DOCUMENT RESUME

ED 374 634 EC 303 359

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TITLE	Improving Delivery of Vocational Evaluation Services for Secondary Special Needs Students in Norfolk Public Schools.
PUB DATE	Aug 93
NOTE	172p.; Ed.D. Research Project Report, Nova University. Some appendices contain small print.
PUB TYPE	Dissertations/Theses - Undetermined (040)
EDRS PRICE	MF01/PC07 Plus Postage.
DESCRIPTORS	*Delivery Systems; Disabilities; *Economically Disadvantaged; *Educationally Disadvantaged; Evaluation Methods; *Limited English Speaking; Models; Program Development; Secondary Education; Secondary School Students; Special Needs Students; Student Evaluation; *Vocational Evaluation
IDENTIFIERS	*Norfolk City Schools VA

ABSTRACT

When legislation extended vocational assessment services to limited English proficient and economically/educationally disadvantaged students, which comprise 72 percent of grade 8-12 students in Norfolk (Virginia) Public Schools, innovations were needed to offer expanded services without additional personnel. A multiphase model of vocational assessment for special populations was developed, based on interviews with leaders in the field of vocational evaluation, a statewide survey of vocational evaluation centers, and a review of the literature. The Management Information Systems office tabulated information on students to identify those who met federal and state definitions of special populations. The middle school guidance and testing personnel added the Differential Aptitude Test to their testing program. Thus, the practicum resulted in all eighth grade students receiving a vocational aptitude and interest test, students with disabilities receiving streamlined vocational evaluation services, and fewer students needing a comprehensive vocational evaluation. The model has been cost-effective and complies with regulations. Appendixes provide survey forms, survey data, and administrative documents. (Contains approximately 60 references.) (JDD)

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Improving Delivery of Vocational Evaluation Services for Secondary Special Needs Students in Norfolk Public Schools

by

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A Major Applied Research Project Report
submitted in partial fulfillment of the requirements
for the degree of Doctor of Education

National Ed.D. Program for Educational Leaders
Nova University

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Abstract

Improving Delivery of Vocational Evaluation Services for Secondary Special Needs Students in Norfolk Public Schools

In Norfolk (Virginia) Public Schools, vocational assessment was available to disabled students since 1980. However, legislation had extended this service to limited-English-proficient and disadvantaged (economically and academically) students, 72% of Norfolk students in Grades 8-12. Without funds to add personnel, innovations were needed to offer this assessment to the expanded population while continuing to offer evaluation for disabled students.

This report describes the development and implementation of new methods and procedures for evaluating the vocational potential of secondary special-needs students. The preintervention vocational evaluation model required students to be pulled out of school for 3 to 4 days, travel to another site, and complete psychometric testing and work sampling. Under that method, each evaluator served 3 students per week, or about 190 students (of 1200 eligible special education students) per year. Services were not available to the 7,000 disadvantaged students. The problem was: how to provide students with better access to vocational assessment services.

In this practicum a multiphase model of vocational assessment for special populations was implemented. The interventions included utilizing existing personnel, collection of data, comparison to other school districts' evaluation programs, development of a new model of assessing handicapped students, development of a method for identification of disadvantaged students, and creation of assessment options for disadvantaged students. The new methods were conducted in the home school and utilized existing data from individual records as indicators of students' vocational potential.

The result was that all eighth-grade students received a vocational aptitude and interest test, a more streamlined model was utilized for disabled students, and fewer students needed a comprehensive vocational evaluation. This model has been cost-effective, provides compliance with the regulations, and lends itself to replication in other school divisions.

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Chapter 1

Problem and Problem Background

Statement and Primary Evidence of the Problem

A study completed in December 1991 (Feldt, 1992), revealed that only 14% of secondary special education students in Norfolk Public Schools (NPS) began a vocational evaluation each year, that only 71% of those who began the vocational evaluation process actually completed it, and that only about 20% of special education students eligible for the vocational evaluation were referred. In Norfolk Public Schools no process existed for vocationally assessing other special populations (disadvantaged and limited-English-proficient students).

Kochhar and Barnes (1992) paraphrased wording of Public Law 101-392, The Carl Perkins' Vocational and Applied Technology Act (1990):

> Section 118 (special populations assurances) and Section 235 (Use of Funds) requires each organization or agency receiving funds to provide assurances that it will:
> 1. assess the special needs of students participating in programs using Perkins funds, with respect to their successful completion of vocational education programs in the most integrated setting possible;
> 2. provide certain guidance, counseling, and career development activities;. . .. (pp. 9-19)

This means that all special-needs students who enter vocational education programs should have a vocational evaluation or vocational assessment. As Cobb and Larkin

(1985) indicated, this would imply that the "vocational evaluation process was completed and that recommendations" for successful vocational program completion have been made (pp. 1-14).

Secondary special education students include those students in Grades 9-12 who have been identified as eligible to receive special education services due to various levels of mental retardation, learning disability, physical disability, visual, hearing or speech impairment, severe emotional disability, or other health impairments.

Other students making up the population noted as special needs are those who are economically disadvantaged, those who are two or more grade levels behind the class with which they started school, those who have a low grade-point average, and those who scored in the lowest quartile on standardized testing. Obviously a great deal of overlap would be expected as students who were identified under one of these criteria would appear again in others.

An operational vocational education plan for serving handicapped and disadvantaged students, including those with limited English proficiency, will help to direct students into three programmatic options, according to the Virginia Council on Vocational Education (1991). Their annual report showed that:

> Students are mainstreamed into regular programs and expected to achieve competencies as any other student; mainstreamed. . . with special supportive services from additional resource personnel or equipment may be modified;

> or placed in a specially designed program. Enrollments in 1989-1990 show that ninety percent of the disadvantaged and handicapped students (in Virginia) were mainstreamed in regular vocational programs. (p. 3)

The challenge of keeping disadvantaged students in school had been a priority in Norfolk Public Schools for the previous 10 years. As Neubert (1990) asserted: "Strategies to ensure that urban special needs students have equal access to quality vocational programs must be foremost in the minds of regular, vocational, and special educators" (p. 2). A summer retrieval program, peer counseling, school-within-a-school, special counseling services, mentoring, and summer youth employment had contributed to a significant improvement in retention rate. However, vocational assessment services had not been developed and were not offered to this population.

Drafters of the Perkins' regulations recognized the need for special services for disadvantaged students, as had previously been done for handicapped students, by grasping demographic trends and utilizing related research. Demographic projections had shown that by the year 2000, one-third of the United States school population would be nonwhite with African-Americans constituting the largest nonwhite group (Hodgkinson, 1985). NPS was ahead of this trend at the time of this project, with a 68% nonwhite student enrollment.

A challenge to educators serving large minority student groups was that as many as 40% came from families who met the definition of poverty (Levin, 1985; Pallas, Natriello, &

McDill, 1989). Research by the William T. Grant Foundation (1988) has shown that risk factors associated with persistent poverty include school failure, dependence upon public assistance, marginal participation in the workforce, and female-headed households. Students struggling to break out of this cycle of poverty and unemployment are recognized as truly disadvantaged individuals (Neubert, 1990). Clearly, providing services to these truly disadvantaged students will require alternative strategies for successful vocational, employment, and postsecondary experiences (William T. Grant Foundation, 1988). These strategies, including vocational assessment, are targeted in the Perkins' Act and in Title II of The Family Support Act (Public Law 100-485).

Despite interventions through the introductory practicum to upgrade teachers' involvement in the process of obtaining the evaluations and efforts to inform students of the purpose of the vocational evaluations, completion rates had not improved satisfactorily, going down from 33% to 29% (Feldt, 1992). Referral rates and alternative methods of conducting the vocational assessment were not previously addressed.

Students (n=10), two from each of the five NPS high schools, who were interviewed after refusing to participate in a formal vocational evaluation, expressed an unwillingness to participate in a 4-day pull-out vocational assessment program, which was the model for vocational evaluation in Virginia (Scott, 1991; Scott & Prezioso, 1986). That

model consisted of (a) a formal written referral process; (b) the transmittal of copies of each student's psychological, educational, medical, social, and attendance reports to the assessment center; (c) scheduling, transporting to a different school site where the assessment center was housed; and (d) then completion of work samples, psychometric testing, and some situational assessments. Because interventions to improve the individual student completion rate had no significant effect, the focus of this project was on reviewing the assessment model, to determine its efficacy in the changing educational environment and to develop alternative methods and/or a new model. The project time line and implementation strategies are shown in Appendix A.

This project was originally proposed to focus only on improving the delivery of vocational evaluation services to handicapped students. Based upon initial work and further interpretation of Public Law 101-392 (1990), The Carl Perkins' Vocational and Applied Technology Education Act, the project interventions evolved to include students who were disadvantaged and limited-English-proficient (LEP), too. This population must also be served according to the regulations but had not been previously vocationally assessed in Norfolk Public Schools. The underlying premise that students who are disadvantaged will need additional services in order to succeed in vocational education is the same as that for disabled students.

Background

The Carl Perkins' Vocational and Applied Technology Act, (Public Law 101-392, 1990) placed strong emphasis on providing handicapped and disadvantaged individuals with equal access to the full range of vocational programs available to all individuals and stipulated that vocational programs and activities for handicapped individuals would be provided in the least restrictive environment. This act required that each handicapped and disadvantaged individual who enrolled in a vocational program should receive an assessment of interests, abilities, and special needs related to that program and special services designed to meet these identified needs. Note that "the word 'aptitudes' does not even appear in the mandate" (Cobb, 1985, p. 4), but assessment of aptitudes continued to be the basis for vocational evaluation services up until the time of this project.

The intent of the legislation and the requirement of vocational assessment were to open doors to these individuals so that they may obtain marketable skills. Greenan and Sitlington (1987) summarized the overall problem:

> The ever-increasing academic requirements of vocational programs and the occupations for which these programs are preparing students, however, serve as a major barrier to the successful inclusion of the special needs learner in ongoing vocational programs. There is a critical need to ascertain the best match between the special needs learner's interests and skills and the requirements of available vocational programs and occupations. (pp. 52-59)

In Norfolk, the method of ascertaining this match and

determining appropriate vocational placements along with reasonable accommodations was comprehensive vocational evaluation. This service was offered for handicapped students through Norfolk Public Schools at the Madison Career Center (MCC). The evaluation was a hands-on assessment of vocational aptitudes and interests, conducted over 3 to 4 school days at the alternative site.

The Vocational Evaluation and Work Adjustment Association (1975) has defined vocational assessment as:

> A comprehensive process that utilizes work, real or simulated, as the focal point of assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. Vocational evaluation incorporates medical, psychological, social, vocational, and economic data in the attainment of the goals of the evaluation process. (p. 86)

This definition was the basis for the development of vocational evaluation in rehabilitation facilities during the 1970s. The definition remained unchanged 18 years later, even though the majority of vocational assessments by then were conducted in secondary public school settings rather than only in rehabilitation facilities. As Stodden (1980) reflected, "The present state of the art in vocational evaluation is largely manifested within the field of vocational rehabilitation, and as a result, the concepts, instrumentation, and strategies do not lend themselves readily to an educational setting". (p. 6)

The Norfolk model for vocational evaluation was certainly no exception, consisting of a collection of various components

of rehabilitation models in existence prior to 1978. The original school-based assessment model for Virginia was developed in Virginia Beach City Public Schools in 1978, with only slight modifications as the statewide model was developed in 1983 (Scott & Prezioso, 1986). Because this model seemed to have been working effectively (at least with the population it was originally designed to serve), it had remained unchanged.

Through the introductory practicum (Feldt, 1992), personnel issues, which may have contributed to students' non-attendance and noncompletion of the vocational evaluation were examined. No clear-cut reasons for student nonattendance or noncompletion could be determined and no marked improvement was observed (see Table 1). Because NPS had a large percentage of ethnic minorities, the issue of race of the staff in vocational evaluation was addressed. An additional evaluator was added as a result of a change in city-wide staffing patterns. The new evaluator was black; the two evaluators already on staff were white. This change of balance had no observable effect on student attendance or completion patterns during the 1991-1992 school term.

Evaluation of the classroom climate and social-emotional needs of students was conducted through the introductory practicum, without conclusive results. Students who attended the center for evaluation and the teachers who worked with them did not seem to have concerns in these areas.

Table 1

Rates of Completion in Vocational Evaluation

Year	Percentage of special education students completing vocational evaluation
1989	85
1990	67
1991	71

Note. This represents completion of a 3- or 4-day vocational evaluation by those students who began the process.

The problem as stated had persisted for some time, and previous interventions had not resulted in a solution. This project, therefore, shifted the focus away from convincing students to attend the vocational evaluation center and beyond training teachers so that they may better explain the services. The new focus in this project was on reviewing and revising methods of conducting vocational evaluation including methods that would meet the needs of the disadvantaged population. Obviously, serving larger numbers of students remained in focus. In addition, the project focused on the development of alternative means to obtain relevant performance data on special education students, which could be used to help determine vocational placements where they would have the greatest potential to succeed.

Clearly, the intent of the legislation (Public Law 101-392, 1990) and of the vocational assessment requirement

was to open doors to special-needs students so that they could obtain marketable skills while in high school. Further review of the legislation indicated that information on vocational options must be provided to students (handicapped and disadvantaged) no later than the ninth grade. The assessment had previously been offered to students upon attaining the age of 16 years. Obviously, the timing of the vocational assessment had to be changed for compliance with the mandates. This project was implemented with the eighth and ninth grades as the primary focus, but assessment strategies addressed the needs of students in Grades 8 through 12.

The comprehensive evaluation method, which was the only previous vocational assessment option in Norfolk Public Schools, was only available to 9th- and 10th-grade special education students who were 15 years and 10 months old or older and who planned to enter a vocational education program. Disadvantaged students were included in the city-wide testing of 10th graders on the Differential Aptitude Test (DAT), but no interpretation of results was provided and no alternative methods were offered to students whose DAT results were invalid or inconclusive. In addition, all students completed a vocational interest inventory through their social studies classes in eighth grade, which included disadvantaged and LEP students and some mainstreamed special education students.

Problem Data

During the period September 1990 through June 1991, which was the period of the introductory practicum, two vocational evaluators conducted vocational evaluations on 190 secondary special education students from the five high schools and eligible alternative education sites of NPS. During the period September 1991 through June 1992, three vocational evaluators conducted vocational evaluations on 172 secondary special education students from NPS. These compare to the 1989-1990 year, before any interventions took place, when two evaluators completed evaluations on 180 students.

The previous interventions placed emphasis on getting those students who started the evaluation to complete the process. However, the number of students who were evaluated represents only about 17% of those handicapped students eligible for such services and no disadvantaged or LEP students.

Of the five high schools in Norfolk, one (Granby High School) was randomly selected as the site for establishing some baseline data on students who refused to attend the center-based vocational evaluation and for whom alternative methods of assessment were implemented. Fifteen students were identified who wanted to enroll in vocational education programs for the 1992-1993 school term, but who had refused to participate in the vocational evaluation at MCC. The 15 students' confidential files were reviewed, and the following

commonalities were determined: (a) 100% were classified as learning disabled, (b) 100% were mainstreamed 50% or more of the time, and (c) 80% were mainstreamed 75% or more of the time.

This became known as the experimental group because new methods of assessment were to be instituted. The 15 students were interviewed individually. The recommendations are summarized in Figure 1. After a conference with the project manager in which the center-based vocational evaluation process and the new innovative method were explained, two students (20%) changed their minds and decided to attend the vocational evaluation center for comprehensive evaluations (completed in May 1992). Both received recommendations for vocational training program placement for the 1992-1993 term. The project manager determined vocational placements based upon a review of existing records, a student interview, and teacher recommendations for the remainder of the 15 students. Of these students, 66.6% were recommended for vocational programs at Norfolk Technical Vocational Center (NTVC), none were recommended for MCC, 6.7% were recommended for medical release prior to additional vocational assessment, and 6.7% were recommended for vocational classes offered within the home school for the 1992-1993 school term.

As a comparison, a group of 15 students with comparable handicapping conditions was selected from the 172 who received a comprehensive, center-based vocational evaluation during

1991-19_2 and who were recommended for placement in vocational programs during 1992-1993. Because the former assessment methods were used with these students, they formed a group that became known as the control group. The results of their vocational evaluations are summarized in Figure 1. Comparisons of the recommendations and the end-of-year outcomes were made (see Figures 1 and 2) to demonstrate whether the type of vocational evaluation had any significant relationship to a student's placement into the recommended vocational program. Both groups of students were monitored during the period of this project to determine the outcomes of the vocational recommendations. Students' admission to/enrollment in the recommended programs and grades in the vocational programs were compared as indicators of success.

The intent of these comparisons between the experimental and control groups was to demonstrate whether such in-depth assessment as was offered through the comprehensive vocational evaluation was necessary for all handicapped students. The untested theory was that students who had learning disabilities but were mainstreamed into regular education classes could benefit from less intrusive testing methods.

Control Group

Experimental Group

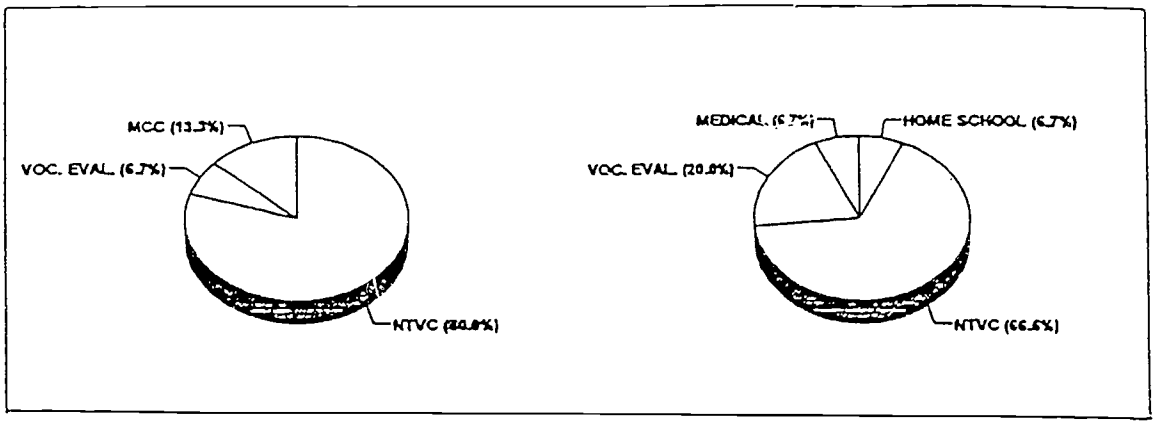

Figure 1. A comparison of vocational assessment recommendations between an experimental group and a control group.

Control Group

Experimental Group

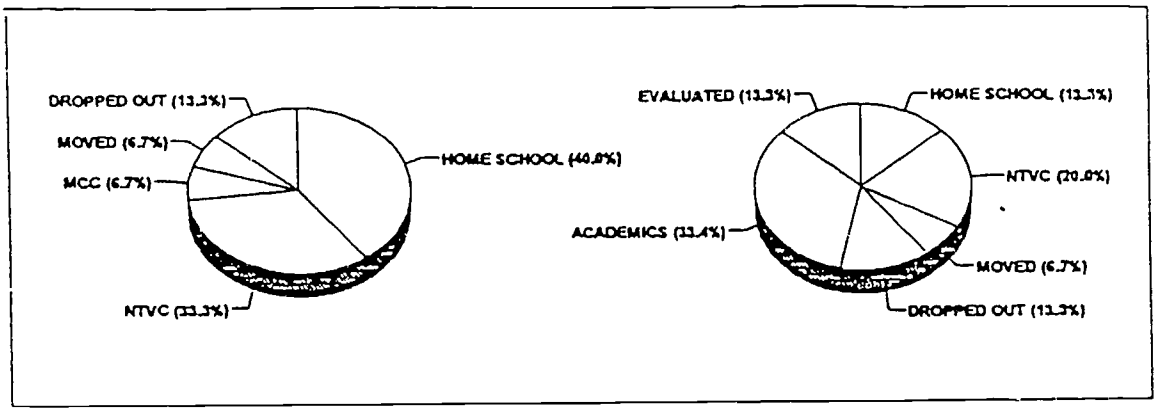

Figure 2. A comparison of outcomes (student placements) between an experimental group and a control group (end of 1992-1993).

