effects	Judgement
A. Ability to appraise vocational and educational capacities	Student Evaluator ECO Staff	CMI-1 Scores ES Ratings PSQ Ratings	Improve Level Level	0 + +	Achieved - Inconsistent
B. Ability to utilize occupational information	Student Evaluator ECO Staff	CMI-2 Scores ES Ratings PSQ Ratings	Improve Level Level	0 0 0	Not Achieved - Consistent
C. Attitude toward career choice and entry into world of work	Student Evaluator ECO Staff	CMI-A Scores ES Ratings PSQ Ratings	Improve Level Level	+ + +	Achieved - Consistent
D. Ability to solve problems related to school and choosing a career	Student Evaluator ECO Staff	CMI-5 Scores ES Ratings PSQ Ratings	Improve Level Level	0 + +	Achieved - Inconsistent
E. Ability to formulate and select goals	Student Evaluator ECO Staff Counselor	CMI-Scores ES Ratings PSQ Ratings CQ Ratings	Improve Level Level Maintain	0 + + +	Achieved - Within One Year
F. Ability to plan and prepare to enter world of work	Student Evaluator ECO Staff	CMI-Scores ES Ratings PSQ Ratings	Improve Level Level	0 0 0	Not Achieved - Consistent

[1] Improve = Change in scores significant at $p<.05$. Level = 3.00, the level of the typical high school student. Maintain - retain gain or level 1 year after evaluation.

[2] + = as predicted by criterion, - = in opposite direction predicted, 0 = in predicted direction, but not at criterion.

B. The students' ability to utilize occcupational information was not affected to any significant degree. Ability in this area remains below that of the typical student and may provide a continuing limitation to students in formulating and actualizing their vocational goals. The objective was clearly not achieved.

C. The students' attitude toward career choice and entry into the world of work is highly positive and significantly affected by the project. All sources of data confirm improvement in this capacity and that their development is at a very acceptable level. This objective was fully achieved.

D. The students' ability to solve problems related to school and choosing a career are viewed by both project staff and evaluation personnel as at the same abilities level as typical students. Change on the associated CMI scale tended to provide corroboration for their judgments (at a $p<.10$ level, rather than the .05 criterion level). This objective tends to be achieved, but not consistently, across all indicators.

E. The students' ability to formulate and select goals was modestly evident based on changes observed in the CMI scaTe (at $p<.10$, rather than the .05 criterion level). Project staff reported that students can formulate goals upon return to school, although this behavior is not universally so at the conclusion of evaluation. Significant improvement and maintenance of this capacity is also reported by counselors up to one year after evaluation. Ability to formulate vocational and educational goals is found to significantly increase by counselors. By one year after evaluation, this ability is at a level similar to

that of the typical student in the schools. Major increases occur during the semester of evaluation and are bolstered during the year following evaluation. This objective tends to be achieved within one year of evaluation.

F. The students' ability to plan and prepare to enter the world or work is found to be below a level considered typical for students. Project staff report this to remain so after a full semester back from evaluation. While some change occurred on the CMI scale and would tend to indicate positive improvement along this dimension, a lack of ability to employ this skill consistently, as reported by other sources, would strongly suggest a sustained limit in this readiness capacity. This objective was clearly not attained with the present program complex.

Effects on School Related Behaviors

For each of ECO's school related objectives, Table 7 presents the perspectives and methods drawn upon to judge attainment, the expected effects on students, and the program evaluation findings.

Attainment of objectives and progress toward this goal of establishing more positive behaviors in school is mixed, with generally good effects on specific dimensions. Effort and quantity and quality of school work significantly improved within one year of participation in the program in both vocational and academic areas. Students tended to be better adjusted to school after vocational evaluation, but this adjustment did not appear to be maintained. Student interest in school was not consistently found to be as positive as for other students. Their attitudes toward themselves improved subsequent to evaluation and appeared to be maintained

