OHIO VOCATIONAL EDUCATION TEACHERS' PERCEIVED USE OF STUDENT ASSESSMENT INFORMATION IN EDUCATIONAL DECISION MAKING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Isaac Kershaw IV, B.S., M.Agr.

* * * * *

The Ohio State University
1993

Dissertation Committee: Approved by

N.L. McCaslin
J.D. McCracken
W.E. Budke

M.R. McCaslin

Advisor
Department of Agricultural Education
DEDICATION

Two roads diverged
in a woods and I,
I took the one less
traveled by
And that has made
all the difference

Robert Frost
"The Road Not Taken"

...to Mary, for accompanying me down the less traveled highways where I have found the experiences to be so rewarding. Thank you for providing the love, patience and confidence that has helped me to reach this latest destination.

...to my mother and father, for providing me with the freedom to explore life and for developing in me the perspectives to enjoy it. Thank you for the support and constant love which you have provided throughout the years.
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VITA

1971 - 1975  B.S. Biology, High Point University, High Point, North Carolina.
1975 - 1979  Arborist, Glenn Tree Services, Kempton, Pennsylvania
1979 - 1981  Agriculture Teacher, United States Peace Corps, Swaziland
1982 - 1983  Masters of Agriculture, West Virginia University, Morgantown, West Virginia
1984 - 1986  Agriculture Teacher, Lincoln High School, Shinnston, West Virginia
1987 - 1989  Agriculture Training Manager, The Experiment in International Living, Brattleboro, Vermont, (Post: Arua, Uganda)
1990 - 1993  Research Associate, Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, Columbus, Ohio
1993 - Present  Supervisor, Ohio Department of Education, Division of Vocational and Career Education, Columbus, Ohio

FIELDS OF STUDY

Major Field: Agricultural Education
Minor Fields:
  Program Planning and Evaluation
  Research and Statistics

Dr. J.D. McCracken  Dr. J.L. Henderson
Dr. W.L. Hull  Dr. N.L. McCaslin  Dr. N.L. McCaslin
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CHAPTER I
INTRODUCTION

"The optimist says assessment will drive instruction in the future and new and better assessments are being developed to do the job. But the cautious optimist says this will only happen if educators at all levels understand the difference between sound and unsound assessment and can integrate sound assessments into the instruction process in effective ways".

Stiggins & Conklin, (1992, p.3)

There has been widespread concern voiced throughout the country about low achievement among the nation's school children. The National Commission on Excellence in Education (1983) declared the United States to be a nation at risk, awash in a "rising tide of mediocrity" (p.113). Since that time there has been no lack of reports criticizing curriculum, administrators, teachers, parents, and students. Concerns for international competitiveness, renewed calls for restructuring, and the accountability movement has prompted a search for the means to achieve excellence in our schools. The eagerness to ensure better education, through quality instruction was a goal of parents, citizens, government officials, and elected representatives (Collier, 1988).
Educational organizations around the country have sought ways to increase accountability in response to requests for change. State after state has begun to initiate mechanisms which serve to promote accountability for educational outcomes. California, Connecticut, Iowa, Kansas, Maryland, and New Jersey have taken measures to make their educational systems more accountable for student outcomes (McCaslin, 1990). The *Action Plan for Accelerating the Modernization of Vocational Education in Ohio* (Ohio Department of Education, 1990) required that a comprehensive accountability and evaluation system be developed and integrated with the statewide management information system.

On the federal level, the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 required accountability of all states who accept federal funds to support vocational programs. This was to be achieved through a system of specified performance measures and standards which track both academic and occupational competency gains. Measures of performance were requested to address occupational competency attainment while measures of learning and competency gain were to reflect the achievement of basic and advanced academic skills.

Testing at all grade levels has increased due to accountability demands, the information demands of objectives-based instructional systems, and competency-based evaluation trends (Green & Stager, 1986). A traditional
method for measuring student achievement, when comparisons between groups are required, has been through norm-referenced standardized testing procedures. Such assessment methods have proven useful in describing student achievement in comparison to others in the same group taking the same test. According to Perlman (1991), parents, businesses and institutions of higher learning are so accustomed to receiving the results of standardized tests that the absence of such information "would be construed as an evasion" (p.7).

The State of Ohio has implemented a standardized ninth grade proficiency testing program that all students must pass in order to receive a high school diploma. In addition, all vocational program completers will take state developed tests to assess occupational and applied academic competency attainment. Those in favor of standardized testing have asserted that such tests can and do serve a variety of important purposes. "Achievement testing promotes high standards for learning, facilitates more accurate placement decisions, yields information for the improvement of curriculum and instruction, and helps the public hold schools accountable" (Dorr-Bremme, 1983, p.1).

Standardized tests have been a time and cost effective means for measuring achievement but questions have arisen when significant emphasis was placed on the outcomes of these assessment methods. Worthen and Spandel (1991) have
implied that standardized tests do have value when used correctly but provide only part of the picture and have their limits. Linn, Baker, and Dunbar (1991) have summarized the limitations that critics of standardized tests commonly identify: (1) the emphasis on factual knowledge and discrete skills, (2) the timed nature, (3) a format of only one right or best answer, (4) the potential negative effects on students and teachers, (5) artificially short answers, (6) an inability to cover multiple contents or domains of knowledge, (7) forcing students to work in isolation, (8) equity concerns, (9) and problems of teaching to the test rather than to established educational objectives. Green and Stager (1986) concluded that "testing in American schools has been and continues to be a subject of controversy from the local to the national level" (p. 141).

Statewide assessment cannot attempt to measure and thereby reflect all that local schools are able to achieve in terms of student outcomes. It has become necessary for schools to measure the attainment of their unique educational objectives (Perlman, 1991). The logical place for assessment activities measuring student achievement and performance at the local level is in the classroom under the auspices of the classroom teacher. Carter (1984) has summarized this position with the statement: "Public outcries for school reform have increased pressures on
teachers not only to construct tests to assess students 
mastery of skills but also to promote more rigid standards 
for student accountability" (p.57). Wolf, LeMahieu, and 
Fesh (1992) indicated that American education will become 
galvanized when new and more probing assessments are 
utilized to hold districts, teachers and students more 
accountable.

Statement of the Problem

Pressure has been mounting for vocational educators to 
become more accountable for the learning outcomes of their 
students. It has become necessary to document that students 
have more than seat time to account for the learning that 
was to have taken place in the classroom or laboratory. How 
teachers use assessment information in the classroom and 
whether its use is effective can play a major role in 
enhancing and documenting both instruction and learning. 
How are vocational education teachers using student 
assessment data? Literature has revealed very little about 
the assessment practices of this group of teachers. Only 
recently has the measurement community focused research 
emphasis upon teacher assessment practices in the academic 
classroom. Research conducted on the quality and 
effectiveness of non-vocational teacher training in 
measurement and assessment has implied that these teachers 
may not be gaining the appropriate skills necessary for
effective use of assessment. If this is true for academic teachers what of the assessment skills of vocational education teachers? How vocational education teachers use assessment data must be described if we are to improve this critical component of the educational process.

**Purpose and Objectives of the Study**

The purpose of this descriptive-correlational study was to describe Ohio secondary vocational education teachers' use of student assessment information in making instructional decisions. The specific objectives of this study are:

1. Portray selected characteristics of secondary vocational education teachers in Ohio: age, gender, related work experience, teaching experience, program area taught, education level, certification route, and type of school.
2. Describe vocational education teachers' perceptions of their use of student assessment data for making instructional decisions.
3. Depict vocational education teachers' perceptions of constraints in the assessment process.
4. Describe vocational education teachers' perceptions of their attitude towards the assessment process.
5. Describe vocational education teachers' perceptions of their competence in the assessment process.
6. Examine the relationship between teacher use of assessment information and:
   a. selected teacher characteristics,
   b. level of competence in the assessment process,
   c. their attitudes towards assessment, and
   d. constraints to the assessment processes.

7. Determine the proportion of variance in vocational education teachers' perceived use of assessment information in instructional decision making that could be explained by the independent variables of attitude towards assessment, competence in the assessment process, constraints to the assessment process, and selected teacher characteristics.

Significance of the Study

The data from this study will contribute to the body of knowledge regarding the assessment practices of secondary teachers in Ohio's vocational education programs. An understanding of how such teachers use assessment data to address instructional decisions is fundamental to the establishment of effective means for improving assessment skills, instructional processes, and learning. The study will provide teacher training institutions and inservice providers with information to address the strengths and weaknesses of teacher assessment practices.
The drive towards increased accountability has placed a demand on teachers to improve instruction and promote higher levels of achievement. To achieve these goals it is important to generate and utilize information which accurately measures effectiveness of instruction and the outcomes of learning. The more accurately teachers judge student achievement and performance the more effective they will be in directing student learning. An increased understanding of teacher practices in assessment use should also aid in making more intelligent decisions in directing pupil progress toward worthwhile educational outcomes.

Definition of Terms

Important terminology has been identified and defined to help ensure that the authors intent is interpreted more uniformly.

Assessment: "Educational assessment is a process by which characteristics of the individual, the group of individuals, the setting of goals and objectives and materials or teaching strategies are identified and understood for the purpose of making judgments and decisions relevant to educational activities" (Guerin & Maier, 1983 p.8).

Satterly (1989) built on this definition by stating that "educational assessment includes all processes and products which describe the nature and extent of children's learning, its degree of correspondence with the aims and objectives of
teaching and its relationship with the environments which are designed to facilitate learning” (p.3). Examples of student characteristics that are commonly considered in educational assessment include; "achievement, ability, effort, attitude, interest, and personality” (Stiggins, Frisbie, & Griswold, 1989, p.6).

It is important to note that assessment is more than testing. Assessment may include information from sources other than teacher estimates (Rudman, 1987). Assessment methods would include "teacher observations of non-cognitive behavior as well as academic propsentities and achievements" (p.81). For the purposes of this study the term assessment referred to the overall process of gathering and using information on student knowledge and performance.

**Assessment Use:** In the overall process of assessment, use is but one component. Use refers to the application of assessment information in the decision making process. Use, therefore, is distinct from other stages of the assessment process which may be identified as the selection, development, administration, scoring, and interpretation of assessments methods. Use of assessment is operationally defined as the score on each of the six sections in Part 1 of the questionnaire used in this study.
**Assessment Methods:** Items or procedures which were used to collect information on learning and instruction are referred to as assessment methods. The six types of assessment methods used in the questionnaire are listed below.

**Essay Items:** This type of assessment method typically involves a written response to questions, problems, or situations. Gronlund stated that "learning outcomes concerned with the abilities to select, organize, integrate, relate, and evaluate ideas, require the freedom of response and the originality provided by essay questions" (p.223). Essay items can require either an extended or a restricted response.

**Informal Observations:** Informal observations require teachers to draw inferences about students' affective traits based on observations of and judgments about their behavior (Stiggins & Conklin, 1992). This assessment method entails the observation of spontaneous classroom/lab events which provide teachers with an informal opportunity to judge student performance. For example, observations of routine lab activities may find students making an effort to work cooperatively, using tools in a skilled and safe manner, or involved in solving a particularly difficult problem.
**Objective paper and pencil items:** "Objective tests are those that can be scored in such a manner that subjective judgment is eliminated when determining the correctness of a student's answer" (Ahmann & Glock, 1981, p.16). True-false tests, matching tests and multiple choice tests are objective tests that meet this criteria. Supply type tests are also considered to be objective tests and would include completion and short answer items. Completion items require the student to identify those few words which would complete an incomplete sentence. Supply type tests are considered to be objective tests although subjective judgment in grading cannot be entirely eliminated.

For the purpose of this study this category of assessment methods included tests, quizzes, and exercises that are generally comprised of multiple choice, true-false, matching, and short answer questions. The items may be either teacher-made or may be curriculum embedded items. Curriculum embedded items would include tests, quizzes, or exercises found in instructors guides, curriculum guides, or at the end of textbook chapters.