Further interpretation of these comparisons is included in chapters 4 and 5.

Efforts were needed to assure that some method of vocational assessment was available for all secondary special needs students, including those who could not or would not miss 3 to 4 days of instruction from the regular school program. According to the legislation (Public Law 98-524, 1984; Public Law 101-392, 1990), all special education students, students with limited English proficiency, students who are economically disadvantaged, and students who are educationally disadvantaged (two or more grade levels behind their class or in the lower quartile on standardized tests) are eligible for vocational assessment, which should be a key component for planning the individual's vocational education program. This project was directed toward the secondary special needs students, an estimated population of about 7000 students in Norfolk. The delivery of vocational assessment services for this potential population, including the determination of methods, models and procedures, were within the locus of control of the project manager as the Program Leader for Vocational Education Programs for Special Populations with Norfolk Public Schools.

Probable Cause Data

Additional data collection was a component of the project timetable. A survey of total special education enrollments was conducted at each of the five high schools to determine

the total population eligible for vocational evaluation during the 1991-1992 school year (see Appendix B). This was compared to the number of students who received vocational evaluations to determine the percentage actually served.

Next, secondary special education enrollments for the 1992-1993 term were determined by the September 30, 1992 student count. This was considered to be the pool of special education students eligible for vocational assessment for that school term and served as the basis for project calculations.

Methods had to be developed to identify from the secondary education population those students who met the criteria for the disadvantaged and LEP categories. An initial review of numbers of students on free or reduced-price lunches (Grades 8 through 12) indicated that this criteria alone would identify about 6000 students. Additional identification was needed to identify those students with low grade-point averages, those who were two or more grade levels behind their classes, and those who scored in the lowest quartile on standardized tests. That was projected to increase the target population to about 7000.

A survey was conducted of NPS high school special education personnel, including teachers of students who were emotionally disturbed, learning disabled, educably mentally retarded, trainably mentally retarded, hearing impaired, visually impaired, physically disabled, speech impaired, other health impaired, orthopedically impaired, and severely

handicapped. They were asked their views on the vocational evaluation process and possible reasons why students were not referred, did not attend, or did not complete the process, and they were asked to react to possible solutions. Information was sought on their methods of utilizing evaluation results.

Student attitudes and perceptions were determined through informal interviews of secondary special education students conducted by two evaluators and the program leader in each high school. Students were asked to give reasons for refusing to attend a comprehensive assessment at Madison Career Center. Their anecdotal responses clustered in two areas: (a) Madison Career Center was viewed as a school for retarded students where other students would not attend, and (b) special education students in mainstreamed or co-teaching classes felt they could not afford to miss any of their classes and still get their classwork done so they could not attend a 3 or 4-day testing program.

Information was needed on the state-of-the-art in vocational evaluation in Virginia. According to the Virginia Council on Vocational Education (1991):

> Assessment services are available to eighty-five of the state's school divisions through thirty-five comprehensive vocational assessment centers. The establishment of additional centers has been identified as a priority need. Thirteen assessment centers were added in 1989-90, but fifty school divisions still have limited access to such services. (p. 7)

All school superintendents in Virginia were contacted to identify the name/address of their vocational evaluator.

If this service was not offered through the district, then that was also noted.

A survey was then conducted of all school districts and regional vocational centers offering vocational assessment services in an effort to determine any alternative methods of conducting vocational evaluations in use in Virginia. The questionnaires requested demographic data on each district, information on evaluation procedures being used, and information on any surplus vocational assessment equipment that was available (see Appendix C). The responses to the mailed questionnaires to these districts and regional vocational centers provided few strategies that could be implemented in Norfolk Public Schools. When the results of this survey were presented at a statewide conference, the general reaction from vocational evaluators and educators present was that they were also grappling with the issues related to evaluating more students without increased budgets. Many school districts have requested information on the implementations being tried in NPS through this project.

Another area that was reviewed for possible improvement was the collaboration between the home schools and the vocational evaluation center. The services offered at the center were coordinated by the vocational resource teachers, one of whom was assigned to each high school and two at Madison Career Center. They had been previously trained in methods of orienting students to the vocational evaluation

(Feldt, 1992) and in utilization of the results of the vocational evaluation. Observations were conducted of orientation sessions held with secondary special education students by vocational resource teachers at each of the five NPS high schools because information about the vocational evaluation process was disseminated to students at those sessions. Observations were conducted with each of the vocational resource teachers at the high schools as they interpreted and explained the results of completed vocational evaluations to parents, students, and special education teachers who wrote the students' Individualized Education Plans (IEPs). The results of these observations reflected (a) a firm grasp by all of the vocational resource teachers on the vocational assessment process, (b) reasons for the vocational evaluations, (c) benefits to students, and (d) methods for implementing the recommendations. Obviously, these employees were already doing what they could to make the vocational evaluation process work so no further strategies were implemented in this area.

Chapter 2

Setting

Demographic and Organizational Characteristics

The Norfolk, Virginia school district is the second largest in the Hampton Roads area of the state. The district serves approximately 36,000 students in kindergarten through Grade 12 and operates two early childhood intervention centers. Facilities include 36 elementary schools, 8 middle schools, 5 high schools, 1 technical-vocational center, 1 career center for special populations, 1 skills center for adults and dropouts, and 8 other auxiliary educational programs.

The Norfolk Technical Vocational Center (NTVC) provides a range of occupational education programs to approximately 800 students each year. Of these, 1% are freshmen (at-risk students), 21% are sophomores, 36% are juniors, 35% are seniors, and 7% are postgraduates (accepted on a space available basis). At Madison Career Center (MCC), 120 disabled students receive instruction in six service-related occupational areas. The students at MCC and in two selected classes at NTVC are pursuing special education diplomas with requirements for completion based upon the Individual Education Plan (IEP). Both vocational sites serve as extensions of the five high schools, with students being bused

in for three-period classes.

The student population of Norfolk Public Schools covers the socioeconomic range, but between 64% and 82% of students at each high school were eligible for free or reduced-price school lunches. The ethnic composition of the student body is 67% black, 32% white, and 1% Asian, Hispanic, and other races.

The school division is governed by a school board which was appointed by the city council. The city council members are elected and they elect the mayor from among their ranks, but school board members are still appointed. The city of Norfolk functions through a council-city manager form of government. The school board employs a superintendent, deputy superintendent, and five assistant superintendents. Various departments manage instruction, adult and vocational education, budget, accounting, transportation, purchasing, special education, personnel, research and testing, and staff development. The school board depends upon the city council and the Virginia Department of Education (VDOE) for funding; it has no taxation authority of its own.

Problem Setting Situational Data

Norfolk Public Schools maintain archival data on the enrollments in special education (see Appendix B) and for many years was required by VDOE to collect data on the vocational education services provided to special populations. This was not required due to changes in the funding formula after 1991. The information for the period 1989-1992 is summarized in

Table 2, based upon availability.

Table 2

Population Distribution in Special and Vocational Education

Population	Dates 1989-1990	1990-1991	1991-1992
High school special education enrollment	1,279	1,249	1,203
High school special education students enrolled in vocational education	916	879	not reported
Percent of special education students in vocational education	71.6%	70.4%	not reported
High school special education students in vocational evaluation	180	190	172
Percent of special education students who received a vocational evaluation	14.1%	15.2%	14.3%

Note. The data are from records of Norfolk Public Schools.

Obviously, access to vocational education programs by handicapped students was not an issue. However, the results of the vocational evaluation were intended to be utilized to determine appropriate vocational placements, as indicated in the enabling legislation. These data show that many more youngsters were being placed in programs without benefit of vocational evaluation recommendations than were being placed with such recommendations. (Note that the data only indicated where students were enrolled. No information was available to

demonstrate whether these placements were successful. In fact, many students were enrolled in vocational classes in which they were not passing.) This discrepancy had to be addressed. Apparently the former methods of conducting vocational evaluation were a limiting factor, so new methods had to be explored, studied, and implemented.

NPS had three full-time vocational evaluators on the staff as of September 1991, an increase of one position from the previous year. Two of the evaluators were females (one black and one white), and one was male (white). Two evaluators had 4 or more years' experience and one was completing on-the-job training as an evaluator. The two experienced vocational evaluators and the program leader were nationally certified in vocational evaluation. One of the experienced evaluators resigned in June 1992, and the position was not filled, putting staffing back at two full-time evaluators. These were the personnel who implemented the innovations through this project.

The program leader (project manager) had 20 years related work experience and was one of the first three school-based evaluators to be hired in the state of Virginia. She was the first evaluator to leave a position with the Virginia Department of Reha ilitative Services in order to establish a school-based vocational evaluation center. She was considered a leader in Virginia in providing services to students with disabilities and had been heavily involved in professional

organizations promoting vocational evaluation, vocational resource services, and other adaptations that allow special populations to enter regular vocational education. She was selected as Virginia's Vocational Special Needs Teacher of the Year by her peers in 1986 and as Outstanding Vocational Special Educator for Virginia in 1993.

Through strong efforts by the project manager and a committee of her peers, the Virginia Department of Education adopted in 1992 a professional certification for vocational evaluators making Virginia one of only a handful in the country to license these personnel as they did teachers and school psychologists. Lehmann and Hartley (1991) reported that, at that time, only Wisconsin, Maryland, and Minnesota required vocational certification for employment as an evaluator in the public schools; most states had no established minimum standards. VDOE also adopted an add-on endorsement of vocational special needs educators through the state's teacher certification process. Virginia accepted the licensure of evaluators and the endorsement in vocational special needs education, illustrating the recognition for professional competence in the area of serving special populations in vocational education.

The backgrounds of the two experienced vocational evaluators and the program leader were viewed as constraining factors in the development of this project. With rehabilitation backgrounds, it was difficult for them to

shift paradigms in order to view new methods as beneficial or even acceptable. In addition, the program leader was the "grandmother" of school-based vocational evaluation and at the onset of this project clung to former beliefs that the methods being used were above reproach. She had been little swayed by earlier efforts in other states to develop alternative evaluation strategies and had, in fact, been openly critical of those approaches.

Norfolk Public Schools had one vocational resource teacher assigned to each of the high schools and two vocational resource teachers were assigned to the Madison Career Center. No vocational resource support was available to students attending the Norfolk Technical-Vocational Center or the satellite centers.

Until the 1991-1992 school term, a full-time para-professional was assigned to the evaluation center. This individual provided assistance for students and clerical support in document maintenance and report preparation. The position was removed during the 1992-1993 school term, returning the clerical operation functions back to the full-time evaluators and impacting their ability to work with larger numbers of students.

Problem Setting Culture

The administrative structure of vocational education programs for special populations was a positive force in facilitating implementation of the innovation. The program

leader supervised the vocational evaluators and the vocational resource teachers. She had a positive working relationship with special educators at the secondary level and served as a liaison with their administrative staff. The Director of Adult and Vocational Education was committed to supporting the program leader's efforts at improving evaluation services for special needs students.

Staff were additionally motivated by the knowledge the federal program monitoring would occur in May 1993, with compliance to the vocational legislation being examined. According to a report from the Virginia Council on Vocational Education (1991):

> Each school division must provide assurances on issues of equal access in recruitment, enrollment, and placement in the full range of vocational programs; the delivery of services in the least restrictive environment; and coordination with special education for those identified as handicapped students. Compliance with these and other related assurances are assessed through several evaluation and compliance review processes. (p. 3)

A constraining factor in the maintenance of the center-based assessment was the students' perceived stigma attached to being singled out as "handicapped" and requiring special services, especially if that meant attending Madison Career Center. Those students who were mainstreamed or in co-teaching classes were particularly sensitive to this. It was not feasible to move the assessment center to a more neutral site.

Another possible constraining factor in trying to assess more students was the size of the evaluation center. The

center was moved from Rosemont Middle School to MCC in 1989. The MCC site had considerably less floor space than the original facility and was crowded when more than seven students were evaluated concurrently. This contributed to the decision to implement assessment techniques with students at the home school rather than maintaining the notion that all assessment should be center-based. It was simply not physically possible to work with more than seven students at any given time.

Another possible constraining factor related to the facility was its age and inaccessibility. The 60-year-old building predated architectural adaptations for special populations. Students with certain physical limitations could not access the vocational evaluation facility; no elevator was installed, and the assessment center was located on the third floor. This required that evaluation services be provided to certain students at their regular high schools, sometimes still as a pull-out option, and that testing materials and equipment had to be transported from Madison to the school sites.

An external force that limited implementation was the traditional vocational evaluation method, which was widely accepted in rehabilitation and school settings. Testing materials and work samples available may have become outdated or irrelevant for the populations to be served, for the requirements of the future work force, and for the educational

system in which they are being used. However, the cost of developing or purchasing new materials or work samples was prohibitive, in view of budget and staff time restraints. Rather than investing efforts in further work sample development, alternative assessment approaches had to be explored.

The program leader was under pressure from upper administration to develop or locate a quicker, pencil-and-paper vocational assessment that could also be available to disadvantaged and "regular" education students. This method of assessment was in vogue during the 1960s and 1970s, but was replaced by "a more realistic, work sample approach" as vocational evaluation services were developed (Uthe, 1980, p. 36). She gave these examples of pencil-and-paper assessments: (a) General Aptitude Test Battery (GATB), (b) Kuder Preference Record, (c) Differential Aptitude Test (DAT), (d) Strong Vocational Interest Blank, (e) Hester Evaluation System, and (f) Ohio Vocational Interest Survey (p. 36).

The GATB had been discontinued from use by the Virginia Employment Commission following heavy controversy about racial bias. It was still used as a key component of vocational evaluations by area rehabilitation facilities, but had not been utilized by NPS. The DAT was found to be administered annually to all high school sophomores in Norfolk and presented an opportunity for expansion if permission could be

solicited to move the administration down to the eighth grade.

One area school district suggested the possibility of administering the Armed Services Vocational Aptitude Battery (ASVAB) to all high school seniors as a career counseling tool. This was traditionally administered only to those seniors who expressed an interest in entering military careers. This method was examined for potential applications as part of this project. The project manager learned that cutbacks in the U.S. Department of Defense (DOD) would make expanded use of the ASVAB test impossible. DOD maintained strict control of test materials and refused to share them. In addition, the ASVAB was normed on 18 to 20-year-old recruits, and would not have been of benefit with younger students.

Chapter 3

Review of the Literature

The review of literature served the project manager in two ways. First, the historical perspective validated the manager's belief that the methods being used to conduct vocational evaluation in Virginia were not progressive. The second benefit was the collection of examples of best practices, which were in place in other states, allowing the project manager to accept or reject methods for inclusion in the newly evolving model for NPS.

Historical Perspective

According to McCray (1982), vocational evaluation began in the 1930s as an outgrowth of the State-Federal Vocational Rehabilitation Program and as a response to the inadequacy of traditional assessment and guidance tools for handicapped populations. This same dynamic was involved in introducing vocational evaluation into school settings during the 1970s.

Nadolsky (1977) asserted that early assessment was based upon the notion of industrial scientists that each person was best suited to perform a limited number of industrial functions. He added, "the vocational assessment movement, as it emerged within our manufacturing society, was designed to meet the demands of industry, moreso than the needs of individuals" (p. 7). By relying on the results of vocational

assessment, industry could select those individuals who possessed an abundance of talent and who, therefore, had a greater probability of being able to perform industrial jobs. The implication was that persons who did not perform well on the vocational assessment were denied employment and considered not employable. Naturally, this resulted in the majority of disabled individuals being denied employment because they demonstrated a low probability of being capable of competitive industrial employment. "With the enccuragement . . . of vocational rehabilitation, vocational evaluation [eventually] emerged as an individually-oriented trend" (Nadolsky, 1977, p. 8).

McCray (1982) traced the history of vocational evaluation through the Medical Facilities Survey and Construction Act of 1954, legislation that authorized the construction of comprehensive rehabilitation facilities, which included vocational evaluation services. He noted that the first authorized funding for training evaluators and for conducting related research was through the Rehabilitation Amendments of 1954 and the Rehabilitation Act of 1973. McCray attributes stimulated growth of the field to passage of the Education of All Handicapped Children Act, Public Law 94-142, and the Vocational Education Amendments of 1976, Public Law 94-482. It was from that growth spurt that he observed vocational evaluation programs beginning in school-based settings.

The shift of site for vocational evaluation from

rehabilitation-based to school-based settings also required a shift in emphasis (McCray, 1982). Whereas establishment of eligibility and facilitation of vocational planning were the focus of evaluation in the rehabilitation facilities, the purpose in the school settings became developmental, with an emphasis upon planning educational outcomes for individual students. The school-based utilization of the results of the vocational evaluation also accented the possibilities of career and vocational exploration as part of the individual's developmental educational process.

Shortly after this evolution into school-based sites, the literature reflected heated controversy over definition and purpose. Was the service needed for special-needs students a vocational evaluation or was it vocational assessment?

As defined by the Vocational Evaluation and Work Adjustment Association (VEWAA) Glossary (1988), vocational evaluation "is a comprehensive process that systematically uses work, either real or simulated, as the focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development". (p.3) This process was described as incorporating medical, psychological, social, vocational, educational, cultural, and economic data into the process to attain the goals of evaluation. Also defined in the VEWAA Glossary (1988) was vocational assessment:

> the comprehensive process conducted over a period of time, usually involving a multi-disciplinary team . . .

> with the purpose of identifying individual characteristics, education, training and placement needs, serving as the basis for planning an individual's educational program and which provides the individual with insight into vocational potential. (p. 3)

Nolte (1989) asserted that the scope of vocational assessments in schools varied from state to state, with lack of standardization due to nonspecific federal requirements. She noted that "The scope of vocational assessments ranges from vocational screening all the way to a full comprehensive vocational evaluation. In the school-based environment, the difference between vocational evaluation and vocational assessment is of importance" (p. 109). Her rationale was that the purpose of vocational evaluation was to guide individual vocational development, but that the purpose of vocational assessment was to guide the educational program for an individual. In other words, the intent was similar but the outcome was different because vocational assessment would determine the most appropriate vocational training program within the parameters of the available education services. One of the techniques of vocational assessment, following this argument, was comprehensive vocational evaluation, but there were others.

Cobb and Larkin (1985) proposed "to eliminate the term vocational evaluation as it pertains to the entire range of assessment activities associated with screening, placement, and program planning and monitoring for an individual child," maintaining that we should "assess individuals and evaluate

programs" (p. 3). They maintained that the rehabilitation assessment model did not adapt well to the educational environment because it attempted to make predictions about employment suitability, but not about curricular options.

Emery (1984) asserted that traditionally the ultimate goal of the rehabilitation model was client placement into employment. She stated, however, that the emphasis for providing assessment services in the school setting had shifted to career development and placement in vocational programs. In other words, task-related abilities were diminished by the need to identify what the student could learn while in the educational setting (p. 75).

Cobb and Larkin (1985) offered support for an additional definition of what was described as "contemporary assessment" (p. 3). That "refers to those practices that clearly link the purposes and outcomes of assessment with the goals and techniques of instruction and other forms of service intervention" (Halpern, Lehman, Irvin, and Heiry, 1982, p. 1). Halpern et al. further elaborated upon the differences between traditional vocational assessment and contemporary assessment: "Rather than rely on traits or aptitudes to infer performance, the contemporary approach emphasizes the importance of direct assessment of actual competencies, [and] requires the outcomes of measurement to have direct implications for program planning." (p. 4)

This perspective would make vocational assessment an

ongoing activity conducted by a team of school personnel. This theory formed the basis for the split between groups in the field who favor comprehensive vocational evaluation as a one-time event or those who favor vocational assessment as a process conducted over time. Indeed, this redefinition became the basis for the paradigm shift needed to restructure vocational assessment activities in NPS through this project.