Table 7. ECO Attainment of Its School Related Behavior Goal and Objectives

Performance Objectives	EVIDENCE			EVALUATION		
	Source	Instrument/Form of[3]		Anticipated Effects[1]	Observed Effects[2]	Judgement
A. Effort and quantity and quality of school work	Teacher	TQ Ratings		Improve	0	Achieved by end of one year
		% Work Complete		Improve	-	
	Counselor	CQ Ratings	1	Improve	+	
			2	Maintain	+	
	Student	Acad. GPA	1	Improve	0	
			2	Maintain	+	
		Voc. GPA	1	Improve	0	
			2	Maintain	+	
B. Adjustment to School	Teacher	TQ Ratings		Improve	0	Not Achieved - Inconsistent
	Counselor	CQ Ratings	1	Improve	+	
			2	Maintain	+	
	Student	#Tardiness	1	Improve	0	
			2	Maintain	-	
		#Complaints	1	Improve	0	
			2	Maintain	0	
		#Law Involve	1	Improve	+	
			2	Maintain	-	
		%Enrolled	1	Improve	0	
			2	Maintain	0	
C. Attitude toward and interest in school	Teacher	TQ Ratings		Improve	-	Not Achieved - Generally Consistent
	Counselor	CQ Ratings	1	Improve	+	
			2	Maintain	+	
	Evaluator	ES Rating		Level	0	
	ECO Staff	PSQ Rating		Level	0	
	Student	SQ-Total Score		Improve	-	
D. Attitude toward self	Evaluator	ES Ratings		Level	+	Achieved - Inconsistent
	ECO Staff	PSQ Ratings		Level	+	
	Student	SQ-5 Score		Improve	-	
E. School's Attitude toward student	Counselor	CQ Ratings	1	Improve	+	Achieved - Consistent
			2	Maintain	+	

[1] Improve = Change in scores significant at p .05. Level = 3.00, the level of the typical high school student. Maintain = retain gain or level 1 year after evaluation.

[2] + = as predicted by criterion, - = in opposite direction predicted, 0 = in predicted direction, but not at criterio

[3] 1 refers to a "pre- post" contrast, 2 refers to a "post - post" contrast.

after one year. Finally, they tended to develop a better capacity than other students, to formulate vocational goals, and do not appear to lose this capacity after a year back in school.

The following observations are offered regarding each school related objective:

A. The students' effort and quantity and quality of school work is viewed during the semester of evaluation by teachers as not significantly improved. The students remain below the level of other students in the teacher's opinion. Initially, though, the teachers tended to view students more favorably than did counselors. Counselors report marked improvement in quantity and quality of student school work after evaluation and report that these gains are maintained after one year. Their evaluation at these points in time tend to be similar to those that are given to the "typical" student in the schools. There is a rather steady improvement in academic grades which is statistically significant one year after evaluation (from a D to a C- average). A major (but non-significant) jump tends to occur in the semester of evaluation and generally continues for one year after. There is also a statistically significant improvement in vocational grades one full semester after evaluation (from a D to a C- or C average), with the greatest gain occurring in the semester following evaluation. These levels of attainment are maintained after one year. This objective tends to be achieved within one year of evaluation.

B. The students' adjustment to school is viewed by teachers as having no major gains (at the onset, teachers tended to view student adjustment somewhat better than school counselors), but counselors report improved

adjustment at the end of the semester of evaluation. According to school counselors, it continues to improve for one year with adjustment approaching that of the typical student by the end of the semester following evaluation. However, while there is a minor initial impact on attendance, this is not held over beyond the initial semester and tardiness tends to rise after one year. A contradiction also appears in that a modest ($p<.10$) decrease in the number of complaints indicated by the school staff regarding students, is not maintained after one year and appears to rise to the original level after one year. Finally, a significant decline in contacts with the law occurs in the semester of evaluation, but rises to nearly the same level within one year after evaluation. This objective tends not to be well achieved.

C. The students' attitudes and interest in school., again, are viewed by teachers as not changed. Counselor estimates, though initially somewhat lower, reflect a significant increase in student interest and positiveness of attitude toward school. This significant increase is maintained one year after and reaches the level of positiveness and interest of the typical student. Evaluators and project staff report student interest and attitudes toward school to be slightly below that of the typical student in school and no significant changes in overall attitude were found when students were assessed with the Student Questionnaire. This objective tends not to be achieved.

D. The students' attitude toward themselves is found to be as positive as that of other students by most sources. Student reported attitudes are not found to improve significantly after evaluation. The Student Questionnaire used to evaluate this is a scale which assessed the student self-concept in relation to the school setting and confounding may,

therefore, have occurred with this measure. The other sources of evidence, though, indicate that student attitudes do tend to be at the same level as the typical student. This objective tends to be achieved.