**Performance assessment:** "Performance assessment calls for the observation and rating of student behavior and
requires that students actually demonstrate proficiency" (Stiggins & Bridgeford, 1986, p.471). Stiggins and Bridgeford (1986) have identified three important characteristics for performance assessments: (1) students are called upon to apply the skills and knowledge they have learned, (2) a specified task (or tasks) are completed in the context of real or simulated assessment exercises, and (3) the assessment task or product is observed and rated with respect to specified criteria and in accordance with specified procedures.

**Portfolio:** Portfolio assessment, as defined by Vavrus, (1990) is a systematic and organized collection of evidence used by the teacher and student to monitor growth of the student's knowledge, skills, and attitudes in a specific subject area. It is a collection of student work which reflects student achievements over time. A portfolio contains documentation of not only the products that are generated by the student but also the processes that are involved. It might contain drawings, written documents, tests, notes, photographs, or comments from teachers and peers.
**Standardized tests:** "Standardized tests are constructed for the purpose of determining a student's level of performance relative to the performance of other students of similar age and grade" (Kubiszyn & Borich, 1984, p.282). These tests are administered and scored according to specific and uniform procedures (standards). Examples of such tests include the Iowa Test of Basic Skills, the Ohio Ninth Grade Proficiency Test, and the Ohio Vocational Education Competency Assessment. This category covers locally purchased, state-wide, and district-wide tests. Standardized tests may be either normative or criterion referenced. (Stiggins & Conklin, 1992).

**Certification route:** Teachers in vocational education typically receive teaching certification at one of three points in their career. (1) Certification achieved prior to teaching refers to the traditional teacher preparation program which terminates in a bachelor degree. (2) Certification achieved after entering teaching and before receiving a bachelor degree is a very common certification process that many teachers use when entering teaching following a period of service in industry. (3) Certification achieved after entering teaching and after receiving a bachelor degree is used by those who did not consider preparing for a teaching career during their
undergraduate education. Coursework taken for certification in this last option typically is credited towards a graduate degree.

**Education Level:** The highest level of education which an individual had achieved was referred to as education level. The levels of education utilized in this study include: (1) high school or its equivalent, (2) some college, (3) associate degree, (4) bachelor degree, (5) some graduate work, (6) and a graduate degree.

**Evaluation:** Worthen and Sanders (1987) defined evaluation, in an educational context, as being "the formal determination of the quality, effectiveness, or value of a program, product, project, process, objective, or curriculum" (p.22). Evaluation is a broader concept than the assessment process. Assessment can be viewed as a component within the overall evaluative process. Hopkins and Antes (1985) stated that the "appraisal of program effectiveness and student assessment are evaluative procedures" (p.5). Evaluation at the classroom level is an assessment process involving the use of test data and other information collected by non-testing procedures to judge how well individual students met objectives.
**Measurement:** "Educational measurement is concerned with quantifying those personal characteristics which are important to students and educators as they deal with the process of education" (Hopkins and Antes, 1979, p.5). Measurement is a process for collecting data on which evaluative judgments will be made. Worthen and Sanders, (1987) viewed measurement as a tool in the evaluative process, that is not in and of itself evaluation. "In general an observation made by a measurement process involves the use of a measuring instrument which quantifies the attribute of concern" (Hopkins and Antes, 1985, p.15).

**Related Work Experience:** The amount of prior, non-teaching job experience that a teacher has which is associated with the subject being taught.

**School Type:** The type of educational facility in which a teacher works was considered to represent school type. Educational facilities considered in this study include: (1) comprehensive high schools, (2) joint vocational schools, (3) career centers, and (4) other (middle schools and correctional facilities).

**Secondary Vocational Education Programs:** Secondary vocational education programs were considered to be those occupational specific, work study, and non-occupational home
economics programs being offered in grades seven - twelve. The secondary vocational education program areas in Ohio which were utilized in this study included: agriculture, business, health, home economics, marketing, occupational work experience, and trade and industry. It is possible for secondary programs to operate in all facilities listed under school type.

**Teaching Experience:** Teaching experience was defined as the total amount of an individual's teaching experience expressed in years.

**Test:** Hopkins and Antes (1985) defined a test as being "an instrument, device or procedure that proposes a sequence of tasks to which a student is to respond -- the results of which are used as measures of a specified trait" (p.102). Tests encompass a wide range of formal assessment measures, including commercially produced norm- and criterion-referenced measures; tests of minimal competency, and district-, school-, and teacher-constructed tests (Dorr-Bremme, 1983).

**Testing:** Testing was defined as a measurement process which utilizes an instrument (test) as a measuring device. The term refers to both formal and informal procedures. Many people view assessment and testing as synonymous yet they
are not. Testing is a function of the assessment process and is used to generate data on student characteristics.

Limitations of the Study

1. The responses given by the participants regarding their perceptions may have been influenced by variables not included in this study.
2. The generalizability of the results and conclusions from this study are limited to secondary vocational education teachers in the State of Ohio.

Basic Assumptions

1. Classroom assessment is an integral component of instruction.
2. Teacher perceptions of their use of student assessment information can be adequately measured through a self reporting technique.

In the following chapter a review of the literature has documents the importance and necessity for structuring the research process. The methodological processes that were utilized in conducting the study are presented in Chapter 3 with the research findings presented in Chapter 4. Chapter 5 contains the conclusions of the study with recommendations for practice and further study.
CHAPTER II

REVIEW OF LITERATURE

"The more clearly the students understand what they are expected to learn and why it is important to learn, and the more solidly the teacher's judgments are based on valid evidence of learning, the more acceptable the evaluations of student learning are likely to be, and the more comfortable the teacher will be in making them."

Ebel, R.L. (1980, p.48)

It is important to establish a linkage between assessment and instruction to properly view the importance which assessment activities play in enhancing both the instructional efforts of teachers and the students' efforts at learning. Rudman (1987) believed that teachers should have a rational approach to decision making and that the use of assessment data is essential in this regard. The American Federation of Teachers, the National Council on Measurement in Education, and the National Education Association (1990) supported the concept of an instructional-assessment linkage by subscribing to the view that "student assessment is an essential part of teaching and that good teaching cannot exist without good student assessment" (p.1).

The role of classroom assessment was perceived by Gronlund (1981) as intrinsic to the teaching-learning situation. The teaching-learning process uses a continuous
and interrelated series of instructional decisions which impact student learning. Gronlund stated that "the effectiveness of the instruction depends to a large extent on the quality of the evaluation information on which the decisions are based" (p.5).

Warmbrod (1993) drew attention to the linkage between instruction in agricultural education and assessment. He stated that "a dimension in the content of agricultural education that has roots in the critical analysis and systematic study of teaching is the assessment of learning and the evaluation of the effectiveness of educational programs" (p.7).

It was suggested by Hall, Carroll, and Comer (1988) that patterns of test use among teachers are related to the instructional practices that they employ. The researchers stated that "teachers test behavior is to some extent integrated with or complementary to larger classroom strategies that teachers adopt to enhance learning" (p.155). Milton (1982) viewed classroom assessment as being a powerful instructional method where improved classroom assessment is oriented towards enhancing the learning process. Milton concluded that "although many facets of instruction have received research attention, tests as important teaching-learning endeavors have been slighted" (p.1).
Rudman (1987) stated that "testing while not new to the educational process, has been separate from it" (p.74). He pointed out that there "is no body of data to either support or refute the existence of a bond between the testing and teaching function" (p.84). Rudman believed that a sense of need is growing to link assessment with teaching and to make instructional decisions more rational and less intuitive. But as Stiggins and Bridgeford (1985) pointed out, research has dealt with the interests of scholars and measurement specialists rather than with the concerns and perceptions of school teachers.

Guerin and Maier (1983) supported the concept that an assessment linkage is present at each step in the instructional process. Guerin and Maier outlined an instructional model that included the following components: (a) establishment of goals and objectives, (b) select instructional strategies, (c) implement the instructional program, (d) monitor progress, and (e) evaluate and report outcomes. It was proposed that student assessment data be used to establish goals and objectives and to select appropriate instructional methods. Monitoring student progress and evaluating and reporting student outcomes are instructional activities that require the use of reliable student assessment information.

The remainder of this chapter will discuss the concepts which facilitate an understanding of the use of assessment
in educational settings. The conceptual areas of this study have been delineated into the following chapter sections: types of instructional decisions, specific instructional decisions used in the study, use of assessment methods in decision making, attitudes toward assessment, constraints and assessment use, teacher competence in assessment, teacher characteristics, and a conceptual model for the study.

Types of Instructional Decisions

The types of educational decisions that are addressed with educational assessment information are broad and diverse. Depending on the intended purpose, the information derived from classroom assessment activities can be used in decisions at the student, teacher, school, community, state and national level. Satterly (1989) indicated that the overall goal of educational assessment was not to stop at description but to provide information to be used in decision making.

For what particular purpose are teachers utilizing results from their classroom assessment activities? Various lists and categories of purposes have been identified. The American Federation of Teachers, the National Council on Measurement in Education, and the National Education Association (1990) compiled a list of assessment competencies that reflect skills and knowledge critical to a
teacher's role as an educator. The following competencies were found to encompass the scope of a teacher's professional responsibilities for student assessment activities which occur after instruction:

1. Describe the extent to which each pupil has attained both short- and long-term instructional goals.
2. Communicate strengths and weaknesses based on assessment results to students, and parents or guardians.
3. Record and report assessment results for school-level analysis, evaluation, and decision making.
4. Analyze assessment information gathered before and during instruction to understand each student's progress to date and to inform future instructional planning.
5. Evaluate the effectiveness of instruction.
6. Evaluate the effectiveness of the curriculum and materials in use. (p. 2)

Ahmann and Glock (1981) categorized classroom decisions, which utilize assessment information, into three areas: (a) appraisal of the academic achievement of individual students, (b) diagnosis of learning difficulties of an individual student or an entire class, (c) appraisal of educational effectiveness of a curriculum, instructional materials and procedures, and organizational arrangements. Guerin and Maier (1983) identified uses for assessment data
oriented toward their conceptual model of the instructional process: (a) planning educational programs, (b) identifying educational goals, (c) selecting instructional strategies and materials, (d) implementing educational programs, (e) monitoring student progress toward goal attainment, and (f) modifying planned interventions.

A study conducted by Green and Stager (1986) was designed to measure the attitudes of teachers towards both classroom and standardized assessment practices. It was found that teachers viewed classroom tests as effective methods for: (a) motivating students, (b) directing learning, (c) identifying problems, and (d) communicating with parents. Green and Stager considered classroom assessment methods to be valuable tools in measuring students' knowledge and progress, as well as the effectiveness of instruction.

In a report to school district parents, the Fairfax County Public Schools (1982) emphasized the usefulness of classroom assessment activities. Teacher-made assessment items were considered useful in determining how much students were learning about what was being taught in class, enabling teachers to identify whether students were ready to progress on to the next unit or level of the subject, and for determining grades.

Dorr-Bremme (1983) reported that teacher use of assessment results served the functions that are most
central to the daily routines of teachers. The purposes most frequently cited by teachers were: (a) deciding what to teach, (b) deciding how to teach to students of different achievement levels, (c) keeping track of how students are progressing, (d) determining how to adjust their teaching, and (e) evaluating and grading students on performance. Dorr-Bremme also found that assessment results were used less frequently for decisions related to the referral of students needing special instruction, or for the counseling, advising and directing of students. Teachers rarely reported using assessment results for comparing groups of students and reporting to school administrative units. Dorr-Bremme concluded that teachers did not consider these activities to be trivial, but rather, the remoteness from their routine tasks made such assessment information of limited use.

Dorr-Bremme and Herman (1986) reported that assessment information provided information that was considered useful to administrative school functions. Information generated from assessment methods may influence administrative decisions in several ways. It is considered useful in (a) planning curriculum, (b) planning the distribution of school funds, (c) determining student assignment to classrooms, and (d) communicating with parents on student progress.