A review of works from the past 15 years revealed that vocational evaluation as a requirement of the Carl D. Perkins' Act was an asset for special-needs students. According to Feldt (1987), "this essential component of the habilitation process was traditionally made available when students were 16 years old and still in school". (pp. 160-163)

Until the passage of the Perkins' Act (Public Law 101-392, 1990), vocational evaluation was not required for students and in many localities was only available to adults. No specific references to the problem of getting special-needs students to attend and complete the vocational assessment process or which students should be referred for vocational evaluation were located, but inferences were drawn from articles about other school-based vocational evaluation and special education innovations, which may apply to the concerns at hand. In addition, the law is very general as to what constitutes a vocational assessment of special-needs students, leaving definition of methods and procedures to the states and localities. Very little writing could be located that

addressed the vocational evaluation of disadvantaged or LEP students.

According to Kochhar and Barnes (1992), the Individuals with Disabilities Education Act (IDEA) (Public Law 101-476, 1990) and the Americans with Disabilities Act (ADA) (Public Law 101-336, 1990) fit well with the Perkins' Vocational and Applied Technology Act (Public Law 101-392, 1990) to "develop broader, far-reaching mandates to include youth with special needs in the range of career/vocational and transition services" (p. 18). This excerpt is from their:

> Bill of Rights 2000 for Youth with Special Needs:
>
> 1. The right to accommodation of special learners in the full range of mainstream and special education programs and services, including regular education, vocational education, transition services, job training, placement opportunities, and articulated (e.g. Tech-Prep) and postsecondary placement assistance.
> 2. The right to receive a comprehensive vocational assessment as part of transition services required under IDEA. (p. 19)

Washburn (1979) wrote that determining vocational placements for special-needs students required specially trained staff, findings from actual work samples, and comprehensive assessment of skills. She proposed that the best method of obtaining such an assessment in a larger school district was "at a central testing facility, which could be of service to all students" (pp. 14-18). This may have implications for Norfolk where only students classified as special education are evaluated at the Madison Career Center.

The literature review revealed several other pervading

controversies. Numerous authors discussed the best methods for conducting vocational assessment or vocational evaluation, predominantly of handicapped students. When the assessment should be conducted was of great concern across the field of vocational assessment. Also, controversy prevailed on the length of time that a vocational evaluation or assessment should take. The various methods will be dealt with at length in this project and will constitute the bulk of experimentation and innovation. The timing of the vocational assessment will be assumed to be during the eighth or ninth grade, as indicated in the Perkins' regulations. The length of time required for vocational evaluation will be based upon the established standards for vocational evaluation from the Task Force Proposal for CARF Standards on Vocational Evaluation (Vocational Evaluation and Work Adjustment Association, 1975), which state: "The length of time an individual remains in vocational evaluation shall be primarily based upon the time necessary to accomplish the individual's evaluation goals" (p. 73).

One component of the process of redesigning the vocational assessment model for NPS was determining which students would require which form of vocational assessment or evaluation, if several methods were available. In describing the history of vocational assessment as an evolution away from psychological testing and toward miniatures of work stations, Nodalsky (1984) relayed the three levels of the assessment

process as described by Task Force Number One of the Vocational Evaluation Project. These were: first level--screening, second level--clinical, and third level--vocational evaluation. The first two levels, he insisted, made use of psychological testing and counseling processes and were beneficial to individuals who could abstract and were verbally oriented. The latter was for individuals who were nonverbally and experientially oriented; in other words, vocational evaluation as "hands on" activities, primarily benefited individuals "whose thought process is primarily governed by the right cerebral hemisphere" (p. 7) Nadolsky made an additional observation of note for this project. "The majority of individuals who receive vocational assessment services . . . do not require vocational evaluation; they have sufficient verbal and logical reasoning ability to benefit from the application of traditional verbally oriented procedures employed during the first and second levels of the vocational assessment process" (p.7).

This view helped free the project manager of the belief that all special-needs students had to pursue work sample performance testing. It renewed the belief that some students will perform satisfactorily on pencil-and-paper testing or on previous testing and performance measures so that assessment could be successfully completed without requiring attendance at a vocational evaluation center.

Scheer (1990) described two phases of assessment, which

he called prevocational evaluation and vocational evaluation. The early phase was a feasibility stage where vocational diagnosis had to be made. This included psychometric testing related to dexterities, achievement, interests, and aptitudes and utilization of information from the assessments of other professionals (physical, speech, auditory, and psychological). He suggested that the second phase was for determination of an individual's potential to perform specific types of work and whether they were employable. This second phase could include psychometrics but "stressed performance on situational assessments, job-site evaluations, and use of standardized work samples" (pp. 40-42).

The project manager related these two phases to the needs of disadvantaged and handicapped NPS students. This formed the basis for planning that evolved into the multiphase model of vocational assessment. In the first phase of what was to become the NPS model, students completed psychometric testing on vocational aptitudes and interests. If the results were inconclusive or invalid, then students could be assessed based upon an interview and a review of previous performance on other types of assessments. If that combination did not provide the basis for vocational programming predictions, then comprehensive vocational evaluation became an option.

It should be noted that the bulk of literature on vocational assessment and vocational evaluation related to the provision of those services to disabled populations. Nothing

of note was available on the vocational assessment of other special populations. Wircenski and Wircenski (1991) described a 2-year collaborative effort wherein the Garland, Texas public schools focused upon the needs of disadvantaged and at-risk students. Although the model, which they developed, included assessment and data collection in general terms, they did not specifically mention the incorporation of vocational assessment or evaluation.

Assessment Methods

Many of the articles from journals were descriptions of similar models, so a compression was made and general descriptions provided. However, a number of interesting, if not related, approaches were also summarized. All of the models described in this literature review were considered in developing the multiphase model for NPS. A number of components were adopted as described and others were adapted to meet local needs.

Peterson (1984) summarized that models for vocational evaluation and assessment of special-needs students in school settings were still in great flux. He had conducted a review of literature and concluded that efforts were related to two basic approaches: (a) curriculum-based vocational assessment, and (b) vocational evaluation centers.

Botterbusch (1989) also described two different approaches to vocational evaluation. He described the two major models as: (a) psychometric, and (b) clinical,

concurring with the writings of Cobb (1972). He described the psychometric model as being rooted in military and personnel psychology, requiring the careful use of standardized aptitude, achievement, and temperament tests. He believed that this model would become more commonly used as efforts to evaluate more clients with diminishing resources continued. Botterbusch's clinical model emphasized the intuitive skills of an evaluator observing students in real or simulated work situations. That method "provided information on client behaviors, knowledge, and interactions," which was useful in developing vocational and placement recommendations (p. 118).

Leconte and Boyer-Stephens (1992) favored a model that appraised a list of attributes and factors including: (a) level of career development, (b) knowledge of vocational education opportunities, (c) vocational preferences and interests, (d) individual special needs (learning preferences, assistive technology needs, academic supports, vocational supports, and functional supports), (e) identification of a primary personal advocate, (f) status of awareness and linkages with adult services, and (g) ability to use networks and access services. (pp. 57-58)

A concept closely related to vocational assessment is self-evaluation. As described by West (1987), this is a component of the assessment process that could be tied into regular classroom instruction and used as a counseling tool in describing the need for comprehensive services. This concept

had been developed by the project manager and was included as a component of Careers and You, a middle school career exploratory curriculum developed and copyrighted by Norfolk Public Schools in 1990. As students enrolled in the course explored each of 15 career clusters, they were asked to rate their performance and interest in the related activities. This information was maintained on individual student folders, which became a part of the student's cumulative school record. Vocational interest testing, self-reflection, and physical capacities ratings were a part of this self evaluation format. This self-assessment component was maintained as a part of the new multiphase assessment model, with minor revisions. No efforts were made to develop a high school self-assessment because no vocational courses could be identified in those grades through which all students could be assessed.

According to McCray (1982) and as reported by the National Clearinghouse on Postsecondary Education for Individuals with Handicaps (1990), situational assessment has long been held to be a valid component of the comprehensive vocational assessment process. This was considered a suitable alternative method to vocationally evaluate students such as those described by Wood (1984) who suffered from test anxiety, embarrassment, or difficulty with time constraints and therefore did not attempt a vocational evaluation. Situational assessment was included in the NPS multiphase

assessment model as well. The vocational evaluators traveled to school sites throughout the city to conduct situational assessments of students working in familiar settings.

Data collection forms were developed to obtain information from job coaches, classroom teachers, and in-building vocational education teachers who had worked with the student. This process, also known as curriculum-based vocational assessment (Stodden, Ianacone, Boone, and Bisconer, 1987; Albright and Cobb, 1988(b)) had been attempted in Norfolk at the middle-school level, with mixed results, and was discontinued. Many complaints had come from the vocational education teachers who had been asked to observe students at work on various projects in the classroom and to indicate on a form whether students exhibited certain strengths or limitations in the worker traits. The teachers complained that it took too much time, that it was difficult to watch students closely enough (in a class of 20 or more), and that they felt uncomfortable making recommendations that would affect students in future years. No curriculum-based vocational assessment (CBVA) model had been attempted in Norfolk at the high school level prior to this project. As a component of the multiphase assessment model, CBVA requests for observation and reports are made of teachers for only one or two students at a time. In addition, the teachers are asked to report facts and observations only. All interpretations of data and recommendations for future

programming are made by the vocational evaluators.

The National Institute of Handicapped Research (1984) described six models for delivering vocational assessment services: "(1) assessment in the special education classroom, (2) assessment in occupational exploration classes, (3) integrated vocational assessment, (4) vocational evaluation center, (5) contracted vocational assessment, and (6) mobile vocational evaluation units" (p. 3). The first three were easily integrated into classroom activities, but lacked a comprehensive approach. School-based centers and contracted services reportedly had the tools necessary for a thorough evaluation, resulting in a more comprehensive, individualized, and work-oriented process with optimum outcomes. Mobile units were described as a useful compromise. NPS has integrated the first five models into the new multiphase model developed and implemented through this project.

Hastings (1984) proposed a new direction for vocational assessment based upon self-evaluation in the work setting. He proposed utilizing video cameras to record clients in real or simulated work settings and then reviewing the videotapes in discussion sessions to evaluate with students the appropriateness of their behaviors within the work climate. The project manager had used this technique successfully in a work adjustment program where behavior development was critical. However, this concept was reviewed and rejected for the NPS assessment model because it was impractical for the

few students in the community-based training placements and unnecessary for those students in classroom-based training in light of the inclusion of curriculum-based vocational assessment techniques.

Evaluation of prevocational skills was espoused by Phelps (1984), who proposed collecting data on a battery of traits, qualities, and attitudes desired of employees such as punctuality, respect for supervision, quality of work, and neatness. Students who attend the NPS vocational evaluation center housed at Madison are rated using the Materials Development Center (MDC) Behavior Checklist, which covers those areas described by Phelps. The MDC Behavior Checklist was also incorporated into the Phase I vocational assessment component of the new NPS multiphase assessment model.

A Triennial Integration Model was discussed by Levinson (1989) as an organized and effective method for delivery of vocational assessment. He proposed that the triennial special education assessment should have a vocational component, beginning when students are in the middle school and continuing with each triennium until graduation. This theory also fit nicely into special education legislation, which required transition planning. In terms of assuring that all special education students received a vocational assessment, this method certainly had merit. The weak point of this proposal, however, was that Levinson advocated that the school psychologists collect the data rather than utilizing

vocational evaluators, a compromise which the project manager was unwilling to consider. This method was not explored as a component of the project because it meant adding to the workload of the few school psychologists on staff, but may have merit for future exploration.

Rubinsky (1991) proposed using only one system, a commercially developed one called the McCarron-Dial Work Evaluation System, to vocationally assess mentally retarded students. The logic behind this proposal seemed weak, based more upon commercial than client service ethics. Some components of the McCarron-Dial system are utilized in Phase I and Phase II of the NPS multiphase assessment model, but it is not appropriate for disadvantaged or less severely handicapped students.

Lehmann and Hartley (1991) proposed vocationally assessing students through cooperative education programs and the cooperative job placements in the community. They called this an experiential model, because the student was developing vocational skills by working inside the school or outside in the community. This suggestion was integrated into the NPS model for those students working in enclave and supported employment placements. It required a low evaluator-student ratio and so necessarily will be utilized on a limited basis.

Mason (1984) presented a hierarchical model of vocational evaluation, designed to serve the needs of economically and academically disadvantaged students as well as students with

disabilities. However, the model was difficult to decipher, complex, and confusing. It was basically a five-phase model with assessment options ranging from a few hours to 6 weeks for an individual student, based upon individual needs and long-term goals. She described the system as flexible, but unwieldy seemed more apt.

The Illinois Model (Sprengel and Moradian, 1989) involved using a specific assessment tool, the Illinois Vocational Interest Survey and Assessment (IVISA) to determine interests, abilities, work-related behaviors, work skills, and present and future employment options for students with severe and profound disabilities. This model was developed, admittedly, to make compliance with the Perkins' regulations.

A similar type of assessment, the Interest, Learning Styles and Aptitude (ILA) Vocational Assessment, was developed in-house and copyrighted by the Prince George's County (Maryland) Public Schools (1988) and offered to all secondary students, not just special populations. After reviewing these locally developed, pencil-and-paper assessments, it became obvious that replication of the process would be expensive and time-consuming, requiring that all student assessment halt for a period of 6 months to one year to allow for test development. Even after that, questions of test reliability and validity would have to be settled. Instead, the project manager reviewed commercially developed, "machine-scorable" instruments of a similar nature. It was decided that the

Differential Aptitude Test (DAT) would be the most beneficial and cost-effective option. That was adopted as part of the NPS multiphase assessment model and offered to all students, including special populations in the 8th and 10th grades.

Peterson (1981) reported on the development of a model of vocational assessment for use in the public schools in Texas. Highlights of that model were that vocational assessment could be periodically repeated, that vocational assessment was interactive with instruction, that vocational assessment began in the seventh grade, and that existing school resources were intensively utilized. No more than four to six students per evaluator could be assessed at a time using this model.

Peterson, Brown, and Leconte (1987) presented a comprehensive, curriculum-centered approach to vocational assessment for vocational education. Their proposed model included three phases with five components. It presented vocational assessment as a continuing process rather than an isolated event. In their Phase I, students received vocational assessment prior to vocational education which included curriculum-based career assessment, specific, short-term assessment related to vocational education, and formal vocational evaluation. Phase II consisted of vocational assessment during vocational education. This appeared to be related to the attainment of specific course competencies and work behaviors. Their proposed Phase III was for additional vocational assessment upon completion of vocational education.

This all-encompassing scheme had the vocational evaluator responsible for all monitoring of progress for special populations in all the vocational programs and for providing reasonable accommodations if difficulties arose. This was a surprising proposal, based more upon theoretical concepts than on practical applications, in contrast to what these authors had espoused before, and seemed to the project manager to have been written as a challenge to others in the field to develop meaningful dialogue. In a school system with more than a handful of special-needs students this approach is not workable.

The Minnesota Career Assessment model (Murray & Skaja, 1984) was introduced in the Intermediate School District. Using a traditional center-based, rehabilitation model of vocational evaluation, the staff evaluated 72 handicapped students during the first year of operation. The description of the Minnesota model seemed a carbon copy of the former NPS model, as established in 1980.

The Practical Arts Evaluation System (PAES) model (Swisher, 1989; Swisher & Clark, 1991) was described as a middle school/junior high school level exploration and assessment program, implemented in Shawnee Mission, Kansas. Through the integration of ongoing assessment in the form of modules into practical arts classes, students were able to complete assessment activities as part of the class curriculum. This parallels the Careers and You course offered

at the middle school level in NPS with one exception. The course itself is a career exploration based upon use of modules in each of 15 career clusters. Rather than assessing students based upon norm-referenced or criterion-referenced methods, as is done in PAES, students in NPS complete a self-assessment. The utilization of the results as a counseling tool for selection of ninth-grade courses is the same in PAES and in NPS.

The Utica, New York approach to vocational assessment (Coffey, Szymanski, & Strong, 1984) included younger children, between ages 9 and 11, with developmental disabilities, in a multidisciplinary prevocational assessment. As proposed, this assessment model required a commitment of about 2 weeks per child in elementary school, a comprehensive vocational evaluation in the adolescent years, and ongoing team monitoring of vocational efforts throughout high school. This model seemed to have confused the special education mandate for transition services with the vocational education mandate for vocational assessment and was trying to accomplish both tasks through the overextension of the vocational evaluation staff. Again, in a school division with 3,600 disabled students in kindergarten through Grade 12 and only two evaluators, this is unmanageable.

Neubert and Leconte (1990) described a vocational assessment and intervention model being used in Maryland. That model utilized Vocational Service Support Teams (VSSTs)

to collect data for the vocational student profile, to modify curriculum for individual students, to mentor special-needs students in vocational education, and to tutor or co-teach in the vocational classes to assist students. From the description provided and from telephone and personal contacts between the project manager and the authors, this model presented some intriguing points for further study. For example, the job descriptions of the VSST members paralleled those of the vocational resource teachers in Norfolk. In addition, the vocational resource teachers have been an integral component of the collaboration and coordination for vocational evaluation since that program's inception. Finally, these teachers have been viewed as expendable in light of budget constraints. By utilizing them more closely in the assessment and monitoring process, these positions may have renewed purpose. Such changes were not within the scope of this project, but will be pursued by the project manager.

Other statewide models were reviewed. They are discussed in the comparison of working models and best practices in chapters 4 and 5.

In summary, the review of literature revealed that some new methods had been implemented in the vocational evaluation process in other states. It was noted that vocational assessment was the term used in the literature to cover all of the various methods being tried. Vocational evaluation was used to refer to that specific process which Virginia had

modeled, where work sampling and psychometric testing provided the basis for vocational recommendations. The innovations centered around offering various options for students and using as much existing information about each student's abilities as possible. This differed from the Virginia model in which each student was tested for academic achievement, vocational aptitudes, and specific occupational potential over a period of 3 or 4 days, in an evaluation center.

Chapter 4

Methods of Discrepancy Reduction

and of Educational Change

The major activities of this research project were planned to produce these final results:

Terminal Objectives

1. To develop alternative methods for conducting vocational assessment of secondary special-needs students, including those eligible for special education services, those who are economically and academically disadvantaged, and those with limited English proficiency; to explain the new methods to school division personnel; to implement the alternative methods; and to evaluate the methods for effectiveness and efficiency.

2. To provide vocational evaluation services to at least 20% of eligible special-needs students. Of the 1200 eligible special education students, 172 were assessed by three evaluators in the 1991-1992 year, using the former model. The goal was to evaluate at least 240 special education students utilizing two vocational evaluators and to evaluate at least 1200 (approximately 20%) of the more than 6,000 identified disadvantaged students.

Achievement of these terminal objectives required the

incremental achievement of major activities or process objectives. A detailed time line was used to organize the implementation of these major activities and is shown in Appendix A.

Process Objectives

1. Critical competitors to comprehensive vocational evaluation were identified and reviewed to determine appropriateness for inclusion in the Norfolk Public Schools program (see Table 4 for comparisons).

2. A survey of secondary special education teachers was conducted to determine their perceptions of the vocational assessment program and the innovations. (See Appendixes K and L for the survey and results.)

3. An experimental group of students from Granby High School, who did not go through the comprehensive vocational valuation process, but who had a curriculum-based assessment or a Phase I assessment, were monitored to determine whether they were admitted to the recommended vocational training programs, and their grades and attendance in vocational courses were monitored as indicators of success in vocational programs. These results were then compared to the same information on a control group of similar students who completed a comprehensive vocational evaluation prior to entering vocational training programs (see Figures 1 and 2).

4. A survey of school-based vocational evaluation centers in Virginia was conducted as one step in the

identification of alternative evaluation strategies (see Appendix C for the survey and Appendix D for results).

5. Vocational evaluation personnel reviewed alternatives to the former method of obtaining vocational assessment data. Through utilization of materials from literature review, site visitations and surveys, they redesigned the Norfolk vocational evaluation model, updating it from the existing 4-day pull-out model, which had been initiated in 1980.

6. Alternative approaches to vocational evaluation were implemented; the comprehensive vocational evaluation component was maintained, but fewer students were found to need such in-depth assessment.

7. Observations were conducted of the vocational resource teachers as they explained the vocational evaluation process and as they interpreted the findings to students, parents, and educators.

8. The results of the various vocational assessment processes and methods were reviewed, revised as needed, and recommendations for changes were made.