E. The schools' attitude toward the student is reported to be at approximately the same level for these students as for the typical student, before and after the evaluation. Nevertheless, the schools' acceptance of the student significantly improved, and this level of acceptance is maintained for one full year after evaluation. This objective was achieved.

Effects of Implementation of Recommendations on School Performance

Ferstenou (1976) conducted a study which sought to determine the effect of the implementation of vocational evaluation recommendations on the grade point averages (GPA) of the reluctant learners who had completed the two week vocational evaluation. Existing data from the ECO project evaluation were the source of data used in the analyses.

Time series data were derived from the counselor questionnaires completed at one semester intervals on 120 students who had completed vocational evaluation and had returned to the school environment. Categorical data on the extent to which vocational evaluation recommendations had been implemented during each semester were taken from these questionnaires and transformed into linear data using log transformation procedures. The transformed data were then correlated against grade point averages to test the hypothesis that the greater the extent to which recommendations were implemented, the greater the increase in GPA.

The results did not support the hypothesis: none of the obtained correlations reached a level of statistical significance. There were, however, trends in the data which tend to support previous findings obtained in the

program evaluation of this project, as well as the clinical observations of the program operators.

Specifically, there tends to be a positive relationship between implementation of recommendations and an increase in GPA at the end of the semester in which the students participated in evaluation. This is then followed by a negative trend over the next two semesters. In other words, there are immediate positive student effects from the vocational evaluation process which carry over into a different setting. These effects, however, fade as time passes, with the extent of the fading most likely being related to the capacity and resources of the setting to make the major programmatic changes necessary to deal with individual needs. Absolute change rather than relative change in programming may be necessary to sustain the vocational growth and development of the student achieved through vocational evaluation.

IV. SUMMARY AND CONCLUSIONS

The intents of this report were to describe an optimal vocational evaluation program provided as part of a treatment of vocational and school behaviors of reluctant learners; to suggest an alternative in-school variation of that program; and to summarize the effects which the original program had on reluctant learner behaviors.

In the course of the presentation, three perspectives of vocational evaluation were discussed respective to vocational evaluation's use in rehabilitation and educational applications: as an information gathering process, as a client-reactive process, and as a rehabilitative process. The central components of a variety of educational experiments were then discussed as catalysts for increasing the relevancy of education and for effecting changes in behaviors of special needs students.

The Equal Career Opportunities Program was next outlined as a three step program: in-school identification, out-of-school vocational evaluation, and in-school follow-through. The two-week out-of-school vocational evaluation was the catalyst in the program for affecting the vocational development and school behaviors of reluctant learners in rural schools. The structure, content, and emphases in the vocational evaluation are fully described.

Based on the description and the research and evaluation studies conducted on the program, evaluator recommendations, and effects on student performance, a two-component in-school model was proposed. In this model, vocational evaluation and career guidance and exploration are fully integrated such that the benefits of each are complementary. Evaluation and

guidance are formally joined into a one or two semester course, through which students can establish realistic vocational plans and school personnel can obtain those resources most needed by students to realize their vocational goals.

Next, the effects of vocational evaluation on student vocational development and school behaviors were summarized and presented as minimum levels which might be optimized with the model in-school program. The Equal Career Opportunities Program was found to have a more consistent impact on vocational development than on school behaviors. A definite impact was made on students' attitudes toward entry into the world of work and career choice, and there also tended to be a positive impact on students' ability to appraise their vocational and educational capacities, solve problems related to career choice, and plan strategies for pursuit of a career. By the end of vocational evaluation, they did not appear to have developed a capacity to utilize occupational information to formulate and select goals. Within one year of evaluation, however, they were able to formulate and select goals and their capacity for doing this tended to be better than that of other students.

In terms of the program's impact on school behaviors, the effort and quantity and quality of students' school work significantly improved within one year of participation in the program in both vocational and academic areas. While students tended to be better adjusted to school after vocational evaluation, this adjustment was not maintained and their interest in school was not as positive as other students. Finally, their attitudes toward themselves improved subsequent to evaluation and appeared to be maintained after one year.

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