In the classroom, assessment results help to shape teachers' initial planning efforts, affect placement of
students into learning groups, and count heavily in calculating students' grades (Dorr-Bremme & Herman, 1986). "The various teacher designed strategies of achievement assessment cumulatively shape students' learning environment, academic self concept, educational status, and (ultimately) their socioeconomic opportunities" (p. 104).

Newman and Stallings (1982) concluded that teachers definitely address certain decision areas with their classroom assessment activities. Their study found that the three most popular uses for information from teacher-made assessment methods were for, diagnosing strengths and weaknesses, assessing academic achievement, and assessing mastery of instructional units. Other popular reasons for classroom assessment use were for assessing growth, assigning grades, and planning instruction.

Hall, Villeme & Phillippy (1985) investigated how beginning teachers weighted results from various assessment methods in making critical educational decisions. The decisions were categorized into the areas of student learning and promotion, adequacy of teaching, and the adequacy of instructional materials. They found that teachers use assessment results to: (a) provide evidence of student academic progress, (b) promote and retain students, (c) promote student self-evaluation, (d) motivate student learning, (e) diagnose student weaknesses, (f) judge the
adequacy of teaching, and (g) judge the adequacy of instructional materials.

There are many ways to categorize the uses of assessment information depending upon the instructional model used as a point of reference and the organizational framework that one chooses to utilize. Gronlund (1981) contended that "within any decision area there are numerous sub-questions to be answered as well as a functional overlap among the various areas, and a wide array of different types of evaluation data might be useful in any particular situation" (p.5). The following section addresses ten uses of assessment data which were used in the study.

**Specific Instructional Decisions Used in the Study**

Instructional decisions are the basic decisions made by all classroom teachers. Kubiszyn and Borich (1984) suggested that instructional decisions will become part of the accountability picture in the future. For accountability purposes, teachers must substantiate the instructional decisions they make with valid and reliable assessment data.

The following decision areas, gleaned from the literature, were considered to be representative of the general types of decisions made by classroom teachers: planning for instruction, diagnosing student weaknesses, monitoring student progress towards course objectives,
communicating student achievement, motivating students to learn, evaluating effectiveness of instruction, evaluating instructional materials, grouping students for instructional activities, encouraging student self-assessment, and assigning grades. The following section will explain the relevance of each of these instructional decisions and will provide support for their selection and inclusion.

Planning for Instruction

When planning instruction a number of alternative instructional strategies are considered before selecting the particular teaching method or instructional material. Yeh (1980) considered assessment information to be of critical importance for teacher use when matching instructional alternatives to the goals which students must attain. Gronlund (1981) believed that assessment information enables teachers to take corrective action to help ensure "future experiences in closer harmony with the learning needs of the group" (p.489).

Teachers often do not use or trust tests because of the way they conduct their planning activities concluded Shulman (1980). Teachers tend to not focus on outcomes, objectives, or goals. Their attention is often focused on what the class will do and what will be covered rather than on desired outcomes. When teachers plan for instruction, they
consider such things as pacing and involvement rather than the student outcomes they hope to promote.

Knowledge of student performance results provides information which is capable of improving instruction (Satterly, 1989). "Where teachers are clear as to the aims and objectives of instruction and are able to state in advance the criteria by which children may be said to have attained those objectives, assessment is not seen as a time wasting appendage to classroom practice but as an integral part of planning of effective instruction" (p.4). Satterly stated that "assessment potentially equips teachers to define and teach for objectives which are suitably poised for the abilities and aptitudes of the pupils in question" (p.5).

Gronlund (1981) stated that "the evaluation instruments used in classroom instruction do more than anything else to convey instructional intent to pupils" (p.485). When teachers share instructional objectives with their students they help to clarify the learning process. Gronlund implied that there will be little influence on learning if the evaluation instrument does not reflect instructional objectives.

**Diagnosing Student Weaknesses**

Assessment oriented towards diagnosis is used to place students when beginning instruction, to determine the causes
of students' learning difficulties, and to identify students' strengths and interests. Assessment aimed to diagnose student strengths and weaknesses attempts to identify learning needs and should support the development of a remedial strategy if necessary (Satterly, 1989). Ahmann and Glock (1981) stated that assessment for diagnosis purposes attempts to "determine the best possible instructional situation for students in terms of their present learning status" (p.388). Teachers should be expected to make diagnostic decisions based on both classroom and standardized assessment results.

The diagnostic use of assessment requires information about the difficulties students experience. Teachers must identify learning difficulties specific to the learner when working with a student in an ongoing instructional sequence (Hopkins & Antes, 1985). The assessment instrument then becomes a tool for providing information to pinpoint specific learning difficulties.

**Monitoring Student Progress Towards Course Objectives**

A major purpose of using tests and other assessment instruments during the instructional process is to monitor student progress toward course objectives (Gronlund, 1981). The formative use of assessment instruments provides feedback to both the student and teacher concerning the successes and failures of the learning process. Periodic
assessment provides necessary information for teachers to adjust their instructional activities to meet student needs. Gronlund (1981) claimed that formative evaluation measures are usually teacher-made and include written mastery tests as well as observational techniques.

Rudman (1987) stated that assessment activities have had a tendency to focus on summative rather than formative uses. Assessment has been used to rate pupil progress at the end of some given period rather than to monitor it for periodic adjustment. Rudman felt that "there is little evidence to indicate that teachers use their own tailor-made tests analytically to identify key factors upon which to build learning experience" (p.74).

According to Hopkins and Antes (1985) the emphasis of assessment, which monitors the learning process, lies in its determination of objective attainment. An assessment instrument identifies where instruction has been successful, learning accomplished, and intended outcomes met. Decisions about further instruction can be based on information from preceding instructional activities.

Communicating Student Achievement

An important dimension of assessment has been to provide information for feedback. "The number one motivator of people is feedback on results" claimed Blanchard (1983, p.67). In a review of literature Kirkland (1971)
consistently found that feedback from tests promoted learning, as long as students made an attempt to do well. Feedback which focuses student attention upon their mastery of educational tasks enhances self-efficacy, encourages effort and reduces attention to social comparisons (Crooks, 1988). All learners require indicators that confirm if they are on the right track or provide corrective information if they are not (Satterly, 1989).

Results of classroom assessment methods provide teachers with feedback regarding what students have and have not learned. Once marked and returned, results provide students with feedback about their strengths and weaknesses (Linn, 1983). "By itself a test score does little to identify the nature of a problem, only that there is one. Much more specific information is provided when a test is returned with marks and comments which may include prescriptions for corrective action" (p.179).

Gagne (1985) indicated that the usefulness of feedback during the attainment of newly learned skills should not be overlooked. "When topics are being learned feedback for the correct accomplishment of each subtopic can be of considerable value in increasing the efficiency of learning" (p.315).
Motivating Students to Learn

Too much emphasis has been placed on the grading function of classroom assessment and too little on its impact in assisting students to learn (Crooks, 1988). Natriello and Dornbusch (1984) identified six conditions for effective evaluation, based upon control processes in organizations. Natriello and Dornbusch contended that the evaluation of student performance by teachers is the primary mechanism for encouraging student effort on school tasks. Six conditions were seen as necessary to insure appropriate effort on school tasks:

1. The school organization must distribute a set of rewards and penalties perceived by students as important or central in their lives.

2. These rewards and penalties must be connected to the evaluation students receive.

3. Students must see a connection between their effort on school tasks and the evaluation they receive.

4. Evaluations for performance must be at approximately the same level as the evaluations received for similar performances by other students (reliable evaluation).

5. Students must be exposed to an appropriate reference standard for performance.
6. Students must receive evaluations that are sufficiently frequent and challenging to direct their efforts on school tasks. (p.5)

Evaluating Effectiveness of Instruction

The student is the obvious focus for assessment, yet the instructional program merits equal attention. "When learning does not occur, it is just as appropriate to question instructional procedures as it is to examine student performance" (Guerin & Maier, 1983, p.20). Weaknesses in methods and classroom management can be difficult to detect. A systematic check of objectives, methods, and materials can reveal the source of student problems and lead to improved instruction (Guerin & Maier, 1983).

"Teachers appear not to evaluate their day to day activity in terms of general assessments of achieved outcomes, but rather attend to variations in student involvement" (Shulman, 1980, p.70). When asked what was achieved in class, teachers commonly respond that so many pages of subject matter were covered and that the students were involved.

Evaluating Instructional Materials

Gronlund (1981) emphasized the important linkage between use of curriculum materials, instructional
objectives, and assessment practices. Curriculum materials which are based on objectives and validated through assessment procedures simplify the work of the classroom teacher and provide greater assurance that the evaluation of pupil learning will be directly related to the objectives of the unit. During the early stages of curriculum development or use, assessment data enables the teacher to determine the effectiveness of procedures and identify areas where revision may be needed (Gronlund, 1981).

In a study conducted by Hall, Villeme, and Phillippy (1985), beginning teachers were found to have a greater willingness to use assessment results in drawing inferences about the adequacy of their instruction rather than drawing inferences about the adequacy of the instructional materials they use. It was hypothesized that beginning teachers accept greater accountability for their own teaching behavior than for the materials with which they work.

Grouping Students for Instructional Activities

The selective grouping of students for maximum learning from instructional activities is a common practice used by teachers (Stiggins & Bridgeford, 1986). The achievement characteristics of students within groups has the potential to affect all instructional activities. These activities include: the analysis of instructional goals, lesson development, selection of resource materials, delivery of
instruction, writing of test items, and interpreting test performance (Carey, 1988).

**Encouraging Student Self-Assessment**

It is desirable to enhance teacher collected assessment information with information obtained directly from pupils. "A complete picture of a pupil's adjustments, interests, and attitudes cannot be obtained without a report from the pupil" (Gronlund, 1981, p.456). Self-reports can provide valuable information as to how students perceive themselves and how they want to be perceived by others.

It is recommended that students be encouraged to identify important criteria for successful performance. Gronlund (1981) suggested that self-tests, rating scales, and other self-evaluation devices be available for students use. All classroom assessment instruments serve as guides to learning if the nature and purpose of the instruments are communicated to pupils early in the instructional process.

Self assessment need not be limited to individual applications. Cooperative assessment skills are necessary if cooperative learning strategies are to be employed in the instructional process. Cooperative learning approaches enable students to share different perspectives and skills in the development of an educational task (Crooks, 1988). Cooperative assessment activities can be utilized to draw
upon differing perspectives to build individual assessment skills.

**Assigning Grades**

"Test results are a major variable in determining whether a student enters a program, passes a course, is allowed to go to a higher level or leaves a program" (Green & Stager, 1986, p.144). Teachers agree that tests should not be the sole basis for grades, yet many teachers indicate that tests do provide the primary basis for student grades in their classrooms. Gullickson (1984) concluded that such a heavy emphasis on tests in grading may stem from the belief that: (1) "tests provide the best measure of learning" or (2) "the perception that tests are simply an administrative necessity" (p.247).

The extent to which teachers use accurate assessment information in determining grades can be offset by other extraneous factors which are considered in determining grades. The assessment information which is utilized in determining grades often has little to do with student achievement. Student grades are often reduced because of tardiness, failure to bring material to class, excessive absence from class, work turned in late, and cheating (Hills, 1991). Teachers may "grade on the basis of improvement, the divisions between grades may be based on the gaps in frequency distributions, and the level of
knowledge that appears to the student to be required for good grades may change from one test to the next" (Hills, 1991, p.541).