9. Staff development activities were conducted to inform vocational resource teachers of the new vocational assessment procedures and to disseminate copies of the newly developed model.

10. Staff development activities were conducted so the vocational evaluators could thoroughly implement all new

procedures.

11. Staff development activities were conducted with administrators, vocational educators, special educators, guidance counselors, school psychologists, and school-based rehabilitation counselors to assure an understanding of new vocational assessment procedures. Role definition related to the new process was stressed.

12. A summary of activities, implementation efforts, and findings were developed into a paper, presentation, and handouts and were presented to vocational evaluators at the Virginia conference, May 1993. Composite results of the statewide evaluation center survey were provided to all sites responding. The project manager will present at the Virginia Vocational Special Needs state conference, August 1993, and at the International Conference of the Council for Exceptional Children, October 1993.

13. A statewide clearinghouse of surplus vocational evaluation equipment was developed.

14. Project activities were conducted, including the collection and analysis of data, regular meetings with school division project committee, and development of progress reports at 6 months intervals.

As indicated in Table 3 (Flowchart of Major Activities) these final results were obtained by progressing through a series of activities.

The time line was modified and followed as the project

developed (see Appendix A), serving as an organizing technique for the practicum manager. It was also used as a counseling tool and control measure by the members of the site-based project committee to assure that the project progressed according to plan.

Limitations

This is a descriptive report of activities conducted in one school system. There is no attempt to claim that results are generalizable, although the model presented could be the basis for improvements in other school districts. There was no random selection or other "experimental" conditions. The researcher was an active participant in the process.

Table 3

A Flowchart of Major Activities Involved in Assessing, Revising, Implementing and Evaluating the Vocational Assessment Process in Norfolk Public Schools

Assessment Phase	Planning and Revision Phase	Implementation Phase	Evaluation Phase
Assess local concerns	Identify a 15 student control group	Continue "Old" method of evaluation	Collect/ compare data
Conduct faculty survey	Develop new activities and strategies	Implement "New" methods and strategies	Recommend "Best" practices to NPS
Survey students	Conduct staff development	Follow-up on Granby HS Group	Write up and present results
Survey division superintendents		Follow-up on control group	Conclude the project
Survey evaluation activities at centers statewide			
Review literature on alternative models of evaluation	Compare the various models	Implement best practices from literature	
Conduct project activities			

Spin-off activities:

1. Disseminate results statewide of survey of Virginia's vocational evaluation centers.
2. Develop statewide clearinghouse of surplus work samples.
3. Disseminate results through conferences.

Chapter 5

Results

Terminal Objective 1 Restated and Expanded

1. To develop alternative methods for conducting vocational assessment of secondary special-needs students, including those eligible for special education services, those who are economically and academically disadvantaged, and those with limited English proficiency; to explain the new methods to school division personnel; to implement the alternative methods; and to evaluate the methods for effectiveness and efficiency.

Terminal Objective 1 Accomplishments

This terminal objective had to be modified from the original project proposal prior to the development and implementation of the new assessment model for two reasons: (a) Norfolk Public Schools was scheduled for federal program monitoring in May, 1993, which included a review of vocational assessment compliance for special populations and the practicum manager was urged to step up efforts and produce a model for assessing all special-needs students, and (b) an interpretation of the federal legislation (Public Law 101-392, 1990) by congressional rulemaking committees indicated that assessment services had to be made available to disadvantaged as well as handicapped students; the VDOE

interpreted this to include all economically disadvantaged (including foster children and teenage mothers), academically disadvantaged, limited-English-proficient, and special education students who were entering a vocational education program. The original plan had focused only upon improving the delivery of services to special education students, which was an insufficient effort on the school division's part, in view of these legislative mandates.

The practicum manager and vocational evaluators worked during the summer months of 1992 reviewing options and developing more innovative methods and procedures for conducting the vocational assessments of handicapped students. Each response to the survey of vocational assessment centers in Virginia (see Appendixes C and D) was studied in an attempt to locate additional best practices being utilized that we might visit. Basically, the findings were that vocational assessment centers across Virginia were using the model that Norfolk had used since 1980, with minor revisions. The major difference found was in the report format. Many divisions had abandoned the free-standing narrative report (six to eight pages) for a checklist reporting format. Two divisions were looking at some short term prescreenings so that only those students who needed comprehensive vocational evaluation were sent to the center.

Many models of assessing handicapped students in other

states were reviewed. Little information was found either in literature review or through telephone contacts with seven area states for vocational assessment of disadvantaged students. Some of the major models reviewed are summarized in Table 4 and were used in planning the new implementation model for Norfolk Public Schools.

Table 4

A Comparison of School-Based Vocational Assessment Models for Use with Handicapped Populations

Location	Number of levels	Aptitude tests	Informal assessment	CBVA	Work samples	SA
Illinois	3	No	Yes	Yes	Yes	Yes
Kentucky	1	Yes	No	No	Yes	Yes
Texas	2	Yes	Yes	Yes	No	No
Pennsylvania	1	No	Yes	Yes	Yes	Yes
Massachusetts	2	No	Yes	Yes	Yes	Yes
Missouri	2	No	Yes	Yes	No	Yes
D.C.	3	No	Yes	Yes	No	Yes
Colorado	3	No	Yes	Yes	No	Yes

Note: CBVA is curriculum-based vocational assessment; SA is situational assessment, which includes work-sites

The Illinois Model (Hayes, Warren, and Lopez-Valdez, 1988) was the most comprehensive assessment model reviewed and came the closest to matching the ideas being planned for design of the Norfolk model of vocational assessment. The Illinois Model was intended as a means to provide services to students from all of the identified special populations: handicapped, limited English proficient, academically disadvantaged, and economically disadvantaged. This model was developed by a group of evaluators and educators for the Illinois State Board of Education. The authors incorporated

little of the traditional comprehensive vocational evaluation process in this model. Rather, it was process-based and focused on collecting data on the student from the programs and classes in which the student would ordinarily be functioning. There was not a "pull-out" (from classes) focus in the Illinois Model. The Kentucky model (Uthe, 1980) was almost an identical match to the former Virginia model; it utilized a traditional work sampling approach to testing vocational potential. This was the comprehensive vocational evaluation model from which Norfolk was attempting to evolve through this project. It focused on the needs of handicapped students and did not mention the other special populations.

The Norfolk model for assessment of handicapped and disadvantaged students integrated many of the components studied from the various states. It featured a multiphase approach rather than the single-stage approach used in the previous assessment model (see Figure 3).

The Pennsylvania model (Minugh and Morse, 1981), developed through the Philadelphia School District, was specifically for handicapped youth, as was the Texas model (Edinburg Consolidated Independent School District, 1979). The Massachusetts model (Stodden, 1980) was based upon the collection of data through work sampling and the traditional rehabilitation model and the integration of curriculum-based data collection methods.

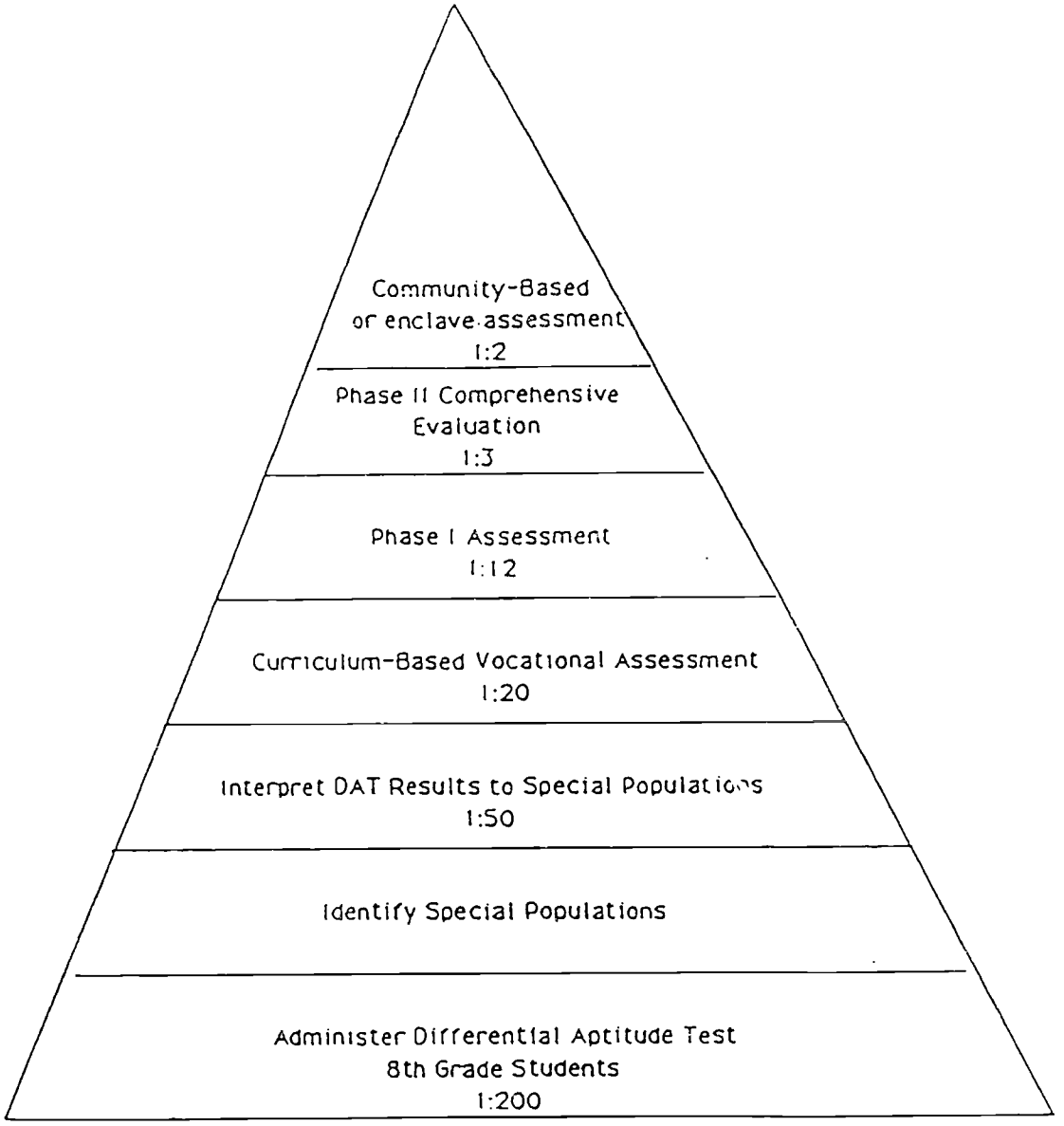

Figure 3. The Norfolk multiphase vocational assessment model.

Note: The numbers represent the evaluator-to-student ratio.

Albright and Cobb (1988(a)) developed a model through a 3-year grant, which was later implemented in Colorado and in Washington, D.C. This model, according to the authors, was a collection of modules dealing "with the rationale of curriculum-based vocational assessment (CBVA) for secondary school students with handicaps" (p. 1). The models that evolved from this work are anticomprehensive vocational evaluation and offered no solutions that utilized work sampling or other traditional evaluation methods. Their works proposed that all previous vocational efforts within the schools be abandoned in favor of collecting data from teachers, from records, and from classroom activities. This model was a radical departure from accepted methodology. It was to the 1989 oral presentations by Albright and Cobb in national forums that the practicum manager had responded with strong verbal opposition on this issue of CBVA.

Only one other model, the one in use in Missouri (Maxam, 1986), specifically identified "assessment of the disadvantaged," (p. 1) so the development of a model of services for that population was left to the creativity of the practicum manager and staff.

In the new multiphase model, assessment begins in the eighth grade with the testing of all students utilizing the Differential Aptitude Test (DAT). As discussed in the manual for Project Vocational Assessment Implementation (Texas Education Agency, 1982), the DAT was selected for

inclusion in the Norfolk multiphase assessment model for a number of reasons. It could be administered either to groups or to individual students. Make-up testing could easily be provided if a student missed 1 or 2 days of the group administration. Administration time was about 4 hours, spread over 3 or 4 school days. Machine scoring was necessary because there was such a large group to be tested, and that was available with the DAT. This paper-and-pencil test measured nine aptitudes including: verbal reasoning, numerical ability, abstract reasoning, clerical speed and accuracy, mechanical reasoning, spatial relations, spelling, language usage, and general mental ability. Use of a separate answer sheet meant that test booklets purchased by NPS could be reused. The DAT lent itself to certain adaptations so that testing could include deaf, physically handicapped, learning disabled, emotionally disabled, and some visually impaired students. It had a sixth-grade reading level, which made it appropriate for the disadvantaged population. The DAT was normed for students in Grades 8-12. This test had previously been administered only to 10th-grade students, but was moved to eighth grade as a result of this project (see Appendix E).

Students who were identified as handicapped or disadvantaged and who demonstrated the need for further assessment beyond the DAT received curriculum-based vocational assessment. If further information was

necessary, students moved through a continuum of services (see Appendix F: Middle School Assessment model and Appendix G: High School Vocational Assessment Model) classified as Phase I and Phase II Assessments in both middle school and high school.

A major component of meeting this terminal objective was development of a means to identify those students in Grades 8-12 who met the definitions provided by VDOE and the Perkins' regulations as disadvantaged, LEP, or handicapped. The project manager had previously developed methods to identify high school handicapped students. However, the new undertaking was much more involved. For example, an easy identifier of economic disadvantage was eligibility for free or reduced-price school lunches. However, other federal legislation had made that information confidential, and the local school district interpreted that to mean that such identification could not be released to any other department within the school division, for any reason.

Two computer programmers from the Department of Management Information Systems (MIS) worked with the project manager to develop an identification system that would not reveal the confidential information mentioned above. The system ran a check of all enrolled students in Grades 8-12. In the first sort those students who were handicapped or LEP were identified. The second sort identified those

students who had been retained for two or more times. The third sort listed students with grade point averages of D or below. The next sort added to the list those students who scored in the lowest quartile on the Literacy Passport Tests, the Iowa Tests of Proficiency, or other standardized tests. The final sort added the names of students on free or reduced-price lunches. However, only a summative list, which includes the names of students from all of the sorts, has been released to the Department of Adult and Vocational Education. Thus, the reason for appearing on the list is unknown to persons outside of MIS.

The identification process revealed that Norfolk Public Schools had a total student enrollment in Grades 8-12, as of February 19, 1993, of 9,871 students. Of these, 6,114 met the criteria as disadvantaged, 1,053 were identified as special education, and 17 students were identified as limited English proficient. It should be noted that LEP students are identified based upon self-identification at the time of enrollment into the school system. The total eligible population to be served by the vocational assessment process was 7,184, which represents 72.8% of the Grades 8-12 enrollment in the school division. The results of the sorting procedure are summarized in Table 5.

Table 5

Identification of Norfolk Special Needs Students

School	Enrollment	Disadv	Handicap	LEP	Percentage
Granby H	1572	1018	152	6	74.8
Lake Taylor H	1456	846	208	-	72.4
Maury H	1611	841	149	7	61.9
Norview H	1589	1036	140	-	74.0
Washington H	1278	881	154	1	81.1
Azalea Gdn M	320	229	43	-	85.0
Blair M	298	145	25	-	57.0
Laf-Winona M	263	178	28	-	78.3
Lake Taylor M	269	141	35	-	65.4
Northside M	365	214	30	-	66.8
Norview M	352	255	34	2	82.7
Rosemont M	262	160	27	1	71.8
Ruffner M	236	170	28	-	83.9
Totals	9871	6120	1053	17	72.8

Source: Norfolk Public Schools, MIS, February 19, 1993

The identification process confirmed the project manager's belief that a large proportion of the students in Norfolk Public Schools would require vocational assessment as required in the Perkins' regulations. The identification process has been established to provide data on an ongoing basis, so that students may be identified and assessed regularly.

Terminal Objective 2 Restated and Expanded

2. To provide vocational evaluation services to at least 20% of eligible special-needs students. Of the 1200 eligible special education students, 172 were assessed by three evaluators in the 1991-1992 year, using the former model. The goal was to evaluate at least 240 special

education students utilizing two vocational evaluators and to evaluate at least 1200 (20%) of the identified disadvantaged students.

Terminal Objective 2 Accomplishments

This objective was expanded from the goal in the project proposal of assessing, through comprehensive vocational evaluation, an additional 20% of handicapped students. The new model of assessment included in-building or Phase I assessments of special-needs students in Grades 9 and 10 and accommodated those handicapped students in Grades 11 and 12 who were not previously evaluated. Whereas one evaluator could work with only three handicapped students per week in the previous model, the Phase I model allowed each evaluator to complete up to 10 student assessments per week (see Appendix H). In addition to this modest objective to increase the number of handicapped students served through this model, all students enrolled in eighth grade (approximately 1,400), including special-needs students who were academically or economically disadvantaged or limited English proficient, were to be assessed for vocational aptitudes using the Differential Aptitude Test. The project manager proposed continuing the DAT administration at 10th grade, as well, for the 1992-1993 and 1993-1994 school years, as an assurance that no group of students would miss being tested.

End-of-year results (complete as of June 18, 1993) showed that 342 vocational evaluations (Phase I and Phase II)

were conducted during the 1992-1993 school term. That compared to the 172 students evaluated during the 1991-1992 term, showing an increase in students evaluated of 50.3%. That increase was despite the loss of one vocational evaluator position and can be attributed to the new innovations. This assessment of 29% of the total special education secondary population exceeded the project goal of assessing 20%. End-of-year data are further analyzed in Appendix I--Population Analysis: Norfolk Public Schools Vocational Evaluation Center.

In addition to the assessment services provided to handicapped students, the DAT was administered to 2058 middle school students and 1333 high school sophomores (see Appendix J--Differential Aptitude Test Summary). The total number of students assessed with the DAT was 3391; of that number, 2509 were special-needs students who had been identified using the MIS procedures. That meant that 74% of those students taking the DAT were special-needs students. The assessment of these 2509 disadvantaged students far exceeded the goal, which was to assess 1200 disadvantaged students (20%).

Of the 9871 students enrolled in Grades 8-12 in NPS, 3733 were vocationally assessed during the 1992-1993 school year. That reflects that 37.8% of the student enrollment was assessed.

Process Objective 1 Restated

1. Critical competitors to comprehensive vocational

evaluation were identified and reviewed to determine appropriateness for inclusion in the Norfolk Public Schools program (see Table 4).

Process Objective 1 Accomplishments

Critical competitors, which were identified from the review of literature, included methods that were both formal and informal. Some formal assessment techniques included pencil-and-paper aptitude testing, psychometric testing, and work-site-based measures related to task analysis. Some informal assessment techniques included observations by career counselors, specific classes developed for career exploration with documentation of abilities by the teacher, observations by vocational evaluators of students in regular vocational classes, records review for a portfolio-style assessment of student's abilities, and curriculum-based vocational assessment whereby each teacher submitted information on the student's performance in class and an evaluator drew relevant vocational conclusions. Each of these critical competitors received consideration in the development of the Norfolk vocational assessment model.

Process Objective 2 Restated

2. A survey of secondary special education teachers was conducted to determine their perceptions of the vocational assessment program and the innovations (see Appendixes K and L for the survey and results).

Process Objective 2 Accomplishments

The initial project proposal suggested that a survey of special education students would be conducted to determine why students refuse to attend Madison Career Center for vocational evaluation. After talking with guidance counselors, school psychologists, and special education teachers, it was determined that a formal survey of special education students would not be conducted. Students do not like to be identified, the project manager was told, and response to a formal instrument was predicted to be quite low if students found out that only special education students were being surveyed. Instead, special education students were interviewed as part of the Phase I evaluation process during January and February 1993, in each of the five high schools. Students reported a favorable perception of in-building vocational assessment. Most of the students in mainstreamed or co-teaching classes continued to refuse a comprehensive vocational evaluation at Madison Career Center, even when they were told that it would provide useful information that would help them get into higher level vocational classes.

A formal survey was conducted with high school special education teachers (see Appendixes K and L). A total of 64 surveys were distributed with a return rate of 53%. The survey and the tally of responses confirmed the practicum manager's belief that the new model must offer an array of options for the collection of vocational assessment data. Of

those responding, 90% concurred that special education students needed more than pencil-and-paper testing. Familiarity with the 4-day comprehensive vocational evaluation was reported by 93% of those responding, which was a disappointment after the intensive efforts of the introductory practicum (Feldt, 1992). Only 30% of respondents had visited the evaluation center at Madison, 43% felt that the evaluation took too long, and only 50% reported that their students could afford to miss 3 or 4 days from classes in order to be evaluated.

The practicum manager looked at utilization of the results of the vocational evaluation based upon the survey data. Although 90% of teachers reported that they used the vocational evaluation results when developing the student's transition plan, only 10% reported that they had ever included the vocational evaluator in the development of that plan or the Individualized Education Plan (IEP). Eighty-three percent of the teachers responding reported that they read the entire vocational evaluation report, not just the recommendations.

The overall results of the survey may be skewed somewhat because the respondents did not equally represent all areas of instruction within special education. The data are analyzed to illustrate which groups of teachers responded, by school (see Tables 6 and 7). However, the interpretations of the data expressed above were based on the composite of responses, not on a per school basis.

Table 6

Representativeness of the Response Group to Survey of High School Special Education Teachers

School Code	Surveyed N	Returns N	Returns %	Subject Taught by Respondent ED	EMR	LD-SC	LD	HI	TMR	BD	MH	SPH
01	10	4	40	2			2					
02	12	8	67	2		1	4					1
03	11	9	82	2	2	1	4					
04	13	4	31	1			3					
05	18	9	50	2			2	1	2		1	1
TOTALS	64	34	53	9	2	2	15	1	2		1	2

Table 7

Response Rate by School and by Subject Taught

School Code	Response Rate	Subject Taught ED	EMR	LD-SC	LD	HI	TMR	BD	SPH
01	40%	100%	0	0	33%				
02	67%	100%	0	100%	67%			0	100%
03	82%	100%	100%	100%	67%				
04	30%	50%	0	0	43%			0	
05	50%	100%	0	0	40%	100%	50%	100%	100%

Process Objective 3 Restated

3. An experimental group of students from Granby High School, who did not go through the comprehensive vocational evaluation process, but who had a curriculum-based assessment or a Phase I assessment, were monitored to determine whether they were admitted to the recommended vocational training programs, and their grades and attendance in vocational courses were monitored as indicators of success in vocational programs. These results were then compared to the same information on a control group of similar students who had

completed a comprehensive vocational evaluation prior to entering vocational training programs (see Figures 1 and 2).

Process Objective 3 Accomplishments

After 15 students at Granby High School were assessed using the Phase I (records review) and curriculum-based vocational assessment components of the new model, another group of students with the same handicapping condition and similar special education program placements was selected from among those students who received comprehensive vocational evaluations during the 1991-1992 school term. The identities of the 15 students in the experimental group and the 15 students in the control group were made known to the vocational resource teachers at the home schools, but they had no way of knowing which group the students fell into, only that follow-up data were requested. Follow-up data were collected to illustrate vocational enrollments of these students.

As shown in Figures 1 and 2, those students completing a center-based vocational evaluation were much more likely to be recommended for higher level vocational courses such as the programs offered at Norfolk Technical Vocational Center (NTVC) than students receiving a Phase I assessment. Eighty percent of the control group were recommended for NTVC compared to 66.6% of the experimental group. On the other hand, none of the students who received Phase II comprehensive vocational evaluations were recommended for vocational training programs

within the home school, but 6.7% of the experimental group were. Students in the control group were able to tour Madison Career Center (MCC) while there for evaluation, resulting in 13.3% of them being recommended for training at that site. No students from the experimental group were recommended for MCC.

When outcomes were compared at the end of the 1992-1993 school term, it was noted that 13.3% of the students in each of the groups dropped out during the school year and 6.7% of each group moved out of the school district, resulting in a loss of 20% of the experimental and control group populations. Of the control group 80% had been recommended to attend NTVC, but only 33.3% had done so. Of the experimental group 66.6% had been recommended for NTVC, but only 20% attended. The outcome that was observed but had not been recommended was that so many students had remained in their home schools for vocational training (control group 40%; experimental group 13.3%) and that 33.4% of students in the experimental group were taking academic classes only, with no vocational program enrollment, as a result of having failed one or more classes during the previous year.

Success in the vocational programs was demonstrated by students' grades in vocational classes and students' attendance. The experimental group fared better (see Table 8).

Table 8

Comparison of Attendance and Grades in Vocational Programs for Students in the Control and Experimental Groups

	Control	Experimental
Passing vocational program	7	4
Failing vocational program	4	0
Average days absent	16	10

Process Objective 4 Restated

4. A survey of school-based vocational evaluation centers in Virginia was conducted as one step in the identification of alternative evaluation strategies (see Appendix C for the survey and Appendix D for results).

Process Objective 4 Accomplishments

Mailings were sent to the superintendents of all school divisions in Virginia, asking for the identification and address of the vocational evaluators for their district. Responses were received from 100% of the districts' superintendents. Formal surveys were then mailed to the identified evaluators (see Appendix C). The responses were tallied (see Appendix D) and shared with evaluators across Virginia in October, 1992, at a statewide workshop held in Spotsylvania County, Virginia.

Evaluators in 13 centers responded to the survey.

The average number of evaluators was two per center; 10 of the centers had secretarial support for report preparation. Eleven of the centers responding reported that they developed their reporting format based upon the original reports used in Virginia (prior to 1980). Productivity was reported at between 75 and 100 students per evaluator per year. The methods of assessment and procedures reported by the 13 centers responding were described as those in use in NPS before the implementation of the project interventions. No alternative methods of assessment were identified through the survey.

Process Objective 5 Restated

5. Vocational evaluation personnel reviewed alternatives to the former method of obtaining vocational assessment data. Through use of materials from the literature review, site visitations and surveys, the evaluators and program manager redesigned the Norfolk vocational evaluation model, updating it from the existing 4-day pull-out model, which had been initiated in 1980.

Process Objective 5 Accomplishments

This objective was accomplished, but required hundreds of manhours, some of which required the evaluators to work during their noncontract months. Efforts are summarized above in the literature review and in the description of accomplishment of the first terminal objective. The result was the development

of the Norfolk Multiphase Vocational Assessment Model, illustrated in Figure 3.

Process Objective 6 Restated

6. Alternative approaches to vocational evaluation were implemented; the comprehensive vocational evaluation component was maintained, but fewer students were found to need such in-depth assessment.

Process Objective 6 Accomplishments

This objective was accomplished as stated. The impact of the interventions on the assessment of special-needs students was described above in the accomplishments of Terminal Objectives 1 and 2. The comprehensive evaluation process became the Phase II component of the Norfolk Multiphase Vocational Assessment model. It was kept available for students who needed further exploration and for those whose handicapping conditions required reasonable accommodations in the training or work site. However, it was used for fewer students; as shown in Appendix I, 111 students completed comprehensive or Phase II assessments in 1992-1993, compared to 172 the previous year.

Process Objective 7 Restated

7. Observations were conducted of the vocational resource teachers as they explained the vocational evaluation process and as they interpreted the findings to students, parents, and special educators.

Process Objective 7 Accomplishments

The practicum manager observed the vocational resource teachers at all five high schools in meetings with students and in meetings with students, parents, and special education teachers (and even community agency representatives). They have all demonstrated the ability to interpret findings in terms of courses to be scheduled, IEP modifications to be developed, and reasonable accommodations to be expected. No deficits have been documented in any case.

Process Objective 8 Restated

8. The results of the various vocational assessment processes and methods were reviewed, revised as needed, and recommendations for changes have been made.

Process Objective 8 Accomplishments

This objective was one of the last ones to be completed. Evaluators had an unencumbered week at the end of the school year to collect and analyze student population data and to create plans for the 1993-1994 school year. They were offered an open forum to express their reactions to the interventions and to list praises or criticisms. Each component of the new multiphase assessment model was examined separately in an effort to develop revisions.

The one overwhelming concern was that there was not sufficient time to meet all the demands being placed upon the vocational evaluators. The less experienced evaluator ended the school year with 40 unwritten reports on the students she

had assessed. Time management and organization need to be stressed as operational tools for this individual during the next year.

In addition, arrangements have been completed in conjunction with computer programmers from MIS to put all vocational assessment reporting on the school division mainframe network, known as the Student Information System (SIS). This will alleviate the need for written reports on most students by providing instant access to a checklist of the recommendation options. The computer screen designed for the SIS Vocational Assessment report is shown in Appendix Q. Hardware has been requested, training has been scheduled, and funds have been requested to pay staff to be trained to work on the SIS over the summer (August 1993). This effort should make results of the vocational evaluations more accessible by counselors and teachers as they work with students. It will also be available to the principals at NTVC and MCC and will help them to admit students based upon the results of the vocational assessments. Differential Aptitude Test (DAT) results have been placed on the system for students tested during 1992-1993, because it is available from the scoring service on magnetic tape. Input of all other assessment results will be manual and time consuming, but has been planned as part of the schedule for 1993-1994. The DAT will be administered to both 8th- and 10th-grade students again in 1993-1994, but will be completed earlier in the school year.

Plans were made to share the burden of visiting all middle school classes to interpret the results of these tests. Three other central office vocational educators have been proposed to share this responsibility with the project manager for the 1993-1994 year. A method of follow-up will have to be devised for those students who miss taking the DAT or whose results are invalid or missing. This will be addressed in meetings with guidance counselors during September 1993.

Phase I assessments will continue next year as structured. The evaluators suggested that they be assigned to specific schools rather than each of them rotating through the five high schools as they did in 1992-1993. This will be discussed further, but the project manager hesitates to make such assignments because familiarity with teachers and students may have an effect on the evaluator's objectivity in making student recommendations.

The curriculum-based vocational assessment component (CBVA) will also continue in use because it was reportedly helpful. High school vocational teachers commented to the project manager that they wanted to be asked for input on students' performance in their vocational classes, which was considered positive compared to the previous complaints from the middle school vocational teachers. A CBVA teacher questionnaire was piloted, reviewed, revised, and redistributed as part of the project interventions (see Appendix R) which will be utilized during 1993-1994.

Comprehensive evaluation or Phase II assessments will also be offered without change during the next school term, with the exception of the computerized SIS student reports rather than formal, written narrative reports.

The evaluators were most enthusiastic about the innovations tried during 1992-1993 related to the community-based and enclave site-based assessments of certain students. They accompanied students to area hospitals, department stores, and other business sites and documented work behaviors and skills in those environments. Although time-consuming, it was recommended that this method be continued for students in the community placements.

The evaluators recommended the development of a carbon-pack form to allow them to provide immediate feedback to the home schools on certain medical needs (e.g., eye examination or doctor's release for vocational education) and for other special needs such as counseling or crisis intervention. They expressed concern that, when reports are put into SIS rather than mailed back to the referral sources, these needs may go unnoticed and unmet. They have developed a draft of such a document and will prepare it for printing in September 1993.

Process Objective 9 Restated

9. Staff development activities were conducted to inform vocational resource teachers of the new vocational assessment procedures and to disseminate copies of the newly

developed model.

Process Objective 9 Accomplishments

Staff development activities were conducted during the city-wide staff development day in October 1992. Resource teachers received copies of the new model of assessment (see Figure 3 and Appendixes F, G, and H) along with an explanation of each component. At the regularly scheduled monthly departmental meetings held by the project manager, updates were provided and questions were answered.

In one meeting, for example, resource teachers asked why they were asked to photocopy materials from student's confidential files and send them to the vocational evaluators, for those students who were scheduled to have a Phase II assessment. This had been the requirement since 1980. However, in view of the new interventions, which put the vocational evaluators in the school houses 2 or 3 weeks out of each month, it seemed reasonable that they could review records on those students who required further assessment. This eliminated the photocopying task for the vocational resource teachers. As described in Process Objective 7, above, no deficits were observed in the resource teachers' understanding of the vocational assessment process or their interpretations of the results to other school personnel.

The support of the vocational resource teachers is evident in the year-end results, because they scheduled the evaluators to be in their schools, referred students, and

coordinated collection of CBVA data for those students assessed. They will continue to serve these roles in 1993-1994.

Process Objective 10 Restated

10. Staff development activities were conducted so the vocational evaluators could thoroughly implement all new procedures.

Process Objective 10 Accomplishments

The two evaluators on staff worked additional weeks during July and August 1992, to review existing models and to develop plans for the new assessment model, and in August 1993 to revise the handbook and develop staff development plans for guidance counselors and vocational department chairmen. They met weekly with the practicum manager to plan, to develop the new model, to meet with other staff, to devise implementation strategies, to develop a shorter vocational evaluation report, to redesign the brochure used by the school system to explain vocational assessment services to parents and the public (see Appendix M), and to begin writing a new operations manual.

The practicum manager arranged staff development activities on an individual and group basis for the evaluators and provided individual observations and follow-up. There was disagreement on the steps evaluators should take when completing a Phase I (records review/interview) assessment at the home schools. The practicum manager and evaluators collaborated to develop a workable procedure (see Appendix N),

which all agreed to follow when conducting Phase I assessments. The evaluators attended two state conferences on vocational assessment of special populations, Spotsylvania County, Virginia in October 1992 and Henrico County, Virginia in February 1993. In addition, they attended the national Issues Forum of the Vocational Evaluation and Work Adjustment Association, May 1993, in Virginia Beach. This was the first time that more than one staff development activity per year has been approved for the vocational evaluators.

The practicum manager initially reviewed all vocational evaluation reports that were completed using the new assessment model. Finding only minor corrections, this process was limited to the review of a monthly sampling of reports.

Because the project manager and the vocational evaluators have not previously worked on the SIS system, additional training has been scheduled for August 1993. Once the staff have been trained they will be given access codes, allowing them to input data on students into the system.

Process Objective 11 Restated

11. Staff development activities were conducted with administrators, vocational educators, special educators, guidance counselors, school psychologists, and school-based rehabilitation counselors to assure an understanding of new vocational assessment procedures. Role definition related to the new process was stressed.

Process Objective 11 Accomplishments

Staff development activities had been planned as formal activities, scheduled with groups of school division personnel. That could not be arranged because the activities had not been scheduled and approved prior to May 1992, when the schedule for the 1992-1993 year was sent out. However, the project manager was able to meet in small groups with building level administrators, special education administrators, vocational education administrators, and school psychologists. Two staff development activities were conducted with high school guidance counselors, one of which they sponsored and invited the practicum manager and her supervisor to lunch.

Middle school guidance counselors received group instruction on administration of the Differential Aptitude Tests to eighth graders and on scheduling the practicum manager to meet with the students in order to provide interpretation of the results. The students were tested in December 1992, and test results were returned in January 1993. Middle school guidance counselors were notified to contact the practicum manager before distributing test results (see Appendix O). Each counselor had developed an interpretation method that was best suited to their school and students' schedules, and the project manager scheduled all visits according to those requests (see Appendix P).

The practicum manager provided to small groups of middle

school students an explanation of the DAT Student Profile Sheet, which was returned to the school after scoring by The Psychological Corporation, and provided a copy for the student to take home, with the original going into the students' cumulative school files. Middle school counselors attended these interpretation sessions so they could understand the interpretation given to students and so that they might conduct them for their students as needed.

A meeting was held in November 1992, under the direction of the Coordinator of School Psychologists with NPS, for the project manager to explain the multiphase assessment model to the secondary school psychologists and to the school case load counselors from the Virginia Department of Rehabilitative Services. Some technical questions related to the testing of concrete thinkers with abstract methods, and the project manager addressed them based upon readings from the literature review. School psychologists were asked to document academic performance levels on each student they evaluate as this information is essential in making vocational predictions. They agreed to include collection of this information in their testing procedures. The psychologists and the project manager will meet in 1993-1994 to discuss the sharing of information and the possibility of adding the vocational assessment as a component of each secondary student's triennial evaluation.

Process Objective 12 Restated

12. A summary of activities, implementation efforts, and

findings were developed into a paper, presentation, and handouts and were presented to vocational evaluators at the Virginia conference, May 1993. Composite results of the statewide evaluation center survey were provided to all sites responding. The project manager presented at the Virginia Vocational Special Needs state conference, August 1993 and will speak at both the International Conference of the Council on Learning Disabilities, October 8, 1993, and the International Conference of the Council for Exceptional Children, October 15, 1993.

Process Objective 12 Accomplishments

Handouts were developed as the multiphase vocational assessment model was implemented. As findings were determined and outcomes documented, a formal presentation was readied. The practicum manager has also been asked to submit a proposal to present at the Seventh Forum on Issues in Vocational Evaluation and Work Adjustment to be held in March 1994 and was selected to present at the International Conference of the Council for Exceptional Children and at the International Conference of the Council for Learning Disabilities. In addition, she has been asked to prepare journal articles for the Journal for Vocational Special Needs Education and The Vocational Evaluation and Work Adjustment Association (VEWAA) Bulletin.

Results of the statewide survey of school-based vocational evaluators (see Appendix D) were compiled, copied,

and distributed in October 1992, at the VEWAA Regional Workshop conducted in Spotsylvania, Virginia. Additional copies were made available at the spring regional workshop conducted in Henrico County, Virginia in February.

Process Objective 13 Restated

13. A statewide clearinghouse of surplus vocational evaluation equipment was developed.

Process Objective 13 Accomplishments

When this project was initiated, much support was provided by evaluators in school-based facilities for the development of a statewide clearinghouse of surplus vocational evaluation equipment. Indeed, the results of the survey of vocational evaluators in Virginia (see Appendix D) revealed that most facilities had work samples or other commercially developed evaluation systems that were not being utilized. Many expressed an interest in selling or trading these items; others were uncertain whether these items could leave the school district because they were purchased with restricted funds. The results of the survey, including listing of surplus materials was distributed to assessment centers in Virginia.

However, after researching the various models and redesigning the assessment model for Norfolk, it became apparent that the trend in school-based assessment must be away from pull-out testing and exploration, in favor of less intrusive methods, like those implemented in the NPS model.

The practicum manager initiated plans to share the surplus work samples with occupational exploration classes for middle school students for use as a training rather than testing station. Those work samples that were normed on mentally retarded students were placed in the sheltered workshop and the classes for trainable mentally retarded students, again as a training tool, such as the development of work speed, improvement of tool usage, and for work hardening.

Process Objective 14 Restated

14. Project activities were conducted, including the collection and analysis of data, regular meetings with school division project committee, and development of progress reports at 6-month intervals.

Process Objective 14 Accomplishments

Throughout the period March 1992, until completion of the activities related to the terminal and process objectives, the project manager followed the structure provided in the time line. This and the maintenance of a journal of activities served as guides and as motivators to keep the project moving forward. Interim reports were developed in draft form and were reviewed in individual conferences with each of the three members of the local project committee. Concerns and changes expressed during those conferences were reflected in the interim reports before they were submitted to the university committee. The project activities were concluded in July 1993, but some areas related to the project will continue into

the next school term.

Summary of Results Related to Terminal Objectives

This project was conducted to fulfill two terminal objectives. These were met through the accomplishment of 14 process objectives. Evidence of successful completion is provided in Table 9 and Table 10.

1. To develop alternative methods for conducting vocational assessment of secondary special-needs students, including those eligible for special education services, those who are economically and academically disadvantaged, and those with limited English proficiency; to explain the new methods to school division personnel; to implement the alternative methods; and to evaluate the methods for effectiveness and efficiency.

Table 9

Evidence of Completion of Terminal Objective 1

Activity	Outcome
Reviewed literature	Developed listing of potential methods and other working models (best practices).
Surveyed other Virginia school districts	Identified gap between best practices and state's vocational evaluation model.
Surveyed special educators	Identified concerns and student needs.
Developed method of identifying special-needs students	Developed listing by school, in alphabetical order of handicapped, disadvantaged, and limited English proficient students; used as a guide to develop schedule and new model.
Developed multiphase vocational assessment model	See Appendix F, Appendix G, and Figure 3; held staff development for guidance counselors, vocational evaluators, vocational resource teachers, school psychologists, and administrators.
Monitored progress of control group and experimental group	No major difference in student outcomes regardless of method of vocational assessment.