Use of Assessment Methods in Decision Making

Prior to the 1980's the primary focus of research in assessment was not focused on the classroom but rather upon the area of standardized forms of assessment (Stiggins & Bridgeford, 1985). Classroom assessments, made by teachers, has not been examined in depth. Stiggins and Conklin (1992) stated that "although we were in an outstanding position to construct and administer high-quality, large-scale testing programs in the early 1980's, we were far less able to teach teachers how to address the task demands of the day-to-day measurement of student achievement" (p.11). According to Lazar-Morrison, Polin, Moy, and Burry (1980) little was known about the kinds of assessment activities which provided teachers with the information needed to support their judgments on student performance. "In the literature, teacher-made assessments, curriculum embedded tests, and district constructed tests have been inspected much less closely than the more formal measures" (p.7). The linkage between classroom assessments and the making of instructional decisions comprised a particular area recommend for exploration.
Shulman (1980) believed that a teacher's ability to conduct an array of assessment practices should generate a rich source of useful data for decision making. It was recommended that ways be sought to help teachers document, in a more calibrated manner, the observations which they make so frequently in the classroom. Shulman (1980) made reference to the assessment practices of a physician in emphasizing the range of activities that a teacher could be expected to perform.

The physician uses observation, interview, touching and feeling, as well as testing, and develops an assessment and a plan by aggregating across those sources of information rather than by giving almost total weight to any one source and subordinating the others to it. (p.69)

In the review of literature, six general categories of classroom assessment methods were identified as representing the various individual assessment instruments or procedures which teachers use to generate information for decision making. The groups of assessment methods were referred to as: objective paper and pencil items, standardized test scores, performance assessments, informal observations, essay type items, and portfolios.

The Center for the Study of Evaluation's Test Use in Schools Project generated national data on classroom achievement assessment (Dorr-Bremme, 1983). This study was
one of the first research efforts to investigate the linkage between classroom assessment and its use in instructional decision making. For the initial grouping or placing of students in a curriculum, changing students from one group to another, and assigning grades, teachers reported that their own observations, student's classwork, and teacher developed tests were crucial or important sources of information. Standardized test results were rarely found to be important in deciding on student grades but were considered for beginning of the year planning and reassigning students to instructional groups (Dorr-Bremme, 1983; Dorr-Bremme & Herman, 1986).

Dorr-Bremme (1983) stated that if testing programs were to be useful for teachers they must take into account teacher's routine thinking and practices in assessing student achievement. This study also found that the types of assessment that teachers rely upon most heavily have three common characteristics:

1. Immediate accessibility: teachers can give them when they choose and see the results promptly.
2. Proximity between their intended purposes and teachers' practical activities.
3. Consonance between the content they cover and the content taught. (p. 5)
Dorr-Bremme (1983) concluded that teachers perceive their use of assessment techniques as accurately measuring the effects of the instruction they have provided.

In a further analysis of the national survey, Dorr-Bremme & Herman (1986) made additional contributions concerning teachers testing practices. They reaffirmed that teachers place less emphasis on formal test results than they do upon information they gather themselves. Teachers were rarely found to rely on only one type of assessment in making instructional decisions. "Not only do a good number of teachers routinely consult several types of assessment results in reaching each decision listed, they consider many as equally crucial or important" (p.38). Teacher-made tests, daily assignments, observations, and judgments play a valuable role in influencing students' educational experiences and life chances (Dorr-Bremme & Herman, 1986).

Instructional circumstances do not tend to influence teachers use of external test results. Dorr-Bremme and Herman (1986) stated that "external test results become more important to teachers only when something or someone impels or induces teachers to treat them as more important" (p.96). Dorr-Bremme (1983) summarized the position of standardized testing advocates who assert that such tests promote high standards for learning, facilitate more accurate placement decisions, yield information for the improvement of
curriculum and instruction, and help the public hold schools accountable.

In specific reference to observation type of assessment activities, Guerin and Maier (1983) stated that teacher observations note those dominant details of a student's behavior that are readily observable and can be easily recalled to memory. If not used properly this assessment method can result in an incomplete patchwork of knowledge. Guerin and Maier (1983) believed that "such observations tend to focus on the extraordinary features of a student's behavior and are in part limited by the perceptual skill of the teacher" (p.6).

Gullickson (1984) reported that teacher-made tests serve teacher's needs best when evaluating students. Essay tests were the next most useful with standardized tests and oral quizzes being somewhat less useful. Gullickson stated that teacher developed tests, teacher observations and text embedded tests served information needs more effectively than did standardized tests. Teachers indicated that tests facilitated evaluation and were the best means of assessing individual student learning.

Hall, Villeme, and Phillippy (1985) conducted a study which investigated beginning teachers' use of teacher prepared test and statewide minimum competency test results in making critical educational decisions. Teacher prepared tests and state wide minimum competency assessment
instruments were perceived as about equal in making critical
decisions. State assessment test results were considered
most important in decisions about academic progress,
diagnosis of student weaknesses, judgements about the
adequacy of teaching, and judgement regarding the adequacy
of instructional materials. Teacher prepared tests were
considered most important for student self-evaluations and
for motivating student learning. Although both standardized
tests and teacher-made tests were viewed as important in
selected types of educational decisions, none were judged to
play a clearly dominant role. The finding suggests that
beginning teachers do not view testing as a true indicator
of what a student is achieving.

Stiggins and Bridgeford (1986) examined the role and
relative importance of teacher-made objective tests,
published tests, and performance assessments used in
classroom decision making. Teacher-made objective tests
were considered most important when making decisions related
to diagnosing students, assigning grades, evaluating the
effectiveness of an instructional treatment and reporting
achievement results. When forming instructional groups, all
three types of tests were weighted equally. Performance
assessments were found to be only slightly less useful than
objective tests in all of the same decision areas.

Hall, Carroll, and Comer (1988) conducted a study to
examine the perceptions of teachers regarding the weight
given to the results from three major test types in making educational decisions: teacher prepared, nationally standardized, and state competency tests. It was found that new teachers gave greater weight to their own self-made tests and to statewide assessment tests than to their districts standardized test in making decisions affecting learning and instruction.

Griswold (1988) reported that teacher observation and judgment, and teacher-made objective tests were used extensively for classroom assessment purposes. Teachers used observation and judgment more than any of the other assessment methods and were most concerned with improving these forms of testing. Teacher-made tests were the second most used with the least used method reported to be standardized achievement tests.

**Attitudes Towards Assessment**

Some teachers regard the evidence of learning provided by tests to be of limited value, inaccurate, and largely irrelevant to the purposes of education while others rely on the information generated by tests to provide them with the basis for improving instruction and enhancing learning. Why do some teachers oppose assessment activities while others utilize them extensively? This question remains relatively unexplored as very little research has been conducted on
teachers' attitudes towards the practice of classroom assessment (Green & Stager, 1985).

Early studies focused upon attitudes towards standardized testing. Yeh (1980) reported that elementary teachers with eight years or less of teaching experience tended to be more skeptical of testing than their more experienced counterparts. The less experienced teachers were also less optimistic about the extent to which instruction influences student performance on standardized tests. Goslin (1967) hypothesized that a relationship existed between opinion and the practical use of standardized test scores. It was concluded that teachers who generally believe in the usefulness and accuracy of standardized tests made greater use of such scores than did teachers who were less confident of the value of such tests.

The current drive towards accountability has raised the fear that teacher intuition will be supplanted by the current enthusiasm for data based decision making (Rudman, 1987). If tests are to be used effectively as part of the instructional process, teachers need to perceive the positive aspects of responsible testing and test use, be willing to use tests results for more than grading, increase their knowledge of testing and communicate positive feelings about tests to their students (Green & Stager, 1986). Teachers will be more likely to do this if they have positive opinions of tests themselves (Green, 1990).
"Teachers' attitudes toward the tests they give and toward the practice of testing can influence many facets of education: the quality of tests given, the meaning in test scores, the way in which information from tests is used, the evaluations made by students (and parents) as well as by the teacher, and the students perceptions of themselves the school, and the instructional process." (Green & Stager, 1985, p.1)

In their review of literature Schafer and Lissitz (1987) concluded that although teachers may be ill-trained to use accepted measurement practices, they see assessment as an important part of their professional role and feel positively towards it. Whereas Schafer and Lissitz did not identify a relationship between level of competence and attitude, Rudman, (1987) believed that familiarity with testing, teaching experience, and student performance on tests all have a bearing on the attitudes teachers hold about assessment. Teachers with a knowledge base in measurement were found by McKee and Manning-Curtis (1982) to have more positive attitudes toward tests than did teachers with no knowledge base in measurement.

Gullickson (1984) found that teachers viewed tests as important instructional tools worth the time and effort required for their use. Participants in the study agreed that tests "increase student effort, affect student self-
concept, create competition, improve student interaction and in general improve the learning environment" (p.247).

Green and Stager (1985) found that "teachers who use tests more often have somewhat more positive attitudes toward the effectiveness of classroom tests than do teachers who use tests less frequently" (p.8). The relationships between attitude measures and reported use of classroom tests were low, but consistently positive, suggesting that a true relationship between attitude and test use might exist.

Green (1990) undertook a study to assess differences in teacher opinions about testing and test use. Differences were sought in the opinions about testing and test use between preservice and inservice teachers, and among inservice teachers with differing years of experience. Although no significant differences were found within groups, opinions of both teachers and preservice teachers about classroom testing were generally positive. Opinions about standardized testing from both groups were less positive.

In a prior study Green and Stager (1986) determined that a relationship of practical significance between attitudes and test use did not exist. It was indicated that the relationship was "probably affected by numerous other factors such as accountability demands, students' expectations and expectations of peers" (p.149).
Constraints and Assessment Use

"Necessary and sufficient resources must be available for teachers to implement any new idea—and the systematic use of test data to improve instruction is a relatively new idea" (Yeh, Herman, & Rudner 1981, p.12). Hall, Carroll, and Comer (1988) investigated the relationship of assessment use to degree of autonomy in teaching and found that the more autonomous teachers were the less inclined they were to use the results of tests that had been imposed upon them. The authors concluded that autonomy potentially serves as a mediating factor in the application of test results in the classroom.

Gullickson (1984) identified the lack of assistance and insufficient time as potential constraints in the use of assessment. A strong majority of teachers were found to prepare and score their tests without assistance. The average teacher supported the argument that tests could be used more effectively if they had more time available for assessment development, implementation and use. In support of Gullickson's findings, Stiggins and Bridgeford (1985) found that "teachers frequently reported concern about their ability to effectively integrate assessment given the time constraints imposed by the classroom" (p.282).

Fielding, Shaughnessy, and Duckworth (1986) initiated a study to investigate the adoption of recommended assessment practices presented through teacher inservice. The study
found that one of the primary concerns of the participants was that resources, in terms of test scoring machines and goal referenced test-item banks, were not available. In addition, recommended assessment practices required teachers to invest more time in the assessment process than they had previously allocated.

In a study conducted by Yeh et al. (1981) it was found that the presence of aides was associated with more frequent use of assessment data. Several hypotheses were put forth to explain this result. A classroom aide may help with the considerable amount of record keeping required to make good use of test data for instructional decision making. In addition, the presence of an aide provides additional support which a teacher may draw upon when prescribing alternative settings for instruction. Teachers may have less motivation to use test data when "they lack the resources to carry out more individualized prescriptions and/or needed remediations" (p.11).

Teachers were concerned about their ability to effectively integrate assessment given the time constraints they experienced (Stiggins & Bridgeford, 1985). The lack of time to address problems related to assessment quality was the primary focus of this concern. In a study conducted by Griswold (1988) teachers reported that they required more time if meaningful assessments were to be developed or improved.
Teacher Competence in Assessment

Newman and Stallings (1982) reported that four of the six purposes for testing -- assessing achievement, assessing mastery, assigning grades, and planning instruction were related to a teacher's knowledge of testing. To assist in the improvement of training and certification programs in measurement and assessment the American Federation of Teachers, National Council on Measurement in Education, and the National Education Association (1990) developed a set of standards for teacher competence in student assessment. The standards were intended for use as: (a) a guide for teacher educators as they design and approve programs for teacher preparation, (b) a self assessment guide for teachers in identifying their needs for professional development in student assessment, (c) a guide for inservice workshops, and (d) an impetus for educational measurement specialists and teacher trainers to conceptualize student assessment and teacher training in student assessment more broadly than has been the cased in the past. (p.1)

The Standards require that teachers be skilled in the following competencies:

1. Choosing assessment methods appropriate for instructional decisions.

2. Developing assessment methods appropriate for instructional decisions.
3. Administering, scoring, and interpreting the results of both externally produced and teacher-produced assessment methods.