2. To provide vocational evaluation services to at least 20% of eligible special education students. Of the 1200 eligible special education students, 172 were assessed by three evaluators in the 1991-1992 year using the former model. The goal was to evaluate at least 240 special education students by two vocational evaluators and to evaluate at least 1200 (20%) of the identified disadvantaged students.

Table 10

Evidence of Completion of Terminal Objective 2

Activity	Outcome
Conducted Phase I assessments of special education students	Evaluated 231 students
Conducted Phase II assessments of special education students	Evaluated 111 students
Total special education students evaluated	342
Conducted Differential Aptitude Testing with all eighth graders	Evaluated 2058 students
Conducted Differential Aptitude Testing with all 10th graders	Evaluated 1333 students
Total students receiving DAT	3391
Identified disadvantaged students taking DAT	Evaluated 2359 students
Identified limited-English proficient-students taking DAT	Evaluated 6 students
Total disadvantaged students receiving DAT	2365

Data Analysis Procedures

The data from the surveys were analyzed based upon percentages of responses to various queries. Student anecdotal responses from the interviews were analyzed in narrative format. Data on student identification were provided by the Management Information Systems (MIS) office of the school division, based upon information in their data base.

The MIS personnel cross-tabulated information on students

to develop an identification of students who met the federal and state definitions of special populations. They compared students to eligibility criteria and presented a list by school, in alphabetical order by grade level, based upon a check of students' grade-point averages, handicapping conditions, test scores (to determine those performing in the lowest quartile), limited-English-proficiency identification, and free or reduced-price lunch eligibility. This identification of students was invaluable in attempting to meet the criteria set down in the legislation (Public Law 101-392, 1990).

Data have been analyzed to determine the numbers of special education students who were evaluated and the number that enrolled in vocational education classes. This analysis showed that special-needs students were not excluded from enrollment in vocational classes. In fact, the overall enrollment of special needs students in vocational education courses was very high; certain vocational classes showed an enrollment of 98% disadvantaged students. The analysis demonstrated that efforts needed to be focused on providing assessment to larger numbers of students and especially on providing assessment to disadvantaged students. This population was shown to be severely underserved in the previous model, but well addressed by the multiphase assessment model.

Results of Strategy Activities

The solution strategies appear to have been appropriate and have been most effective in improving the delivery of vocational assessment services to special-needs students in Norfolk Public Schools. The need was to develop and implement a new model of vocational assessment in order to allow more handicapped students access and to provide the same opportunities to disadvantaged students. This has been accomplished, terminal objectives have not only been met, but exceeded, and the process objectives were completed as stated.

Discussion

In conducting these project activities, including the review of vocational assessment methods in other states, the project manager met and interviewed almost a dozen of the acknowledged leaders in the field of vocational evaluation. Each of them offered support, information on their efforts, articles or texts of procedures manuals, and a request for the results of the innovations being implemented in Norfolk. Their encouragement for the project manager to use proven methods in conjunction with new strategies was motivating and reassuring.

The project manager has already been invited to present the project results on October 8, 1993, at an international conference in Baltimore, Maryland and at a national conference in Albuquerque, New Mexico, on October 15, 1993. Dissemination is being facilitated by these other

professionals who see the project innovations as timely and in demand.

Results of the statewide survey of vocational evaluation centers conducted through this project and a review of the literature supported Nolte's (1989) assertion that the scope of vocational assessments in schools varied from state to state, with lack of standardization due to nonspecific federal requirements. However, an alarming amount of standardization within the state was discovered.

The school-based vocational evaluations had not been developed based upon the local environment or student needs, but appeared to be duplicates of the rehabilitation model developed in Virginia in the 1970s.

Development of the multiphase vocational assessment model was the result of accepting Cobb and Larkin's (1985) proposal "to eliminate the term vocational evaluation as it pertains to the entire range of assessment activities associated with screening, placement, and program planning and monitoring for an individual child," maintaining that we should "assess individuals and evaluate programs" (p. 3). They had maintained that the rehabilitation model of assessment did not adapt well to the educational environment because it attempted to make predictions about employment suitability, but not about curricular options, and this was found to be the case in Norfolk Public Schools. Report formats were revised, deleting recommendations for specific job placements and job codes.

Instead course codes were substituted in the recommendations. Ancillary and medical services were retained in the recommendations section for those students who require support and individualization of instruction.

The staff embraced the concepts put forth by Emery (1984) that the emphasis for providing assessment services in the school setting had shifted to career development and placement in vocational programs, rather than on placement into employment. The emphasis in the multiphase assessment model developed through this project is on student career development and attempts to identify what students can learn while in the educational setting.

The new multiphase model of vocational assessment easily resulted in the assessment of larger numbers of handicapped students; in fact, the increase was 55.5% over the previous year, despite the loss of one vocational evaluator. In addition, 2509 disadvantaged, handicapped, and limited-English-proficient students received vocational assessments using a pencil-and-paper method, the DAT. This population had not been previously served through the vocational assessment program.

Perhaps the most revealing aspects of this project were the student outcomes based upon tracking of a control group and an experimental group of students. Regardless of the method of assessment, the majority of students were recommended for occupational programs at Norfolk Technical

Vocational Center or NTVC (80% and 66.6%). However, only about one-third of students recommended for enrollment at NTVC actually took classes there.

In addition, vocational assessment methods, including vocational guidance, and the availability of work-relevant recommendations did not seem to have a measurable effect upon the drop-out rate of handicapped students. Both the control group and the experimental group lost 13.3% of students who dropped out during the course of this study.

A major contrast was that students who completed a vocational assessment using the new innovations were more likely to be recommended for vocational education options within their home schools (6.7% compared to 0% in control group) and were more likely to followup by enrolling in the recommended classes.

A surprising outcome of this project was the amount of success experienced on the lowest level of vocational assessment, the Differential Aptitude Test (DAT), by students who were disadvantaged, limited English proficient or handicapped. Approximately 30 students per school did not receive recommendations on the DAT, but most of these were due to the student's absence for one or more days of the testing and certain information thus being missing. However, the vast majority of students received recommendations that can be used to plan high school programs of study, including occupational courses.

An unexpected outcome that helped in the rapid implementation of the eighth-grade testing component of the model was the willingness of guidance and testing personnel to add the Differential Aptitude Test at the middle school level and to pay for the cost of testing and scoring. The guidance counselors were eager to assist in the administration of the tests, to be trained in interpreting the test score profiles, and to collaborate with the vocational evaluators about the needs of specific students. The high level of cooperation and collaboration between departments on behalf of the students had not been anticipated by the project manager.

Conclusions and Recommendations

Consideration should be given to continuing the multiphase model of vocational assessment, as implemented and refined, as the means of vocationally assessing NPS students. However, three areas are recommended for further study and possible change.

First, other methods of interpreting the results of the Differential Aptitude Tests to students should be devised. The practicum manager met with 2058 students to explain the test and to interpret the results. This was extremely time consuming. Large group methods were shown to be least effective in disseminating this information. Because the practicum manager has other work and supervision responsibilities, it is doubtful that this amount of time can be devoted to DAT interpretation in the future.

Secondly, a means should be developed to assure that students whose DAT results were inconclusive or incomplete have the opportunity to complete other vocational assessment activities in the ninth grade. The project manager developed a journal of those students whose results were questionable or who did not complete the DAT. However, the manual tracking of students from middle school to high school will require numerous additional hours, and then follow-up with the student and guidance counselor will be needed. The project manager will review the possibility of adding the need for further assessment onto the student's data screen in the Student Information System (SIS) component of the Management Information System.

Finally, an area for further exploration is the inclusion of the vocational assessment as a component of the triennial special education assessment. The Triennial Integration Model discussed by Levinson (1989) would assure that all special education students received a vocational assessment. This idea seems to have merit and will provide ongoing assessment of handicapped students in middle school and high school. Such updated results will assist special educators in complying with their regulations to provide transition services to handicapped students. The practicum manager will meet with the director of special educational services and department staff to develop methods of accomplishing this goal.

A spin-off activity was the development of a statewide clearinghouse of surplus vocational evaluation materials and equipment. This may be of help to smaller school divisions who are attempting to conduct vocational assessments and to other divisions facing budgetary restrictions.

The public relations and promotion aspect of this project needs emphasis in the upcoming year. Efforts should be directed toward informing individuals both internal and external to Norfolk Public Schools of the multiphase model and of the benefits for students of offering several options in the vocational assessment arena.

This project has resulted in the development and successful implementation of a new model of vocational assessment, which provides multiple options for handicapped students and which includes options for students in other special populations. In addition, it resulted in the development of a computerized system for identifying special-needs students and uses the mainframe network to provide systemwide access to each student's vocational assessment recommendations, as previously requested by counselors and administrators.

This practicum has shown that a school division can improve student assessment services, even with limited resources. The project's initial success and recorded gains were due to cooperation and collaboration between departments, a willingness of the staff to experiment with new methods, the

support of administrators across the school division, and input from experts in the field across the country.

In this process, Norfolk Public Schools has realized an increase of students vocationally assessed from 172 (1991-1992) to 2,400 students in 1992-1993. This was accomplished by better utilizing the existing staff and student records that were already available. The only increased cost was $5.00 per student for scoring of the Differential Aptitude Tests. The new procedures implemented as part of the multiphase model are in place for 1993-1994. The eighth-grade administration of the DAT is scheduled for October, 1993. Staff efforts are being directed toward additional paperwork reduction by recording student outcomes and recommendations on the systemwide computer network. That innovation will revolutionize the way results of the assessments are utilized within school divisions.

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Appendixes

Appendix A

Revised Project Time Line

ACTIVITY	PROJECTED DATE	ACTUAL DATE
Meet with vocational evaluators to discuss innovation	2/15/92	3/2/92
Meet with vocational resource teachers to discuss innovation	2/15/92	3/11/92
Meet with special education coordinator to discuss innovation	3/3/92	3/11/92
Mail postcards to all school division superintendents in VA	June 1992	3/13/92
Meet with vocational evaluators to review literature for other innovative approaches to vocational student assessment	July and August 1992	7/28/92 through 7/31/92
Each evaluator will develop a specific method, concept, or strategy as a result of the review of other methods in VA localities, literature, local labor market needs, and a sampling of student records	July and August 1992	7/28/92 through 7/31/92
Establish a control group of LD students who completed a voc. evaluation and who will enter vocational training in 1992-93	July and August 1992	7/28/92
Conduct surveys of all school-based vocational evaluation centers in Virginia	July 1992	March through May 1992
Develop monitoring mechanism for group of 15 students from Granby HS who did not have comprehensive vocational evaluation and the control group	August & September 1992	August 1992
Develop survey to be used with special education faculty	August 1992	August 1992
Develop survey to be used with secondary special education students	August 1992	August 1992

Conduct survey of secondary special education teachers	September 1992	October 1992
Conduct interviews of special education students	September 1992	March 1993
Consult with vocational evaluators throughout VA on results of survey and proposed innovations	October 1992	October 1992
Meet with vocational evaluators to discuss the statewide input	October 1992	October 1992
Develop and implement the innovations	October 1992	August and September 1992
Conduct inservice activity for special vocational programs staff on new methods, activities, strategies for implementation	October 1992	October 1992
Conduct evaluation of the above inservice activity using a formal evaluation instrument	October 1992	October 1992
Conduct inservice training on new innovations in vocational evaluation with administrators, special educators, vocational educators, vocational resource teachers, and guidance counselors	October 1992	Small groups throughout 1992-1993
Conduct vocational evaluations using both the innovations and the previous comprehensive techniques	November 1992	September 1992
Collaborate with coordinator of special education to determine methods for evaluating the innovations in conjunction with special education teachers	November 1992	November 1992
Continuously identify and develop methods for the evaluation of results of the new innovations	November through June 1993	June 1993

Develop method of identifying special needs students in grades eight through twelve	February 1993	February 1993
Develop assessment screen for the Student Information System (SIS)	December 1992	March 1993
Administer Differential Aptitude Tests to Eighth Graders Citywide	December 1992	December 1992
Interpret results of Differential Aptitude Testing with students at all middle schools	February through May 1993	January - May 1993
Monitor progress in vocational programs of Granby HS students and students in the control group	1992-93 and 1993-94	September through June 1993
Establish committee to conduct follow-up interviews with students and faculty on new methods of vocational evaluation	April 1993	March 1993
Collect and review data on the innovations	May 1993	May 1993
Meet with VA evaluators at state conference and present report on efforts and findings to date	May 1993	April 1993
Provide forum for oral and written feedback from other area evaluators on the presentation	May 1993	April 1993
Meet with NPS evaluators to review, revise and document first year efforts and develop plans for next school year	May - June 1993	June 1993
Review feedback and include in development of final model	July 1993	July 1993
Develop a written model of Vocational Evaluation Services in Norfolk, VA	April - July 1993	April 1993

Disseminate model through staff development sessions with vocational educators, vocational resource teachers, special educators, guidance counselors, and administrators	April and May 1993	April and May 1993
Develop statewide clearinghouse of surplus evaluation materials	June 1993	July 1993
Develop final presentation for statewide conference on the results of the innovations and the new Norfolk model of vocational evaluation	July 1993	July 1993

Appendix B

Norfolk Public Schools

1991-1992 Special Education

High School Enrollments

According to Age and Exceptionality

AGE	14	15	16	17	18	19	20	21
Educable Mentally Retarded	20	28	35	22	9	11	5	1
Trainable Mentally Retarded	8	4	6	4	6	7	14	8
Learning Disabled	176	140	148	126	90	36	8	1
Emotionally Disturbed	40	40	24	26	13	8	5	0
Visually Impaired	1	6	0	0	2	0	0	0
Hearing Impaired	3	4	2	7	3	0	0	0
Speech/ Language	11	4	5	3	1	1	0	0
Multiply Handicapped	3	4	3	2	1	1	0	0
Orthopedic Impaired	1	0	4	1	0	0	0	0
Other Health Impaired	1	1	1	2	4	1	0	0
Severe/ Profound Handicapped	8	2	3	8	7	6	6	4

Appendix C

Survey of Other Vocational Evaluation Programs in School Divisions in Virginia

Dear Vocational Evaluator:

I am conducting research on the methods and processes being used across the state for completing vocational evaluations of special education students in school-based settings. As you are probably aware, I have been involved in the vocational evaluation of special populations in Virginia since 1973. The processes and methods that we developed to use in the state's rehabilitation settings were carried over into school-based assessments when school centers began opening in the late 1970s.

As I have visited school-based evaluation centers, I have recognized numerous similarities to that original model. There have been numerous changes in technology and in most employers' expectations over the past 20 years. School vocational programs for special populations have changed immensely during that time period. Even our enabling legislation has been through several major evolutions during those years.

I am trying to determine how evaluation centers have modified the original processes and methods and the current school-based vocational evaluation profile for Virginia. Please take time to respond to the attached questionnaire and return it in the enclosed envelope. Please attach descriptions of any other innovations being used in your setting. If you would like to receive a composite of these results, please attach a note to that effect including the mailing address to which they should be sent.

I appreciate your interest in vocational evaluation and your assistance in responding to this survey. If you have questions, please contact me at (804) 441-2957.

Sincerely,

Glenda D. Feldt, CVE, CWA
Program Leader, Vocational Education
Programs for Special Populations
Attachments (2)

A SURVEY OF TRENDS IN SCHOOL-BASED
VOCATIONAL EVALUATION IN VIRGINIA

Please identify yourself and worksite on the questionnaire. This will help with survey follow-up. Data will be used in composite format only, without any identification of individuals or school districts.

Name _____

Work address

_____

School district total enrollment _____

Special education secondary enrollment _____

Is your district rural? _____ urban? _____
suburban?_____

Number of evaluators on your staff _____

Full-time secretary? _____ part-time? _____
none?_____

Are narrative reports completed on each student?

_____

Is a checklist report completed instead?

_____

Where did you get the report format you use?

_____

Are you willing to share your format with others?

_____

How many students per evaluator per week? _____

Average number of days students in evaluation _____

Do you have at least one "no show" per week? _____

Do you have more than one "no show" per week? _____

How many alternates do you schedule per week? _____

How many completed vocational evaluations last year?

_____

How many students exited the evaluation before completing their vocational evaluation? _____

What percentage of the students evaluated were special education?_____ disadvantaged?_____other?_____

THE PROCESS

How are special education students referred to you?

_____

Do you receive referral packets prior to the attendance of the students? _____

What is included in your referral packet? _____

_____

Do you usually get all of the referral information you need?

_____

Who recruits students for the evaluation?

_____

Do you use a brochure in this initial recruitment?

_____

Do you use a videotape in this initial recruitment?

_____

Do you visit/observe students in their academic classrooms either prior to or during the vocational evaluation?

_____

Do you visit/observe students in their vocational classrooms either prior to or during the vocational evaluation?

_____

Do you personally access the individual student's cumulative or confidential school records?

_____

Do you collect any written data on student performance from vocational teachers prior to evaluations?_____

Does your school division participate in PERT? _____
If yes, how many students did they evaluate from your district last year? _____ the year before? _____

Are you involved in the selection of students for PERT?

_____

Does your school division receive vocational evaluations through the Department of Rehabilitative Services (other than PERT) on students while they are still enrolled in school?_____

What is your involvement in that process?

_____

THE METHODS

Do you use the JEVS Work samples? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

Do you use VALPAR Work samples? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

Do you use Singer Work samples? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

Do you use Choice Work samples? _____

Have you rewritten the administration/instructions? _____

What norms do you use? _____

_____

How were they derived?

_____

Do you use Tower or Microtower Work samples? _____

If yes, do you use their norms?_____

If you use other norms, how were they derived?

_____

Do you use MECA Work samples? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

Do you use VIEWS Work samples? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

Do you use McCarron-Dial System? _____

If yes, do you use their norms? _____

If you use other norms, how were they derived?

_____

What other commercially developed work samples do you use?

_____

What commercially developed work samples do you have that are not used? _____

_____

Are you interested in selling any of these? _____

Are you interested in sharing any of these? _____

Do you utilize ASVAB data? _____

Do you utilize GATB data? _____

What work samples have you developed (homemade)?

_____

Do they relate to a specific local business/industry?

_____

If yes, which businesses or industries?

_____

How do you validate your locally developed work samples?

_____

_____

Have you developed industrial norms for any of your work samples? _____

How frequently have you used situational assessments?

_____

Do you conduct follow-up studies on students you have evaluated? _____

If yes, have you developed the data into an outcomes report?

_____ Are you willing to share this?_____

Have you had the vocational instructors actually complete the worksamples related to their teaching areas?

_____

Do the vocational instructors provide you with informal feedback on the students who were recommended for their programs?_____

How do you use this information?

_____

Do you sit in on student IEP conferences? _____

Transition conferences? _____ Child study meetings? _____

Appendix D

A Tally of Surveys Conducted with School-Based

Vocational Evaluation Programs in Virginia

Responses were solicited from all Virginia school divisions, first by post card to the superintendent. Every school division responded to the post card mailing (100% response from superintendents). This was followed by presentation of this survey to those districts who reported that they have school-based vocational evaluation programs (n = 15). All responses are reported in composite form so that individual school divisions are not identifiable.

Fifteen districts or regional evaluation centers received surveys. Thirteen responded to the questionnaire. One division reported that they were prohibited from releasing any information outside of their school district due to a local school board policy and some current litigation issues. The response rate of completed questionnaires was 87%, a phenomenal return rate, which may reflect a high level of interest across the state in developing revisions in the process of vocational evaluation.

****

School district total enrollment Ranged from 10,188 to 78,760

Special education secondary enrollment Ranged from 289 to 6,000

Is your district rural? 3 urban? 4 suburban? 6

Number of evaluators on your staff

Rural = 1 per system
Urban = 2 per system
Suburban = ranged from 1 to 3 per system, with no correlation between special education enrollment or total enrollment and number of evaluators. (One very large suburban district has one evaluator while the smallest reporting suburban district has two evaluators.)

Do you have a secretary:

Full-time?	Rural = 1;	Urban = 2;	Suburban = 2
Part-time?	Rural = 1;	Urban = 1;	Suburban = 3
None?	Rural = 1;	Urban = 1;	Suburban = 1

Are narrative reports completed on each student?
Yes = 12; No = 1 ("Composite checklist is provided because I only conduct Apticom testing.") One respondent added a note that checklists are provided in lieu of reports for students completing a Phase I assessment.
Is a checklist report completed instead? See above

Where did you get the report format you use?

From original reports sed in Virginia since 1978: 11
Created own format: 1
From format used in West Virginia: 1

Are you willing to share your format with others?

Yes = 12; No response = 1

How many students per evaluator per week?

Phase I: Rural = 20
Phase I: Urban = 0
Phase I: Suburban = 6-36
Comprehensive: Rural = 2-5
Comprehensive: Urban = 3-8
Comprehensive: Suburban = 2-3

Average number of days students in evaluation

Phase I: 45 mins to 4 hours
Comprehensive: 3 to 4 days

Do you have at least one "no show" per week?
Yes = 7; No = 6

Do you have more than one "no show" per week?
Yes = 6; No = 7

How many alternates do you schedule per week?
Zero = 8; Two = 5

How many completed vocational evaluations last year?

	One Evaluator	Two Evaluators	Three Evaluators
Rural	3 112 115		
Urban		170 259 190 126	
Suburban	0 112	165 186	272 400

How many students exited the evaluation before completing?

Rural responses: 0% (of 3 students); 3%; 5%
Urban responses: 1%; 8%; 9%; 10%
Suburban responses: Not applicable on one response (new center) 2%; 4% (2 respondents); 5%; 7%

What percentage of the students evaluated were special education, disadvantaged, other?

(Responses written in as "Other" were descriptors of disadvantaged populations, using the Department of Education's definition.)

	Special Education	Disadvantaged
Rural	10% 50% 50%	90% 50% 50%
Urban	60% 61% 97% 55%	40% 39% 3% 45%
Suburban	30% 37% 82% 48% 73% 26%	70% 63% 18% 52% 27% 74%

THE PROCESS

How are special education students referred to you?

By Special Education Teachers: 9
By Vocational Resource Teachers: 3
By Guidance Counselors: 7

(The most frequent response was a combination of special education teachers and guidance counselors; most school divisions had more than one source of referrals.)

Do you receive referral packets prior to the attendance of the students?

Yes = 11; Sometimes = 3

What is included in your referral packet?

This varied widely across the responses. The materials included and number of divisions reporting positively on that item are:

Referral Form: 11
Psychological Evaluation: 6
Parent Permission: 10
Transcript: 7
Medical Evaluation: 4
Achievement Test Scores: 5
Copy of IEP: 2
Attendance Records: 3
Report Cards: 2
Behavior Checklists: 3

Do you usually get all of the referral information you need?

Yes = 7; No = 6

Who recruits students for the evaluation?

Special Education Teachers: 6
Vocational Resource Teachers: 2
Guidance Counselors: 3
Vocational Evaluators: 5

Do you use a brochure in this initial recruitment?

Yes = 6; No = 7

Do you use a videotape in this initial recruitment?

Yes = 3 (Slides = 1)
No = 9

Do you visit/observe students in their academic classrooms either prior to or during the vocational evaluation?

Yes = 0; No = 13

Do you visit/observe students in their vocational classrooms either prior to or during the vocational evaluation?

Yes = 0; Sometimes = 3; No = 10

Do you personally access the individual student's cumulative or confidential school records?

Yes = 3; No = 10

Do you collect any written data on student performance from vocational teachers prior to evaluations?

Yes = 3; No = 10

Does your school division participate in PERT?

Yes = 6; No = 7
If yes, how many students did they evaluate from your district last year? Ranged from 2 - 30
the year before? Ranged from 8 - 30

Are you involved in the selection of students for PERT?

No school district evaluators were on the selection teams.

Does your school division receive vocational evaluations through the Department of Rehabilitative Services (other than PERT) on students while they are still enrolled in school? Yes = 3; No = 10

What is your involvement in that process? None = 100%

THE METHODS

Explanation of Reporting Format

Respondents were asked to indicate which commercially developed work sample systems they use in their vocational evaluation centers. These are summarized in table format,

including reported use of commercially developed (industrial) norms or use of local norms which compare students to other students. If a work sample was utilized as an exploratory activity without norm application, that is also noted.

Finally, respondents were asked to write in any additional commercially developed work samples they use. They were not asked to provide normative information on the write-in responses.
These are summarized in the table on the following page. In addition, the respondents were asked to identify unused items.

****

What commercially developed work samples do you have that are
not used?

None =	1	TAP =	2	SAGE =	2
Singer =	3	VASCO =	1	Prep-Coats =	2
Valpar =	3	VIEWS =	1		
Choice =	4	Mesa =	1		

Are you interested in selling any of these? Positive responses, except most evaluators felt they would probably not be allowed to sell because items were purchased with special funds.

Are you interested in sharing any of these? See above Worksample Utilization

	Divisions Using Item	Using the Commercial Norms	Using Local Norms or Directions	Used to Explore (Only)
JEVS	3	1	2	
VALPAI	10	8	2	
SINGER	12	6	4	4
CHOICE	12		10	5
TOWER	1	1		
MECA	3	3		
VIEWS	8	6	1	1

McCARRON-DIAL	4	4		
VITAS	4	Not avail		
PREP-COATS	4	Not available		
SAM	2	Not avail		
APTICOM	5	Not avail		
TRANSIT	1	Not avail		
SSSQ	1	1		
CRAWFORD	1	1		
PENNSYLV. BIMANUAL	1	1		
BENNETT HAND TOOL	1	1		
PROJECT DISCOVERY	1	Not available		

Do you utilize ASVAB data? Yes = 3; No = 10

Do you utilize GATB data? Yes = 5; No = 8
What work samples have you developed (homemade)?

None	4
Sheetrock Hanging	1
Door Lock Repair	1
Graphic Arts	3
Sewing	1
Cashier	2
Cleaner	4
Masonry	1
Auto Body	1
Greenhouse	2
Auto Mechanic	4
Electricity	3
CADD	2
Cosmetology	3
Cooking	3

Do they relate to a specific local business/industry?

Yes = 4; No = 5

If yes, which businesses or industries? Most respondents omitted

How do you validate your locally developed work samples?

Job Analysis 1 Not Validated 7
Student Success 1

Have you developed industrial norms for any of your work samples?

All respondents answered: No

How frequently have you used situational assessments?

Often: 1 Seldom: 5 Never: 7

Do you conduct follow-up studies on students you have evaluated?

Yes = 8; No = 5

If yes, have you developed the data into an outcomes report?

Yes = 5; No = 3

Are you willing to share this?

Yes = 3; No = 2

Have you had the vocational instructors actually complete the work samples related to their teaching areas?

Yes = 1; No = 9; Some of them = 3

Do the vocational instructors provide you with informal feedback on the students who were recommended for their programs?

Yes = 7; No = 6

How do you use this information?

Planning, program evaluation.
Three respondents said, "Not at all."

Do you sit in on student IEP conferences?
Sometimes = 9; No = 3 (1 no response)

Transition conferences?
Sometimes = 2; No = 10 (1 no response)

Child study meetings?
Sometimes = 3; No = 9 (1 no response)

Appendix E

Addendum to the Norfolk Public Schools

1992-1993 Testing Schedule

September 23, 1992

MEMORANDUM

TO: Middle School Principals
Head Counselors
Eighth-Grade Teachers

FROM: E. P. Antoine, II, Acting Assistant Superintendent for General Administration and Personnel
Margaret B. Saunders, Assistant Superintendent, Instructional Support Services
Shirley B. Wilson, Assistant Superintendent, Secondary Schools and Centers
Pamela Kloeppel, Senior Coordinator of Guidance
Aaron A. Gay, Jr., Director, Department of Research, Testing and Statistics
Lillian S. Holloway, Senior Coordinator, Testing Programs

COPIES: Mr. John F. Smith, Sr.
Mr. Frank Peele
✓Mrs. Glenda Feldt

SUBJECT: ADDENDUM TO THE 1992-93 TESTING SCHEDULE

Beginning this year, the Differential Aptitude Tests (DAT) will be administered to eighth grade students in Norfolk Public Schools. This is being done for several compelling reasons:

1. The Tech-Prep program of studies begins in 9th grade, making it essential that students have early identification of vocational aptitudes and interests to facilitate appropriate course selection.

2. Federal regulations for vocational education require assessment of vocational aptitudes and interests for most students in Norfolk Public Schools prior to enrollment in a vocational program.

3. Federal monitoring will occur in May, 1993, and we must show that assessments are being conducted and career information provided by ninth grade.

The DAT, Form V, will be administered to all eighth graders on December 7-18, 1992. It is recommended that testing be scheduled for approximately 1 hour per day over five days. Planning for the administration of the DAT will be discussed at the

SCHOOL ADMINISTRATION BUILDING, POST OFFICE BOX 1357, NORFOLK, VIRGINIA 23501

scheduled Middle School Head Counselors' meeting on November 18, 1992. Thereafter, the eighth grade cluster leaders will be inserviced by the head counselors.

A suggested testing schedule and a DAT manual are enclosed for your information. If you have any questions or concerns, please contact Lillian S. Holloway at 441-2319.

blw

Enclosure

A Suggested Testing Schedule

Five-Day Testing

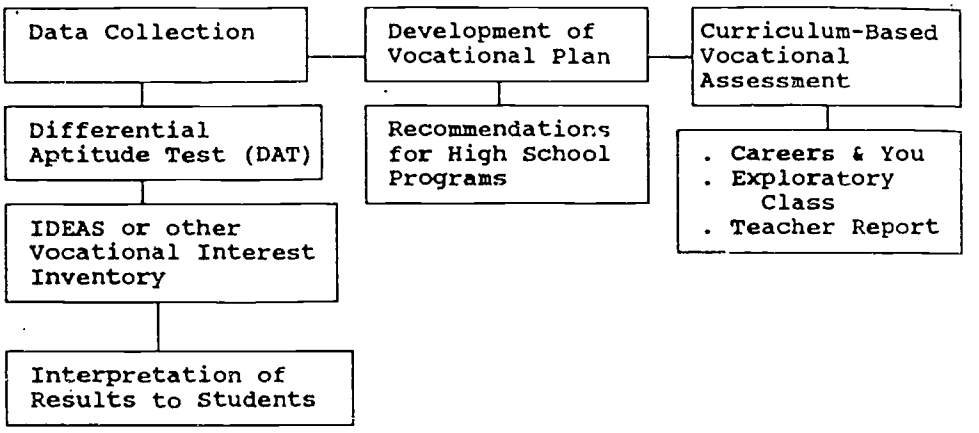
The total administration time for the DAT and CAREER Planning Questionnaire is about four hours and 40 minutes.

Gr. 8 - Form V	DAT TESTING TIMES		
	ACTUAL TESTING TIME (MINUTES)	APPROXIMATE ADMINISTRATION TIME (MINUTES)	APPROXIMATE TOTAL TIME (MINUTES)
Day 1			
Introduction			35
Career Planning Questionnaire			20
Answer Sheet Preparation (DAT)			55 min.
Day 2			
Verbal Reasoning	30	8	38
Spelling	10	5	15
			53 min.
Day 3			
Numerical Ability	30	5	35
Abstract Reasoning	20	5	25
			60 min.
Day 4			
Clerical Speed and Accuracy			
Part 1	3	5	8
Part 2	3	2	5
Mechanical Reasoning	30	8	38
			51 min.
Day 5			
Space Relations	25	8	33
Language Usage	20	5	25
			58 min.
			4 hrs. 37 min.

Appendix F

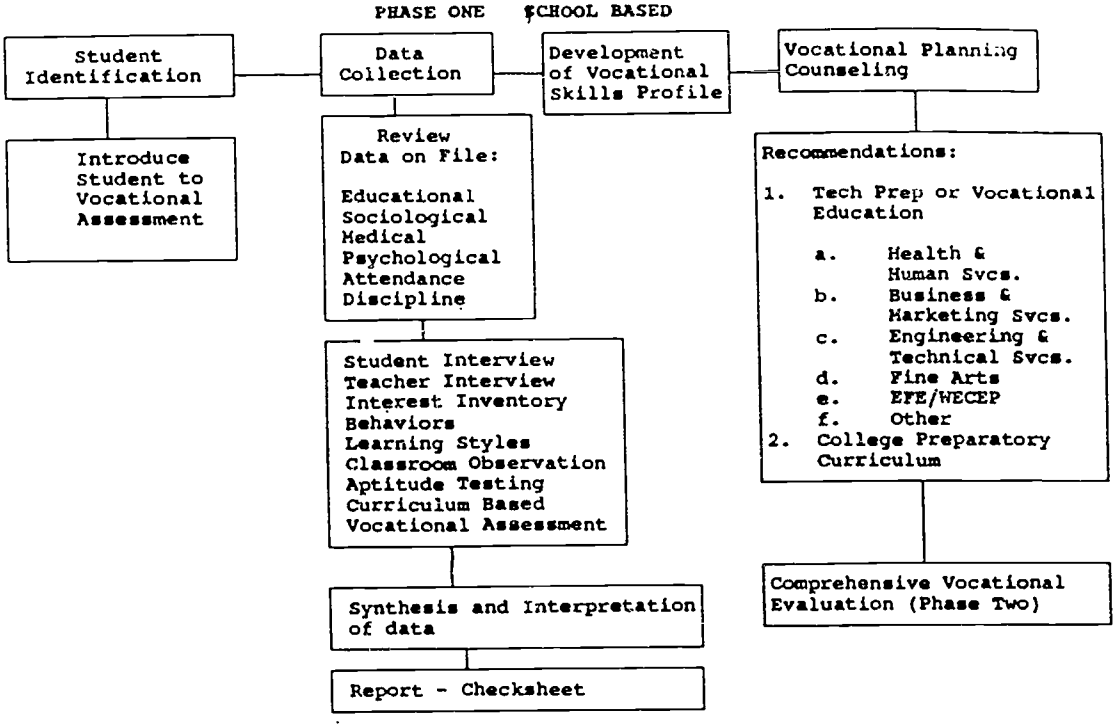
Norfolk Public Schools

Middle School Vocational Assessment Model



Appendix G

NORFOLK PUBLIC SCHOOLS
HIGH SCHOOL VOCATIONAL ASSESSMENT MODEL



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Revised 1/22/93

VOCATIONAL EVALUATION SCHEDULE
1992-1993

SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Model Approved Staff Development Team Building Evaluators observing in the middle school/including Careers and You (1 week) Phase II - (Center-Based) Handicapped (3 wee s) (19)	Phase II - Handicapped (2 weeks) (9) Phase I @ High Schools (2 weeks) (30) Staff Development	Phase I @ High Schools (2 weeks) (25) Phase II Handicapped (Center Based) (2 weeks) (12)	Administration of DAT & IDEAS (Counselors) @ Middle Schools (Disadvantaged/Handicapped) Phase I @ High Schools (3 weeks) (30) Report Inventory (3 days)
JANUARY	**FEBRUARY**	**MARCH**	**APRIL**
Phase I - Handicapped (3 weeks) (24) Phase I & II - TMR - Situational Develop brochures	Phase II Handicapped (4 weeks) (24) Develop Phase III - Feedback Interpret DAT at all Middle Schools Develop Procedures Manual	Assessment of Literacy Passport and Transition Students (4 weeks) (25) Collect Phase III - Feedback Data	Assessment of Literacy Passport and IOE Students (2 weeks) (20) Phase II - Handicapped (2 weeks) (12)
MAY	**JUNE**	**JULY**	**AUGUST**
Phase II - Handicapped (2 weeks) (12) Careers and You - CBVA - (2 weeks)	Careers and You - CBVA (1 week) Phase II - Handicapped (2 weeks) (12) Conduct Phase III - Feedback	Review/revise procedures and materials Interpret Phase III Data	Staff Development - Procedures revisions - Planning for 1993-1994

Vocational Evaluation Schedule for 1992-1993

Indicating Potential Numbers of Students to be Served

POPULATION ANALYSIS: NORFOLK PUBLIC SCHOOLS VOCATIONAL EVALUATION CENTER

SCHOOL YEAR 1992 - 1993

An analysis of the current client population detailing the characteristics of population by referral source, gender, age, and disability or disadvantage.

Currently Served

REFERRAL SOURCE	GENDER		AGE								EXCEPTIONALITY/DISADVANTAGE										EVALUATION TYPE		
SCHOOL	M	F	14	15	16	17	18	19	20	21	EMR	TMR	MH	LD	ED	SPC	SPH	MR/BD	OHI	DIS	COMP PM II	PM I	DAT
Granby High	31	12	0	7	22	14	4	1	1	0	2	0	0	37	9	1	0	0	0	0	13	41	SEE ATTACHED FORM
Lake Taylor HS	49	16	2	19	22	16	9	0	0	1	11	10	2	34	5	1	0	1	1	0	20	47	
Maury High	31	10	1	9	12	11	9	4	1	0	0	0	0	37	2	1	2	4	1	0	10	41	
Norview High	34	19	1	15	18	19	2	0	0	0	7	1	0	40	7	0	0	0	0	0	16	41	
Washington HS	28	20	2	6	14	16	6	3	1	0	9	0	0	39	0	0	0	0	0	0	22	30	
Barry Robinson	2	1	0	0	2	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	
Ballentine	9	0	0	0	7	1	1	0	0	0	0	0	1	0	9	0	0	0	0	0	9	0	
Transition	17	1	0	1	5	6	1	1	0	0	0	0	0	0	0	0	0	0	0	18	18	0	
JOE	17	5	7	12	3	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	22	
Lit. Passport	5	4	0	0	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	
TOTALS	231	94	13	73	112	86	37	9	4	1	29	11	3	209	34	3	2	5	2	27	111	231	

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Appendix J

Differential Aptitude Test (DAT) Summary

NORFOLK PUBLIC SCHOOLS
VOCATIONAL EVALUATION CENTER

SCHOOL YEAR 1992 - 1993

Differential Aptitude Test Summary (DAT)

Students Served

REFERRAL SOURCE	NUMBER OF STUDENTS TESTED			
School	Disadvantaged	Handicapped	L.E.P.	TOTALS
Granby High	230	Not Available	4	234
Lake Taylor High	204	Not Available	0	204
Maury High	207	Not Available	0	207
Norview High	231	Not Available	0	231
Washington High	234	Not Available	0	234
Barry Robinson	0	0	0	0
Ballentine	0	0	0	0
Transition	0	0	0	0
Literacy Passport	44	0	0	44
Azalea Middle	189	18	0	207
Blair Middle	116	15	0	131
Northside Middle	145	17	0	162
Norview Middle	208	21	1	230
Rosemont Middle	138	12	1	151
Ruffner Middle	134	12	0	146
Lake Taylor Middle	115	25	0	140
Lafayette-Winona Middle	164	24	0	188
TOTALS	2,359	144 (Middle School Only)	6	2,509

****

Total Students Tested with DAT:

Grade 8	2,058
Grade 10	1,333
	3,391

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Appendix K

Survey of Secondary Special Education Teachers

Dear Special Educator:

I am conducting research through Norfolk Public Schools related to the process and utilization of vocational evaluation for special needs students. Efforts are underway to develop methods of evaluating more students in less time by using varied assessment techniques. Your input is vital to this redesign. Will you please complete this brief questionnaire and return it to me by November 30, 1992? Your assistance is greatly appreciated.

Glenda Feldt, Program Leader
Department of Adult and Vocational Education

Place a mark under the response that best describes your opinion.

	S A	A	Don't Know	D A	S D A
I am familiar with the four-day comprehensive vocational evaluation.					
I have referred students for vocational evaluation.					
I have read a completed vocational evaluation report.					
I have interpreted a vocational evaluation report to a student or parent.					
I have used the vocational evaluation in writing IEP's.					
I have used the vocational evaluation in determining which classes my students will take.					
I have visited the vocational evaluation center at Madison.					