4. Using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement.

5. Developing valid pupil grading procedures which use pupil assessments.

6. Communicating assessment results to students, parents, other lay audiences and other educators.

7. Recognizing unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information (American Federation of Teachers et al., 1990, (p.1)).

Standard four specifically addresses the concept of test use. Teachers should be able to:

1. Use accumulated assessment information to organize a sound instructional plan for facilitating students' educational development.

2. Use assessment results to evaluate instruction and curriculum through the proper interpretation of results.

3. Stay informed about the results of local, regional, state, and national assessments and about their use for pupil, classroom, school, district, state, and national educational improvement. (p.4)
Teacher training in measurement and assessment, has had and will continue to have, an effect on teacher assessment use. Carter (1984) suggested that "increased knowledge of testing should better equip teachers to make important value judgments about the utility of different testing approaches, particularly as these approaches relate to personal instructional goals and practices" (p.60).

In a review of literature conducted by Newman and Stallings (1982) it was pointed out that in the last 25 years there has been little change in the status of teacher measurement competency. The current level of teacher competency in classroom testing calls into question the adequacy of teacher preparation for assessment responsibilities. Gullickson and Hopkins (1987) suggested that preservice instruction in educational assessment was not adequate to develop the level of desired skills. In a study conducted by Schafer and Lissitz (1987) teachers were reported to be ill trained as seen by their performance on tests of measurement principles and by an analysis of their tests. Schafer and Lissitz claimed that a significant proportion of teachers and as well as administrators did not receive much training in measurement methods.

Hills (1991) addressed the current situation by stating that "on a large scale, schools, their administrators, and their teachers apparently do not know or do not attend to what are sound and proper assessment practices" (p.544).
Carter (1984) reported that teachers felt insecure about their knowledge of "basic principles of item writing" (p.60). It was reported that the primary reason that this problem exists is that no one takes courses in student evaluation. Hills (1991) identified only four states that had a legal requirement that preservice teachers take at least one course in this area.

Carter (1984) provided three recommendations for both preservice and inservice programs.

1. The scope and sequence in preservice measurement courses should be examined in light of teacher's insecurity about the strength of their background in testing.

2. Preservice measurement courses should be critiqued to determine whether content runs parallel with testing activities at the local district and classroom level.

3. Inservice should focus on enhancing teachers to tackle different testing issues.

Stiggins, Griswold, and Wikelund (1989) found that teachers who "lacked training in the teaching and assessment of higher order thinking skills tended to assess them less often" (p.244). Important findings from this study indicated that teachers believed in the importance of developing critical thinking skills, and that such thinking skills could be taught. However, they were less certain
about the accessibility of thinking skills, and rated their ability to assess such skills as lower than their ability to teach them.

"Personnel who conduct research in the area of educational measurement do not seem to be teaching formal measurement required for certification in the majority of teacher education programs" (Schafer & Lissitz, 1987, p.62). Gullickson and Hopkins (1987) implied that professors were not specifically trained in the application of measurement skills to classroom evaluation concerns. Gullickson and Hopkins (1987) found that when professors had additional time for classroom instruction the time was utilized for statistics and standardized testing rather than areas such as test development and grading.

Gullickson and Ellwein (1985) found that although the "theoretical implications of test analysis have been made clear, empirical evidence of benefit for instruction, and student achievement are lacking" (p.17). Gullickson and Hopkins (1987) concluded that "experienced faculty know that even a full course, without an overdose of statistics, is minimal preparation for providing the range of evaluation methods needed to grasp and apply the proper role of measurement/evaluation in instructional design" (p.15).

Gullickson (1984) stated that the "average teacher does not perceive college courses to be pertinent to his/her classroom testing needs" (p.245). The implication is that
Many teachers learn assessment practices through practical experience in design and implementation. Although teachers appeared to be comfortable in their knowledge of assessment, Gullickson and Hopkins (1987) perceived that they were "much less prepared than what is desirable" (p.245). Hills (1991) indicated that the most serious problem with teacher competence in this area was the fact that the primary means of assessment, the classroom test, is "often seriously flawed or misused" (p.542).

Not all research has led to such dismal conclusions regarding the status of measurement and assessment training. Fleming and Chambers (1983) examined the strengths and weaknesses of teacher-made tests in the Cleveland School District. Results indicated that training programs addressing item construction and tests as measurement of student learning were desirable. Shutz (1980) downplayed the importance of formal assessment training and indicated that anyone concerned about acquiring test design and construction skills gain them by consulting texts in measurement and evaluation. Shutz expressed that these skills can be acquired by any Bachelor of Arts level person within a few months of on the job training.

There are claims that teachers are not currently rewarded for their efforts in improving assessment techniques. Hills (1991) suspected that "one would have a difficult time finding in the entire United States even a
single teacher whose career was adversely affected by ignorance of assessment skills" (p.545). "Any rational teacher trainee can quickly conclude that being competent in student assessment is at best a frill" (Hills, 1991, p.545).

Gullickson and Hopkins (1987) concluded that the substantial constraints imposed on educational measurement courses, will continue to cause students to be inadequately prepared for classroom evaluation tasks. Strong differences exist regarding what measurement instruction preservice teachers should receive. "Teachers have not learned, and rarely apply those concepts that apparently receive major emphasis in measurement instruction" (p.12).

Newman and Stallings (1982) suggested that an emerging trend was the incorporation of more measurement work in teacher training programs. More than three-fourths of the inservice teachers studied had completed one or more courses in measurement and only 12.9% had received no training in measurement. They suggested that there was a trend moving towards emphasizing whole courses in measurement rather than the completion of measurement coursework in other courses.

**Teacher Characteristics**

The demographic and background characteristics of teachers have been recognized as factors which can explain variations in teacher competence and in particular teacher use of assessment. In a study of more than 6,000 teachers,
Ryans (1960) found significant differences in teacher's classroom behavior due to variables such as age, gender, and teaching experience. Years of teaching experience was found to be related to different patterns of assessment use by Yeh, et al. (1981). Those teachers with less than eight years of teaching experience were more likely to use their own objective paper and pencil tests over the results from required, standardized, or curriculum embedded tests.

Brophy and Good (1986) found that class, subject, and group size were variables that influenced teacher effectiveness. Doerfert (1989) examined the relationship between teacher's professional knowledge competence and type of teacher preparation, age, gender, related work experience, program area, type of school and education level. Significant differences were found to exist for age, gender, type of school, and level of education in their relationship with professional knowledge competence.

Several teacher background characteristics were found by Newman and Stallings (1982) to be correlated with classroom assessment competency. It was determined that younger teachers, teachers with higher degrees, and teachers with less teaching experience tended to score higher on an instrument which measured an understanding of classroom assessment principles.
Conceptual Model for the Study

A conceptual model for this study, depicted in Figure 1, was based on the review of literature. The use of student assessment information in educational decision making was examined. The study focused on the relationships between use of assessment information and competence in assessment, attitude towards assessment, constraints to assessment activities, and selected teachers' characteristics: age, gender, education level, teaching experience, related work experience, program area, type of school, and certification route. Attitude towards assessment, constraints in the assessment process, and competence in assessment were seen as being interrelated with each other while being dependent upon teacher characteristics.
Figure 1. Conceptual framework of the relationship between selected independent variables and vocational education teachers' use of student assessment information.
CHAPTER III

METHODOLOGY

"Although there are other sources of knowledge, such as experience, authority, and tradition, it is scientific knowledge about the educational process that makes the most valuable contribution to decision making in education."

Ary, Jacobs, Razavieh, (1990. p.4)

This chapter describes the methodology used to carry out the research. The methodology is organized and presented in the following sections: (a) research design, (b) population and sampling, (c) instrumentation, (d) data collection, and (e) data analysis.

Research Design

This descriptive-correlational study was designed to describe and explore assessment use practices by secondary vocational education teachers in Ohio. The study examined the use of assessment information, obtained from six types of student assessment methods, in addressing 10 instructional decisions. The nature and strength of relationships between assessment use and teacher attitudes, teacher competence in assessment, constraints to assessment, and teacher characteristics were examined.
The dependent variable in this study was teacher use of student assessment information in instructional decision making. The variables teacher attitude towards assessment, teacher competence in assessment, and constraints to the assessment process were the independent variables. The specific constraints to assessment use which were identified were: time, money, technology and assistance, training, autonomy, and availability of materials.

Those teacher characteristics beyond attitude and competence which had potential relationships with assessment use were identified in the literature. The teacher characteristics included in this study were: age, gender, education level, subject taught, type of school, teaching experience, related work experience, and certification route.

**Population and Sampling**

The target population for this study was all teachers who taught full time, secondary vocational education programs in Ohio public schools. The frame for the study was obtained from the Office of Vocational Education Information Services, Division of Vocational and Career Education, Ohio State Department of Education. Table 1. depicts the composition of the vocational education teacher population in Ohio by program area and number of teachers.
Table 1

<table>
<thead>
<tr>
<th>Program</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>465</td>
<td>8.3</td>
</tr>
<tr>
<td>Business</td>
<td>854</td>
<td>15.3</td>
</tr>
<tr>
<td>Health</td>
<td>168</td>
<td>3.0</td>
</tr>
<tr>
<td>Home Economics</td>
<td>1727</td>
<td>31.0</td>
</tr>
<tr>
<td>Marketing</td>
<td>304</td>
<td>5.5</td>
</tr>
<tr>
<td>Occupational Work Experience</td>
<td>557</td>
<td>10.0</td>
</tr>
<tr>
<td>Trade and Industry</td>
<td>1494</td>
<td>26.9</td>
</tr>
<tr>
<td>Total</td>
<td>5569</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Sample size was calculated using the formula suggested by Cochran (1977).

\[
\begin{align*}
  n_0 &= \frac{t^2 s^2}{d^2} \\
  d &= \frac{t \cdot s}{\sqrt{n}}
\end{align*}
\]

(1)

\[
d = \text{acceptable margin of error for the mean being estimated}
\]

\[
t = \text{risk willing to take that actual margin of error may exceed acceptable margin of error.}
\]

\[
s^2 = \text{estimate of variance in the population}
\]

\[
s = \text{estimated standard variation in the population}
\]

An acceptable margin of error was established at ±.09. The risk that the actual margin of error will exceed the acceptable margin of error was established at one in twenty (.05). A conservative standard deviation estimate of .90
was assumed to be realistic for Likert type questions that use a 5-point scale. The calculations specified a minimum sample size of 384. The final study utilized a sample of 393 secondary vocational education teachers. The number and percent of teachers sampled from each program area are shown in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Program</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>32</td>
<td>8.1</td>
</tr>
<tr>
<td>Business</td>
<td>60</td>
<td>15.3</td>
</tr>
<tr>
<td>Health</td>
<td>12</td>
<td>3.1</td>
</tr>
<tr>
<td>Home Economics</td>
<td>121</td>
<td>30.8</td>
</tr>
<tr>
<td>Marketing</td>
<td>24</td>
<td>6.1</td>
</tr>
<tr>
<td>Occupational Work Experience</td>
<td>39</td>
<td>9.9</td>
</tr>
<tr>
<td>Trade and Industry</td>
<td>105</td>
<td>26.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>393</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The sample was randomly drawn from an alphabetized frame by the Office of Vocational Education Information Services. To ensure random selection from the alphabetical listing a random start at the 10th name was used with every 10th name drawn from the frame thereafter. To reduce the sampling variation which occurs with simple random sampling and to produce a sample which more closely reflects the population a stratified random sample was used. This
sampling procedure was utilized to ensure that representative proportions of teachers would be sampled from each of the vocational education program areas.