I have viewed the orientation to vocational evaluation videotape which is shown to my students.					
Vocational evaluation is critical for planning with my students.					
My students seem to enjoy the vocational evaluation.					
Vocational evaluation takes too long.					
My students can afford to miss 3 or 4 days of class to attend vocational evaluation.					
I read all sections of a 6 to 8 page evaluation report.					
I read the recommendations part of the report only.					
I have asked the vocational evaluators to attend staffings or IEP meetings.					
I have used the evaluation report when developing the student's transition plan.					
Mainstreamed students should go to Madison for vocational evaluation.					
Self-contained students need the comprehensive vocational evaluation.					
It seems to me that a shorter process could be developed for mainstreamed students.					
It seems to me that self-contained students should be able to select their self-contained vocational class based only on interests.					
An in-building assessment procedure is needed.					

A pencil and paper test will reflect my students' vocational aptitudes.					
Self-contained students need to explore vocational classes before selecting one.					
Success in a vocational class at the home school is a good indicator of potential for higher level courses in vocational ed.					

Appendix L

Tally of Results of a Survey of Secondary

Special Education Teachers

SA=Strongly Agree A=Agree DK=Don't Know D=Disagree
SD=Strongly Disagree

	S A	A	D K	D	S D
I am familiar with the four-day comprehensive vocational evaluation.	14	14		2	
I have referred students for vocational evaluation.	22	7			1
I have read a completed vocational evaluation report.	24	5		1	
I have interpreted a vocational evaluation report to a student or parent.	15	8		3	3 (1= nr)
I have used the vocational evaluation in writing IEP's.	12	16		1	1
I have used the vocational evaluation in determining which classes my students will take.	14	12	1	1	2
I have visited the vocational evaluation center at Madison.	7	1		7	15
I have viewed the orientation to vocational evaluation videotape which is shown to my students.	11	6	2	3	8
Vocational evaluation is critical for planning with my students.	16	10		3	1
My students seem to enjoy the vocational evaluation.	5	12	8	3	2
Vocational evaluation takes too long.	4	9	6	6	5

My students can afford to miss 3 or 4 days of class to attend vocational evaluation.	8	7	2	6	7
I read all sections of a 6 to 8 page evaluation report.	9	11		7	3
I read the recommendations part of the report only.	2	3		14	11
I have asked the vocational evaluators to attend staffings or IEP meetings.	2		1	13	14
I have used the evaluation report when developing the student's transition plan.	11	16		2	
Mainstreamed students should go to Madison for vocational evaluation.	7	5	8	3	6
Self-contained students need the comprehensive vocational evaluation.	16	8	4	2	
It seems to me that a shorter process could be developed for mainstreamed students.	12	7	10		1
It seems to me that self-contained students should be able to select their self-contained vocational class based only on interests.	3	8	5	9	5
An in-building assessment procedure is needed.	11	6	9	3	1
A pencil and paper test will reflect my students' vocational aptitudes.		3		11	16
Self-contained students need to explore vocational classes before selecting one.	12	15	1	2	
Success in a vocational class at the home school is a good indicator of potential for higher level courses in vocational ed.	8	12	7	1	2

Number of Surveys Distributed = 64
Number of Surveys Returned = 34
Total Response Rate = 53%
Special Note: 4 of the returned survey forms were left blank with notations that the teachers were out on long term leave.

Appendix M

Brochure Describing Vocational Assessment Services in Norfolk Public Schools

VOCATIONAL ASSESSMENT REPORTS

A copy of the DAT profile sheet is placed in each student's school file. In addition, students who participate in CBVA and Phase I Assessments will have assessment information on-line through the Student Information System (SIS). A written report will be provided for students who complete a Phase II comprehensive evaluation.

INFORMATION

For additional information on vocational assessment and evaluation, talk with your school guidance counselor, vocational teacher, special education teacher or telephone the Department of Adult and Vocational Education at (804) 441-2957.

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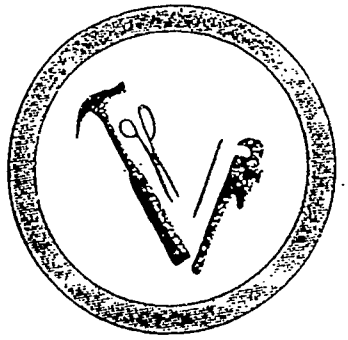

VOCATIONAL ASSESSMENT AND EVALUATION

NORFOLK PUBLIC SCHOOLS

BELIEVE-ACHIEVE-SUCCEED!

GOAL OF VOCATIONAL ASSESSMENT

Norfolk Public Schools offers a variety of vocational education options for secondary students. These include:

- Tech-Prep programs in four career clusters
- Pre-vocational and vocational electives
- Occupational courses at two vocational centers
- Apprenticeship options

Vocational assessment is offered to assist students in selecting vocational education studies.

VOCATIONAL ASSESSMENT

Norfolk Public Schools provides a range of vocational assessment activities. To help students plan their high school course of studies, vocational assessment activities begin in the eighth grade. Most students will participate in the Differential Aptitude Test (DAT) and will complete a vocational interest inventory. This information will provide a picture of each student's career interests and abilities. Vocational evaluators and counselors will interpret these results with students and a copy of the profile will be given to students.

CURRICULUM-BASED AND PHASE I VOCATIONAL ASSESSMENTS

Some students will have additional support in vocational planning through Curriculum-Based Vocational Assessment (CBVA) in middle or high school. From classwork completed in the vocational education classes, additional career options will be suggested. Some students will have Phase I assessment in ninth grade. It involves reviewing student records, interviewing students and reviewing performance in vocational classes. Students will receive more information on career options which they may want to pursue in high school.

PHASE II - COMPREHENSIVE VOCATIONAL EVALUATION

Certain students will have the opportunity to attend the Vocational Evaluation Center for one or more days for "hands-on" career exploration and assessment. Students will actually try out a variety of jobs such as:

Air Conditioning/Refrigeration
Assembly Work
Auto Body Repair
Auto Mechanics
Auto Servicing
Business/Office
Carpentry/Construction
Cashier
Child Care
Drafting
Electrical
Electronics
Food Service/Catering
Furniture Refinishing
Graphic/Commercial Art
Home Health/Health Careers
Horticulture
Housekeeping
Laundry
Marketing/Sales
Masonry
Plumbing
Public Safety
Sewing/Fashion
Warehousing
Welding/Shipbuilding

Students will learn about their work potential from these activities. They will receive suggestions for vocational training to assist in planning for high school and postsecondary occupational training.

To attend the Vocational Evaluation Center students will ride school buses from their high schools to Madison Career Center. While at the Center students may be asked to wear dust masks, aprons, or safety goggles for protection while working.

Appendix N

Phase I Vocational Assessment Guidelines and Process

Guidelines

These are the guidelines to be followed when arranging Phase I vocational assessments for students at the high school. This information is a supplement to the Norfolk Public Schools Vocational Evaluation Operations Manual.

1. Refer students who are freshmen and sophomores and who are mainstreamed or in coteaching classes.

2. Refer students who are appropriate for vocational training. Discuss other individual cases with the Program Leader.

3. The method of referral is simple. Provide a list of students' names and Social Security numbers to the vocational evaluators. They will schedule dates to visit your school and inform you.

4. Before the evaluators arrive, notify the faculty at your school that certain students will have to be released from class for up to one hour on the assigned date. Students should not be prohibited from meeting with the evaluator.

5. When the evaluators arrive you should provide the following:
   A. A bell schedule for your school
   B. A map of the school showing fire exits, bathrooms, and lunchroom
   C. A copy of each student's schedule or access to the master book containing all schedules
   D. Access to cumulative and confidential folders
   E. A place to work with the files and to interview students and teachers.

6. After the evaluators have visited, they will return a brief Phase I assessment report on each student. These recommendations may be used for placement just as a comprehensive report is used.

7. If the Phase I assessment recommends a Phase II (comprehensive) vocational evaluation, then all you need to send as the referral packet is the parent permission form.

8. Students who will participate in a Phase II (comprehensive) vocational evaluation should be shown the videotaped orientation before they go to Madison.

Procedures for Phase I Vocational Assessments

I. Preparation at school site prior to evaluator's visit
   A. Records access and work location
   B. List of students to be evaluated
   C. Provide bell schedule, map of school
   D. Provide teachers', students' schedules

II. Data collection at school site
   A. Records review to include:
      Psychological
      Educational
      Medical
      Social history
      IEP - % of time mainstreamed
      Credit sheet/class schedule
      Grades/report card
      Disciplinary
      Attendance/punctuality
   B. Student interview
      Use form to ascertain background, interests
      Previous vocational evaluation results
      Previous vocational classes
   C. Teacher interview
      Use CBVA teacher questionnaire form
      Classroom behaviors
      Overall performance
      Opinion of future potential
   D. Parent interview
      Expectations
      Other considerations

III. Report recommendations to the resource teacher and to the IEP manager
   A. Give immediate feedback (carbon pack form)
   B. Discussion of results

IV. Submit written report to referral source at school site

V. Enter results into Student Information System (SIS)

Norfolk Public Schools, October, 1992

Appendix O

Memorandum Describing Procedures for Interpretation of Differential Aptitude Test Results with Eighth Grade Students

January 27, 1993

MEMORANDUM

TO: *Middle School Principals*
Madison Career Center Principal
Head Counselors

FROM: *E. P. Antoine, II, Acting Assistant Superintendent for General & PATT Administration and Personnel*
Aaron A. Gay, Jr., Director, Department of Research, Testing and Statistics
Lillian S. Holloway, Senior Coordinator, Testing Programs

COPY: *All Assistant Superintendents*
Mr. John F. Smith, Sr.
Mr. Frank M. Peele
Dr. Pamela C. Kloeppel
Mrs. Glenda Feldt

SUBJECT: ***DIFFERENTIAL APTITUDE TEST (DAT) RESULTS - FALL 1992***

Accompanying this memorandum are the results of the Differential Aptitude Tests which were administered to your 8th grade students in December.

Enclosed are 2 copies of the Student Career Planning Report. Representatives from the Department of Adult and Vocational Education will visit your school to interpret the DAT results to your students. Head counselors are asked to call Mrs. Glenda Feldt at 441-2957 to set up the times and dates. Please do not distribute the Career Planning Reports to students prior to the scheduled visits.

If you have any questions, please call Mrs. Lillian S. Holloway at 441-2319.

blw

Enclosures

SCHOOL ADMINISTRATION BUILDING, POST OFFICE BOX 1357, NORFOLK, VIRGINIA 23501

Appendix P

Schedule for Interpretation of Differential Aptitude Tests with Eighth-Grade Students
Spring, 1993

Glenda Feldt, Program Leader with the Department of Adult and Vocational Education, will meet with eighth grade students at each middle school to explain the results of the Differential Aptitude Tests. The dates for each school are as follows:

School	Dates	Status
Azalea Middle	March 2,3	Completed
Blair Middle	April 22, 23, 26	Completed
Lafayette-Winona Middle	April 19, 20, 21	Completed
Lake Taylor Middle	April 7, 8	Completed
Northside Middle	March 17, 18, 19	Completed
Norview Middle	February 26	Completed
Rosemont Middle	May 3, 4, 5	Completed
Ruffner Middle	March 8, 9, 10, 11	Completed
Madison Career Center (LTP)	March 31	Completed

Appendix Q

Student Information System (SIS) Vocational Assessment Computer Screen

Student: Student No.

School: Age:

Except:

Evaluator: Evaluation Date: Type: DAT
PHI
COM

Recommendations:

Business & Marketing	Engineering & Technology	Health & Human	Fine Arts
Intro to Bus Off. Tech. Word Proc. Key Board Account Data Proc. Legal Off. Med. Off. Intro to Mktg. Cash/Check Super Mgmt. _____ _____ _____	Fl Des/Land ___AM___FM Comm. Tech. Prin. Tech. Printing A/C Refrig. Bldg. Trade Carpentry (HCC) (MTVC) Electric Elec/Tech. Furn Refin. (HCC) Auto Body Auto Mech. Auto Serv. Elec/Mech. Mach. Trade Main Tech (HCC) Mari Trade Welding M Tech. Draw Comm. Art Draft _____ _____ _____	Life Manag. Dental Ast. Medical Ast. Pract. Nurse Hm. Hea. Care (HCC) Instit. Ser. (HCC) Cosmetology Public Safety Fashion Design Catering Food Serv. (HCC) (MTVC) Child Care _____ _____ _____	Intro. Art Photograph Studio Art Drawing Ceramics Crafts Drama Music Journalism _____ _____ _____

Student's Interests:

OTHER RECOMMENDATIONS:

EPE:
GED:
Attend Cont:
Behav. Cont:
Counseling:
Dept. Rehab. Ser:

Reevaluation:
Comm. Ser. Board:
Psych. Update:
Medical Update:
Social Service:
Military:

Appendix R

Curriculum-based Vocational Assessment (CBVA)

Teacher Questionnaire

CURRICULUM-BASED VOCATIONAL ASSESSMENT
TEACHER QUESTIONNAIRE

We are collecting vocational data on this student: _____ _____

Date of Birth: _____

Vocational Class: _____

Teacher Completing Form: _____ Date _____

Please indicate below the skills/aptitudes you've observed when working with this student. Write comments on the back.

This student is able to:	Strongly Agree	Agree	Disagree	Strongly Disagree
Follow verbal instructions	4	3	2	1
Follow written instructions	4	3	2	1
Follow a demonstration	4	3	2	1
Follow diagrams	4	3	2	1
Use small tools	4	3	2	1
Use large tools	4	3	2	1
Work with hands	4	3	2	1
Thread a needle	4	3	2	1
Measure with a ruler	4	3	2	1
Use measuring cups	4	3	2	1
Use gauges/thermometers	4	3	2	1
Organize work/materials	4	3	2	1
Work as part of team	4	3	2	1
Complete assigned work	4	3	2	1
Express thoughts in writing	4	3	2	1
Solve problems	4	3	2	1
Work accurately	4	3	2	1
Demonstrate creativity	4	3	2	1
Visualize objects in 3-D	4	3	2	1

Lift/carry 5 10 15 20 25 30 35 40 pounds

BEST COPY AVAILABLE

Based upon my experience, working with this student and observing classroom/vocational performance, I have the following comments:

Thank you for your assistance in developing vocational plans for this student.

Return completed form to:

Andrew MacGowan/Alease Harris
Madison Career Center
1091 W. 37th Street
Norfolk, VA 23508

Attachments

Attachment A

Educational Leadership Appraisal (ELA)
Final Report

by

Glenda D. Feldt

A Major Applied Research Project Report presented in partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

ELA Final Report
Submission #1
Richmond III Cluster
Original Submission: 7/11/93
Current Submission: 7/11/93
Implementation Date: 3/1/92

Program Leader, Vocational Education Programs for Special Populations
Norfolk, VA 23510
(O) 804-441-2957
(H) 804-482-4168

Committee: Advisor, Dr. C.M. Achilles
Reader, Dr. Ron Newell
Nova Representative, Dr. Charles Faires

ELA Senior National Lecturer: Dr. Alan Ellis

Objectives for Leadership Growth

Identified leadership strengths of the practicum manager had been learned through participation in the Educational Leadership Appraisal (ELA) class. These included: oral communication skills, written communication skills, decisiveness, creativity, initiative, and educational perspective. Secondary leadership strengths, identified from ELA and applicable to this project, included: risk taking, persistence, individual leadership, and flexibility. The ELA study area stressed that educational leaders must possess an array of leadership qualities and be aware of both their strengths and weaknesses. By recognizing dimensions in which I was strong, I was able to utilize those skills in the development of this project and to improve in the dimensions where I believed I needed to grow.

Methods for Achieving Leadership Growth

My agenda for growth in the development of this project focused on the areas in which I rated myself lowest on the Educational Leadership Appraisal. These were: political behavior, use of delegation, and group leadership. Because I was reviewing and revising an established procedure, which many professionals across Virginia (and, I learned through my research, across the nation) upheld, I had to tread lightly. This was a new approach for me; typically, I move boldly forward, confident that my interventions are an

improvement over previous methods. However, this has often led to conflict and delays in convincing others of the appropriateness of the methods. As an improvement in the dimension of political behavior, I identified leaders in Virginia in the area of vocational evaluation, and I included them in the development of alternative strategies and methods as often as possible. In addition, I made personal and telephone contacts to discuss my proposed model with national leaders, who have written many recent journal articles on similar issues. These personal contacts were with individuals in North Carolina, Ohio, Colorado, Wisconsin, Texas, Maryland, Washington, D.C., and Indiana. I met twice with members of the American Vocational Association (AVA) legislative network who were influential in getting the legislation passed, which mandated vocational assessment. I corresponded with my state senator's office as a follow-up to the legislative visit made through the 1992 Summer Institute, requesting information from the rulemaking committees on implementation of the legislation. I have worked diligently to keep other professionals informed, to allay their fears and feelings of being threatened by these new concepts. I have described my model as an informal speaker at two statewide meetings of vocational evaluators, and I introduced it in the general discussion session at the Sixth National Forum on Issues in Vocational Evaluation held in Virginia Beach, VA, March 3-5,

1993.

I structured the research of other specific models from across the country by delegating responsibility, so that each evaluator had an area of responsibility. I involved testing personnel, guidance counselors, school psychologists, special education and vocational education teachers through surveys, implementation techniques, and staff development activities to assure that the new model included activities that are appropriate for their students. I served as a sounding board for ideas from my evaluators and vocational resource teachers as well as my peers throughout Virginia, and I have attempted to provide honest feedback. I have requested personnel in other areas such as guidance, testing, and Management Information Systems to assist with various aspects of the implementation. They have completed their assignments quickly, efficiently, and cooperatively and have reported back to me as requested. Again, this has been new behavior on my part. In the past, I have tended not to request assistance from other professionals within the school division, and I have been pleasantly surprised by the positive response and the improved level of involvement that has resulted.

Most of all, I have worked diligently not to be a part of the problem. This has been a major personal paradigm shift because I was so heavily involved in the development of the original vocational evaluation model, which has been

the standard in Virginia since 1974. Not only had I been a loud and strong proponent of the comprehensive assessment model, but I had also been a loud and strong opponent (in both state and national forums) of newer, more innovative methods such as Phase I (records review) evaluations and curriculum-based vocational assessment (CBVA). I have tried to be ever conscious of my personal biases, keeping them from overshadowing my judgment for the current and future needs of Norfolk's special needs populations.

Results of Educational Leadership Growth

I have achieved growth in the targeted leadership dimensions and have practiced my areas of strength throughout the development and implementation of this project. I was able to involve my vocational evaluators, peers, and superiors to analyze the problem and to develop an implementation design. Initial project success in developing a model to better assess handicapped students led to expansion to a model that will serve about 72% of the secondary students in Norfolk Public Schools. I proved that the research process was helpful in improving my ability to analyze an educational problem and to develop an appropriate intervention.

I have been amazed at the level of cooperation I have received from a variety of individuals and groups; that support has encouraged me and helped me to grow personally. I initiated and participated in staff development activities

where I shared the new model in a cooperative atmosphere, which promoted positive change. My identified strengths in oral communication skills and written communication skills have proven to be critical in involving individuals and in coordinating these efforts into a replicable division-wide assessment model.

Because project implementation and expansion required change in procedures used by various individuals and change in a system-wide testing procedure, political behavior and group leadership have been highlighted. Concerns voiced by the vocational evaluators and an initially negative reaction from the state professional association for vocational evaluators forced me to polish my skills in the area of political behavior. Overcoming these initial concerns proved to be an indicator of improvement in this ELA dimension.

All ELA dimensions became more focused during times I had to deal with the unrest of some individuals and groups. However, in retrospect, I see that my personal areas of weakness have been strengthened the most. This project has been well received on both the local and state levels and I have been asked to submit articles to two professional journals and a proposal to present at a national conference.

To implement this project, I had to rely upon many ELA leadership dimensions, and I discovered that the instruction I had received in this area was useful. This project began

as a means to improve services to handicapped students and expanded into a replicable, district-wide model for vocational assessment of all students with special needs.

As previously stated, the ELA study area showed me that educational leaders must possess an array of leadership qualities. The development and implementation of this new assessment model has allowed me to utilize numerous dimensions as I collaborated with testing personnel, Management Information Systems personnel, administrators (central office and building level), evaluators, teachers, guidance counselors, school psychologists, parents, and students. Throughout these efforts, I have shown use of these leadership skills, and the targeted ELA dimensions have improved.