The four major threats to external validity in a descriptive study are frame error, sampling error, selection error, and non-response error. A discrepancy between the intended target population and the actual population from which the sample was drawn would result in frame error. To control for frame error the most recent listing of vocational teachers in Ohio (Autumn, 1992) was used. This list was comprised of teachers who taught in programs which received vocational funding from the Ohio State Department of Education.

Sampling error is reflected in the difference between sample and population measures (Fraenkel & Wallen, 1990). Sampling error was not a totally unknown factor as the acceptable margin of error for the sample mean was estimated at ±.09 with 95% confidence.

Selection error becomes an issue when some sampling units have a greater or lessor chance of being selected than others. Such error commonly results from the use of non-representative or non-probabilistic samples. The stratification and randomization of the selection procedure assured that selection error was kept to a minimum. The Office of Vocational Information Systems gave assurances that the software program used to select the random
participants automatically controlled for duplication of teacher names.

Non-response error is an issue when subjects selected for the study are not located, fail to respond, refuse to return or do not return the questionnaire for some reason. Non-response error was controlled by statistically comparing a randomly selected follow-up group of non-respondents to respondents.

**Instrumentation**

A five-part questionnaire (see Appendix A) was designed by the investigator for use in measuring the variables of interest. The dependent variable, teacher use of student assessment information, was measured in Part 1 of the instrument. Respondents were asked to indicate the extent to which they use information derived from six types of assessment methods in addressing 10 different instructional decisions. The six types of assessment methods used in the study included: objective paper and pencil items, informal observations, standardized test scores, performance assessments, portfolios, and essay type items.

Participants were asked to indicate the extent to which they use results, from each of the six assessment methods, in making 10 different types of instructional decisions. The 10 instructional decisions that were addressed were: planning instruction, diagnosing student weaknesses,
monitoring student progress towards course objectives, communicating student achievement with parents, motivating students to learn, evaluating the effectiveness of instruction, evaluating the instructional materials used, grouping students for instructional activities, encouraging students to assess their own work, and assigning grades. A 5-point Likert scale ranging from "no use" to "considerable use" was used.

The first independent variable of interest was examined in Part 2 of the instrument. Respondents were asked to indicate their competence in the assessment process using a series of competency statements based on "Standards for Teacher Competence in Educational Assessment of Students" (American Federation of Teachers, National Council on Measurement in Education, & National Education Association, 1990). A 5-point Likert scale, which ranged from "not competent" to "extremely competent", was used.

Teacher attitudes towards assessment was measured in Part 3 of the questionnaire using a semantic differential scale. The scale was comprised of nine bi-polar adjectives which described the concept "assessment". A seven-point scale was used for each pair of adjectives. Participants were asked to use the scale for each adjective pair to describe their attitude towards the overall assessment process.
In Part 4 of the questionnaire, 10 statements were used to measure teachers' perceptions of constraints to their assessment activities. Major constraints identified in the literature included: time, money, technology and assistance, training, autonomy in making assessment related decisions, and availability of assessment materials. The 5-point Likert scale used in this section ranged from strongly disagree to strongly agree. Participants were asked to indicate their level of agreement with each of the constraint statements.

Teacher characteristics were measured in Part 5 of the instrument. Respondents were asked to provide personal information concerning each of the following characteristics:

**Related work experience:** years of related work experience prior to entering full time teaching

**Teaching experience:** years employed as a teacher

**Subject area:** current vocational program areas encompassing: agriculture, business, home economics, marketing, trade and industrial, and occupational work experience

**Level of education:** highest level of education achieved: high school or equivalent, some college, associate degree, bachelor degree, some graduate work, and a graduate degree
**Route to teacher certification:** teacher preparation coursework completed either prior to entering full time teaching or after entering full time teaching

**Age:** the reported age of the individual

**Gender:** the reported sex of the individual

**Type of school:** comprehensive high school, joint vocational school, career center or other type of vocational education facility, i.e., middle school or correctional facility

To ensure validity of the data, a panel of experts was used to establish content and face validity. The panel consisted of four professors of vocational education at The Ohio State University, five doctoral students in vocational education from The Ohio State University, two vocational education teachers, and two Ohio State Department of Education supervisors. Following a review of the instrument, recommendations provided by the panel were incorporated into the instrument where appropriate.

A revised instrument was pilot tested for reliability using a subsample of the population not selected for participation in the main study. A test-retest procedure was used with a two week interval between implementation. The results were compared for percent agreement with values that ranged from 0.64 – 1.0 for each item. Items were said to be in agreement if the score from the initial test was no more than ± 1.0 of the score on the retest. Measures of
internal consistency were calculated from data obtained from the first phase of the test/retest procedure. Cronbach's Alpha ranged from .81 - .96 for each of the 10 sections in Part 1, .91 for the 24 summed statements in Part 2, .90 for the semantic differential in Part 3, and .74 for the sum of the 10 statements in Part 4.

Data Collection

The data for this study was collected using a modified version of the Total Design Method as recommended by Dillman (1978). A 12-page questionnaire, printed in booklet form, was utilized. Each of the two questionnaire mailings used different color paper to differentiate responses. No questions were written on the front or back covers.

The first mailing of the questionnaire was sent on April 20, 1993. An enclosed cover letter (see Appendix B) emphasized the confidentiality of the study and the importance of filling out and returning the questionnaire. Participants were given one week to return the questionnaire. A pre-addressed and stamped envelope was included for their convenience. Also enclosed in the questionnaire packet was a small incentive item ("Vocational Education" Post-it™ Notes) which Dillman (1978) suggested using to improve response. The instruments were coded to assist with follow-up mailings to non-respondents.
One week after the first mailing of the questionnaire, a postcard reminder (see Appendix C) was sent to all participants (April 26, 1993). The postcard thanked those who had already returned a completed questionnaire and reminded those who had yet to complete the questionnaire to please do so. Two weeks after the first mailing (May 4, 1993) a second packet of information was mailed. The second packet included the questionnaire, the pre-addressed and stamped envelope, and a cover letter (see Appendix D) to again emphasize the importance of returning the questionnaire. The final correspondence with participants was a second postcard reminder (see Appendix E) which was sent to all respondents on May 26, 1993. June 4, 1993 was the deadline for accepting returned questionnaires.

Useable questionnaires were received from 290 participants during the six week data collection process. With 100 participants not responding, a 74% response rate was achieved.

Ten percent of the non-respondents were randomly selected and interviewed by phone. The odd sections in Part 1, all even numbered questions in Part 2 and all questions in Parts 3 and 5 were presented in the telephone interview. Differences between non-respondents and respondents on the dependent variable, teacher use of student assessment information, and selected teacher characteristics were examined with a t-test (Table 22, see Appendix F). A
significance level of alpha .05 was established a priori. No significant differences were found between groups on the dependent variable or on the selected teacher characteristics. It was concluded that non-respondents were not significantly different from respondents in the study on the variables of interest, thus permitting generalization to the target population.

**Data Analysis**

The data collected for this study were analyzed using the Statistical Package for the Social Sciences (SPSS/PC+) computer program. Descriptive statistics provided measures of central tendency and variability for organizing, summarizing and analyzing differences between groups. Pearson's $r$ coefficient, point biserial correlation coefficients, and multiple $R$ coefficients from regression analysis were used to summarize the magnitude and direction of the relationship between variables. The conventions by Davis (1971) were used to describe the measures of association and are presented in Table 3. Semi-partial, simultaneous multiple regression analysis was used to determine the variance in use of assessment information as explained by selected independent variables.
Table 3

Conventions Used to Describe Measures of Association

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.70 or Higher</td>
<td>Very Strong Association</td>
</tr>
<tr>
<td>.50 to .69</td>
<td>Substantial Association</td>
</tr>
<tr>
<td>.30 to .49</td>
<td>Moderate Association</td>
</tr>
<tr>
<td>.10 to .29</td>
<td>Low Association</td>
</tr>
<tr>
<td>.01 to .09</td>
<td>Negligible Association</td>
</tr>
</tbody>
</table>

Source: Davis, (1971)

Semi-partial multiple regression was used to calculate the unique relationships between independent variable sets and the dependent variable-teacher use of student assessment information. The selection of this regression model was based on the exploratory nature of the study, the fact that interval, ordinal, and nominal variables were being investigated, and that theory was not available to guide the order in which variables were entered into the equation. The independent variables that were entered into the regression equation were, teachers attitudes towards assessment, teacher competence in the assessment process, constraints to assessment, subject taught, type of school, education level, years teaching experience, years industry experience, and certification route.
CHAPTER IV
FINDINGS AND DISCUSSION

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write"

H.G. Wells

The purpose of this study was to describe vocational education teachers' use of assessment information and to determine the factors which contribute to the use of such information. This chapter reports findings related to: (a) characteristics of the sample, (b) teacher use of assessment information, (c) teacher perceived level of competence in assessment, (d) teacher attitude towards assessment, (e) constraints to the assessment process, (f) relationships between the dependent and independent variables, and (g) multiple regression models.

Characteristics of the Sample
A descriptive profile of the sample of vocational education teachers in Ohio's secondary schools is presented in this section. The teachers were described in terms of age and gender, years of teaching and related work experience,
program area, level of education, and teacher certification and type of school. Statistics such as frequencies, percentages, measures of central tendency, and measures of variability are reported.

**Age and Gender**

Descriptive characteristics of age and gender are summarized in Table 4. The largest number of teachers in the sample fell within the 40 - 49 year age bracket (42%). Thirty to thirty-nine year old teachers accounted for 27% of the sample while 20% of the teachers were between 50 and 59 years of age. The youngest teacher in the study was 23 years old while the oldest was 66. Of the 290 cases, 56% of the respondents were female and 44% were male.

Table 4

**Frequency Distribution by Age and Gender** (n=290)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 30</td>
<td>21</td>
<td>7.37</td>
</tr>
<tr>
<td>30-39</td>
<td>77</td>
<td>27.02</td>
</tr>
<tr>
<td>40-49</td>
<td>120</td>
<td>42.11</td>
</tr>
<tr>
<td>50-59</td>
<td>58</td>
<td>20.35</td>
</tr>
<tr>
<td>60 and over</td>
<td>9</td>
<td>3.16</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>42.98</td>
<td></td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>8.54</td>
<td></td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>23</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>66</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Gender</strong></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>161</td>
<td>55.5</td>
</tr>
<tr>
<td>male</td>
<td>129</td>
<td>44.5</td>
</tr>
</tbody>
</table>

**Note.** aInformation was not available from five respondents for age.
Years of Teaching and Related Work Experience

Table 5 summarizes the frequency distribution for years of teaching and related work experience for the sample. Teachers had an average of 15 years teaching experience and 8 years of related work experience. Respondents were evenly distributed in terms of years teaching experience in that 17% had taught 1-5 years, 18% had taught 6-10 years, 17% had taught 11-15 years, and 15% had taught 21-25 years. One quarter of the sample had taught for 16-20 years with 8% having taught for more than 25 years.

The majority of teachers (66%) had less than 10 years of related work experience while 18% had 10-14 years, and 10% had 15-19 years experience. Only 5% of teachers had more than 20 years of related work experience.
Table 5

Frequency Distribution for Years Teaching and Related Work Experience (n=290)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Teaching Experience&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>48</td>
<td>16.67</td>
</tr>
<tr>
<td>6-10</td>
<td>51</td>
<td>17.71</td>
</tr>
<tr>
<td>11-15</td>
<td>50</td>
<td>17.36</td>
</tr>
<tr>
<td>16-20</td>
<td>71</td>
<td>24.65</td>
</tr>
<tr>
<td>21-25</td>
<td>44</td>
<td>15.28</td>
</tr>
<tr>
<td>26-30</td>
<td>18</td>
<td>6.25</td>
</tr>
<tr>
<td>31-35</td>
<td>6</td>
<td>2.08</td>
</tr>
</tbody>
</table>

| Mean= 14.62 | SD= 7.99 |
| Maximum= 35 | Minimum= 1 |

<table>
<thead>
<tr>
<th>Years of Related Work Experience&lt;sup&gt;b&lt;/sup&gt;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>114</td>
<td>39.72</td>
</tr>
<tr>
<td>5-9</td>
<td>74</td>
<td>25.78</td>
</tr>
<tr>
<td>10-14</td>
<td>52</td>
<td>18.12</td>
</tr>
<tr>
<td>15-19</td>
<td>30</td>
<td>10.45</td>
</tr>
<tr>
<td>20-24</td>
<td>11</td>
<td>3.83</td>
</tr>
<tr>
<td>25-29</td>
<td>3</td>
<td>1.04</td>
</tr>
<tr>
<td>30 or more</td>
<td>3</td>
<td>1.04</td>
</tr>
</tbody>
</table>

| Mean= 7.60 | SD= 6.66 |
| Maximum= 40 | Minimum= 0 |

<sup>a</sup> Information was not available from two respondents.

<sup>b</sup> Information was not available from three respondents.

Program Area

Data on the program area in which the teachers taught are presented in Table 6. From the stratified random sample only three teachers reported that they taught in a program area other than that for which they were selected. Home economics teachers comprised the largest group in the sample.
and accounted for 32% of the cases while trade and industrial teachers comprised 27% of the sample. The smallest group in the sample were teachers in the health program area, accounting for only 3% of the sample.

Table 6

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>27</td>
<td>9.31</td>
</tr>
<tr>
<td>Business</td>
<td>41</td>
<td>14.14</td>
</tr>
<tr>
<td>Health</td>
<td>9</td>
<td>3.10</td>
</tr>
<tr>
<td>Home Economics</td>
<td>94</td>
<td>32.41</td>
</tr>
<tr>
<td>Marketing</td>
<td>14</td>
<td>4.83</td>
</tr>
<tr>
<td>Occupational Work Experience</td>
<td>26</td>
<td>8.97</td>
</tr>
<tr>
<td>Trade and Industrial</td>
<td>79</td>
<td>27.24</td>
</tr>
</tbody>
</table>

Level of Education

Table 7 summarizes the data obtained for the respondents' level of education. A graduate degree had been earned by 34% of the respondents while an additional 35% had completed some graduate work. A bachelor degree was the highest level of education achieved by 9% of the teachers while an associate degree was the highest held by 2% of the teachers. For 18% of the teachers, some college credit had been received while 7% held only a high school diploma or its equivalent.
Table 7

Frequency Distribution of Level of Education (n=290)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School or Equivalent</td>
<td>2</td>
<td>6.92</td>
</tr>
<tr>
<td>Some College</td>
<td>53</td>
<td>18.34</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>7</td>
<td>2.42</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>27</td>
<td>9.34</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>101</td>
<td>34.95</td>
</tr>
<tr>
<td>A Graduate Degree</td>
<td>99</td>
<td>34.26</td>
</tr>
</tbody>
</table>

\textbf{Note.} \textsuperscript{a}Information was not available from one respondent.

Teaching Certification and Type of School

Frequency distributions for teaching certification and type of school in which teachers taught can be found in Table 8. Approximately 66\% of the teachers holding bachelor degrees had completed a teacher education program prior to entering the teaching profession while 13\% completed their preparation program after entering teaching. Those individuals who had completed a teacher preparation program on the job, and before receiving a bachelor degree, comprised 20\% of the sample.

Vocational education teachers who taught in comprehensive high schools accounted for 55\% of the sample while 36\% of the teachers taught in joint vocational school/career center type facilities. Secondary vocational education programs taught in middle schools and correctional facilities accounted for an additional 10\% of the teachers.
Table 8

Frequency Distribution of Teaching Certification and Type of School (n=290)*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching Certification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program finished prior to teaching</td>
<td>188</td>
<td>66.20</td>
</tr>
<tr>
<td>Program finished after entering teaching and before receiving bachelor degree</td>
<td>58</td>
<td>20.42</td>
</tr>
<tr>
<td>Program completed after entering teaching and after receiving bachelor degree</td>
<td>38</td>
<td>13.38</td>
</tr>
<tr>
<td><strong>Type of School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive High School</td>
<td>158</td>
<td>54.48</td>
</tr>
<tr>
<td>Joint Vocational School</td>
<td>80</td>
<td>27.59</td>
</tr>
<tr>
<td>Career Center</td>
<td>24</td>
<td>8.28</td>
</tr>
<tr>
<td>Other</td>
<td>28</td>
<td>9.66</td>
</tr>
</tbody>
</table>

Note. *Information was not available from six respondents for Teaching Certification.

Teacher's Use of Assessment Information

Descriptive data concerning the use of assessment information for educational decision making can be found in Table 9. Each assessment method was scored on a 5-point Likert scale in terms of its use in addressing selected educational decision areas. The scale was as follows:

1 = Of No Use
2 = Of Limited Use
3 = Of Some Use
4 = Of Much Use
5 = Of Considerable Use
Table 9
Descriptive Statistics for the Use of Assessment Information Generated From Six Assessment Methods (n=290)\(^a\)

<table>
<thead>
<tr>
<th>Decision Areas</th>
<th>Objective Items Mean</th>
<th>Objective Items SD</th>
<th>Standardized Test Scores Mean</th>
<th>Standardized Test Scores SD</th>
<th>Performance Assessment Mean</th>
<th>Performance Assessment SD</th>
<th>Informal Observation Mean</th>
<th>Informal Observation SD</th>
<th>Portfolios Mean</th>
<th>Portfolios SD</th>
<th>Essay Items Mean</th>
<th>Essay Items SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3.68 .91</td>
<td>2.28 1.05</td>
<td>4.13 .91</td>
<td>4.04 .83</td>
<td>2.57 1.15</td>
<td>2.55 1.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>3.79 .91</td>
<td>2.60 1.19</td>
<td>4.25 .85</td>
<td>4.25 .76</td>
<td>2.70 1.21</td>
<td>2.61 1.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>3.93 .84</td>
<td>2.19 1.11</td>
<td>4.28 .87</td>
<td>4.20 .76</td>
<td>2.69 1.20</td>
<td>2.59 1.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>3.91 1.01</td>
<td>2.40 1.19</td>
<td>4.31 .88</td>
<td>4.03 .93</td>
<td>3.06 1.36</td>
<td>2.46 1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>3.40 1.01</td>
<td>2.10 1.06</td>
<td>4.34 .83</td>
<td>4.20 .86</td>
<td>2.81 1.29</td>
<td>2.36 1.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>4.02 .91</td>
<td>2.37 1.22</td>
<td>4.45 .73</td>
<td>4.31 .80</td>
<td>2.85 1.29</td>
<td>2.70 1.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>3.67 1.02</td>
<td>2.27 1.19</td>
<td>4.15 .90</td>
<td>3.99 .95</td>
<td>2.62 1.26</td>
<td>2.51 1.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>3.35 1.18</td>
<td>2.28 1.18</td>
<td>4.11 1.04</td>
<td>4.16 1.00</td>
<td>2.44 1.23</td>
<td>2.22 1.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>3.67 1.03</td>
<td>2.19 1.23</td>
<td>4.27 .88</td>
<td>3.90 1.06</td>
<td>2.94 1.43</td>
<td>2.51 1.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>4.17 .89</td>
<td>1.90 1.18</td>
<td>4.50 .74</td>
<td>3.94 1.14</td>
<td>2.77 1.42</td>
<td>2.77 1.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Means</td>
<td>3.76 2.26</td>
<td></td>
<td>4.28 4.10</td>
<td>2.74 2.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \(^a\)For each question up to five responses may have been missing.

Overall means were calculated by recoding missing cases to the mean.

Educational Decision Areas:
1. Plan for instruction
2. Diagnose student weakness
3. Monitor student progress
4. Communicate student achievement
5. Motivate students
6. Evaluate instruction
7. Evaluate instructional materials
8. Group students
9. Encourage self-assessment
10. Assign grades
Information generated from performance assessments was considered to be of more use to teachers in addressing educational decisions than any of the other assessment methods ($M = 4.28$). Teachers found performance assessment information to be of considerable use ($M = 4.50$) when specifically addressing the task of assigning grades. For all other decision areas teachers found performance assessment information to be of much use ($M = 4.11-4.45$).

Teachers reported that information derived from informal observations ($M = 4.10$) was of more use than all other assessment methods except performance assessment. Informal observations provided information that was considered by teachers to be of much use ($M = 3.90-4.31$) when addressing all 10 decision areas.

Information obtained from objective paper and pencil items ($M = 3.76$) were found to be of less use than both performance assessments and informal observations, but of more use than essays, portfolios, and standardized test scores. Information from this assessment method was found to be of much use ($M = 3.67-4.17$) for all decision areas other than motivating students and grouping students where such information was considered to be of only some use ($M = 3.35$ and 3.40).

Portfolios were found to be of only some use ($M = 2.74$) in providing information in the overall decision making process. This assessment method provided information which
was of some use for nine of the ten decision areas with mean scores ranging from 2.57 to 3.06. Teachers found portfolios to be only of limited use when grouping students for educational activities (M = 2.44).

Essay type assessment information (M = 2.53) and standardized test scores (M = 2.26) were the two assessment methods found to be least used by teachers when compared to the other methods. For addressing educational decisions, information obtained through the implementation of essay type assessment methods was reported to be of only limited use when communicating student achievement, motivating students, and grouping students (M = 2.22-2.46). Teachers reported essay information to of some use for all other educational decisions (M = 2.51-2.77). Standardized test scores were found to be of some use for diagnosing student weaknesses (M = 2.6) and only of little use when making all other educational decisions (M = 1.90-2.4).
Teachers Perceived Level of Competence in Assessment

Table 10 provides descriptive information regarding teachers' perceived level of competence in individual assessment activities. The questionnaire used a 5-point Likert scale to obtain competence ratings with the following descriptors:

1 = Not Competent  
2 = Slightly Competent  
3 = Moderately Competent  
4 = Very Competent  
5 = Extremely Competent

Teachers considered themselves to be very competent (M = 3.55-4.38) in all but five areas of the assessment process. Teachers perceived themselves to be only moderately competent when interpreting the scores from a standardized achievement tests (M = 2.94), compiling a student portfolio (M = 3.22), scoring an essay (M = 3.36), analyzing the validity of test items (M = 3.44), and identifying structural problems in objective questions (M = 3.47).
Table 10

Descriptive Statistics for Teachers Perceived Competence in the Assessment Process. (n=290)\(^a\).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Grade objective paper and pencil items</td>
<td>4.38</td>
<td>.68</td>
</tr>
<tr>
<td>15. Administer a performance assessment</td>
<td>4.16</td>
<td>.75</td>
</tr>
<tr>
<td>23. Communicate assessment results to students</td>
<td>4.05</td>
<td>.75</td>
</tr>
<tr>
<td>16. Score a performance assessment</td>
<td>4.04</td>
<td>.79</td>
</tr>
<tr>
<td>3. Select methods for assessing student performance</td>
<td>4.01</td>
<td>.71</td>
</tr>
<tr>
<td>22. Develop student grading procedures</td>
<td>3.98</td>
<td>.77</td>
</tr>
<tr>
<td>13. Prepare students to take tests</td>
<td>3.95</td>
<td>.70</td>
</tr>
<tr>
<td>24. Communicate assessment results to parents</td>
<td>3.89</td>
<td>.81</td>
</tr>
<tr>
<td>1. Select assessment methods for monitoring student learning</td>
<td>3.87</td>
<td>.67</td>
</tr>
<tr>
<td>11. Match items to intended learning outcomes</td>
<td>3.85</td>
<td>.72</td>
</tr>
<tr>
<td>5. Select a representative sample of items to use for assessment purposes</td>
<td>3.82</td>
<td>.81</td>
</tr>
<tr>
<td>25. Communicate assessment results to employers</td>
<td>3.79</td>
<td>.97</td>
</tr>
<tr>
<td>7. Determine proper difficulty of items</td>
<td>3.74</td>
<td>.76</td>
</tr>
<tr>
<td>10. Write directions for assessment methods</td>
<td>3.73</td>
<td>.81</td>
</tr>
<tr>
<td>26. Recognize unethical methods of using assessment</td>
<td>3.73</td>
<td>1.01</td>
</tr>
<tr>
<td>21. Use assessment results to monitor student learning</td>
<td>3.70</td>
<td>.73</td>
</tr>
<tr>
<td>6. Determine appropriate number of items for an assessment method</td>
<td>3.67</td>
<td>.81</td>
</tr>
<tr>
<td>4. Develop performance assessment rating scale</td>
<td>3.67</td>
<td>.94</td>
</tr>
<tr>
<td>9. Examine items for gender bias</td>
<td>3.62</td>
<td>.99</td>
</tr>
<tr>
<td>20. Use assessment results to organize a sound instructional plan</td>
<td>3.59</td>
<td>.85</td>
</tr>
<tr>
<td>2. Identify weaknesses of assessment methods</td>
<td>3.55</td>
<td>.70</td>
</tr>
<tr>
<td>8. Identify structural problems in objective questions</td>
<td>3.47</td>
<td>.79</td>
</tr>
<tr>
<td>18. Analyze the validity of test items</td>
<td>3.44</td>
<td>.88</td>
</tr>
<tr>
<td>17. Score an essay</td>
<td>3.36</td>
<td>1.02</td>
</tr>
<tr>
<td>12. Compile a student portfolio</td>
<td>3.22</td>
<td>1.17</td>
</tr>
<tr>
<td>19. Interpret standardized achievement test scores</td>
<td>2.94</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Mean = 97.0  
SD = 12.9  
Minimum = 61.0  
Maximum = 130

Note. \(^a\)For each question, up to five responses may have been missing.
The individual scores for the 26 assessment activities were summed to obtain a measure of overall competence in assessment. Table 11 summarizes the distribution of teacher competence scores. Scores ranged from a low of 61 to a high of 130. The majority of teachers (63%) in the study believed that they were very competent in conducting various assessment activities as indicated by scores ranging from 91 to 116. Twenty-nine percent of the teachers felt that they were moderately competent in this area with scores ranging from 65 to 90. Teachers who believed they were extremely competent in assessment activities comprised only 8% of the respondents and had scores ranging between 117 and 130.

Table 11

<table>
<thead>
<tr>
<th>Scale Value</th>
<th>Summed Score</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Competent</td>
<td>26 - 38</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Slightly Competent</td>
<td>39 - 64</td>
<td>2</td>
<td>.69</td>
</tr>
<tr>
<td>Moderately Competent</td>
<td>65 - 90</td>
<td>84</td>
<td>28.97</td>
</tr>
<tr>
<td>Very Competent</td>
<td>91 - 116</td>
<td>182</td>
<td>62.76</td>
</tr>
<tr>
<td>Extremely Competent</td>
<td>117 - 130</td>
<td>22</td>
<td>7.59</td>
</tr>
</tbody>
</table>

Mean= 97.24       SD= 12.89  
Minimum= 61       Maximum= 130

Note: Missing data was recoded to the mean.
Teacher Attitudes Towards Assessment

A semantic differential scale was used to measure teachers' attitude towards the overall assessment process. Teachers were asked to respond to nine pairs of bipolar adjectives which were on either end of a 7-point scale. Figure 2 provides an overview of the distribution of mean teacher responses along a 7-point scale. Teachers reported that they believed the assessment process tended to be valuable, important, and good ($M=5.89$ to $5.58$). They believed that assessment was only slightly less positive in terms of being successful, efficient, fair, reputable, flexible, and relaxed ($M=5.29$ to $4.54$). Overall, there was no indication that a negative attitude ($M<4.0$) existed towards the assessment process.

<table>
<thead>
<tr>
<th>Worthless</th>
<th>*</th>
<th>Valuable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuccessful</td>
<td>*</td>
<td>Successful</td>
</tr>
<tr>
<td>Inefficient</td>
<td>*</td>
<td>Efficient</td>
</tr>
<tr>
<td>Unimportant</td>
<td>*</td>
<td>Important</td>
</tr>
<tr>
<td>Bad</td>
<td>*</td>
<td>Good</td>
</tr>
<tr>
<td>Unfair</td>
<td>*</td>
<td>Fair</td>
</tr>
<tr>
<td>Disreputable</td>
<td>*</td>
<td>Reputable</td>
</tr>
<tr>
<td>Rigid</td>
<td>*</td>
<td>Flexible</td>
</tr>
<tr>
<td>Tense</td>
<td>*</td>
<td>Relaxed</td>
</tr>
</tbody>
</table>

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Figure 2. Distribution of Attitude Mean Scores

To obtain an attitude score for use in investigating relationships between the dependent variable and other independent variables, the individual scores for the nine
bipolar adjectives were summed (Table 12). The possible score range was from 9 to 63. Teachers were considered to have a positive attitude towards assessment if their summed attitude scores fell between 41 and 63, a negative attitude towards assessment with scores between 14 and 31, and a neutral attitude with scores between 32 and 40. Thirty percent of the teachers had a somewhat neutral attitude towards assessment as indicated by their attitude scores which ranged from 32 to 40. A positive attitude towards assessment was demonstrated by 58% of the teachers. Only 12% of teachers responded that they believed that assessment was a negative process as demonstrated by summed scores within the range of 9 to 31.

Table 12

Frequencies for Teacher Attitude Towards Assessment Scores (n=290)

<table>
<thead>
<tr>
<th>Summed Attitude Scores</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 - 13</td>
<td>1</td>
<td>.34</td>
</tr>
<tr>
<td>14 - 22</td>
<td>1</td>
<td>.34</td>
</tr>
<tr>
<td>23 - 31</td>
<td>33</td>
<td>11.38</td>
</tr>
<tr>
<td>32 - 40</td>
<td>86</td>
<td>29.66</td>
</tr>
<tr>
<td>41 - 49</td>
<td>126</td>
<td>43.45</td>
</tr>
<tr>
<td>50 - 58</td>
<td>43</td>
<td>14.83</td>
</tr>
<tr>
<td>59 - 63</td>
<td>0</td>
<td>.00</td>
</tr>
</tbody>
</table>

Mean = 41.6
Constraints to the Assessment Process

Teachers were asked to respond to nine questions designed to measure the level of constraint they encounter in implementing assessment activities. A 5-point Likert scale was used with the following descriptors:

1 = Strongly Disagree
2 = Disagree
3 = Neither Agree or Disagree
4 = Agree
5 = Strongly Agree

Table 13 summarizes the teacher responses to each of the constraint questions. Teachers tended to agree that additional planning time would allow for assessment methods to be used more effectively ($M = 3.71$). Teachers disagreed that others had a significant role in deciding what assessment methods they were to use ($M = 1.59$). There was neither agreement nor disagreement about constraints being a problem in the areas of assistance in preparing student assessment activities ($M = 3.43$), possession of information on published assessment materials ($M = 3.04$), availability of quality published materials ($M = 3.45$), difficulty in finding scoring equipment ($M = 2.87$), helpfulness of inservice activities ($M = 3.39$), availability of funding for assessment materials ($M = 3.37$), and helpfulness of college courses in assessment ($M = 3.19$).
Table 13

**Descriptive Statistics for Teacher Perceptions of Constraints to the Assessment Process (n=290)\(^a\).**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Additional planning time would allow me to use assessment methods more effectively</td>
<td>3.71</td>
<td>1.20</td>
</tr>
<tr>
<td>4. Quality published materials are hard to find</td>
<td>3.45</td>
<td>1.12</td>
</tr>
<tr>
<td>2. I do not have assistance in preparing student assessment activities</td>
<td>3.43</td>
<td>1.29</td>
</tr>
<tr>
<td>6. Inservice activities have not helped develop my assessment skills</td>
<td>3.39</td>
<td>1.28</td>
</tr>
<tr>
<td>8. Funds are not available for buying assessment materials</td>
<td>3.37</td>
<td>1.23</td>
</tr>
<tr>
<td>9. College courses were of little help in preparing me to assess student learning</td>
<td>3.19</td>
<td>1.24</td>
</tr>
<tr>
<td>3. I do not have information on published assessment materials</td>
<td>3.04</td>
<td>1.20</td>
</tr>
<tr>
<td>5. Equipment is not available for scoring tests</td>
<td>2.87</td>
<td>1.48</td>
</tr>
<tr>
<td>1. Others decide what assessment methods to administer in courses I teach</td>
<td>1.59</td>
<td>.82</td>
</tr>
</tbody>
</table>

*Note.* \(^a\)Information for up to three respondents was missing for each question.

To obtain an overall measure of constraint that could be used to investigate relationships between dependent and independent variables, the summed scores on the items were obtained for the respondents. A maximum score of 45 points was possible when responses to the nine questions were summed. A summary of the summed score frequencies is presented in Table 14. The majority of teachers (62\%) neither agreed nor disagreed in their perceived level of
overall constraint to their assessment activities. A score between 32 and 40 identified those who agreed (24%) that they were constrained in assessment activities while those scoring between 14 and 22 disagreed that they were constrained (12%). The highest constraint score achieved was 47 and the lowest score was 16.

Table 14
Frequencies of Constraint to Assessment Scores (n= 290)

<table>
<thead>
<tr>
<th>Scale Value</th>
<th>Constraint Score</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>9 - 13</td>
<td>1</td>
<td>.34</td>
</tr>
<tr>
<td>Disagree</td>
<td>14 - 22</td>
<td>36</td>
<td>12.41</td>
</tr>
<tr>
<td>Neutral</td>
<td>23 - 31</td>
<td>181</td>
<td>62.41</td>
</tr>
<tr>
<td>Agree</td>
<td>32 - 40</td>
<td>70</td>
<td>24.14</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>41 - 45</td>
<td>2</td>
<td>.69</td>
</tr>
</tbody>
</table>

| Mean= 28.04   | SD= 4.76        |
| Minimum= 9    | Maximum= 44     |

Relationships Between Dependent and Selected Independent Variables

Measures of association were used to identify relationships between the use of information from the six types of assessment methods and the independent variables. Relationships among interval variables were investigated using Pearson's product moment correlation; interval and nominal dichotomous variable relationships were examined using the point biserial correlation; and interval and non-dichotomous nominal variables were examined using a multiple
R coefficient from a multiple regression analysis. Associations were shown to range from moderate to negligible (Davis, 1971).

The relationships between the use of assessment information and the independent variables in the study are exhibited in Table 15. Teachers' perceived level of competence in assessment was shown to have moderate association with the use of information from objective paper and paper methods (.30) and performance assessment (.32). Competence in assessment was shown to have a low association of .20 with use of information derived from informal observations. Attitude towards assessment had a low association of .26 with teachers' use of assessment information derived from performance assessments. Constraints to the assessment process had a low negative relationship of -.21 with use of standardized test scores.

The point biserial correlation was used when measuring the association among nominal, dichotomous demographic variables and the interval dependent variables. Level of education was dichotomized into those who held a bachelor degree and those who did not. It was shown that level of education had a low association of .22 with use of standardized test scores. Due to the nature in which this variable was dummy coded this correlation value would be interpreted as the lower the education level the more information from standardized tests are used.
Table 15  
Intercorrelations Between Independent Variables and Assessment Methods (n=290)

<table>
<thead>
<tr>
<th></th>
<th>X2</th>
<th>X3</th>
<th>X4</th>
<th>X5</th>
<th>X6</th>
<th>X7</th>
<th>X8</th>
<th>X9</th>
<th>X10</th>
<th>X11</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>Y6</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 Competence</td>
<td>* .27</td>
<td>* .13</td>
<td>.02</td>
<td>* .17</td>
<td>.18</td>
<td>-.01</td>
<td>-.03</td>
<td>.09</td>
<td>-.18</td>
<td>.07</td>
<td>* .30</td>
<td>.05</td>
<td>* .32</td>
<td>* .20</td>
<td>* .17</td>
<td>* .18</td>
</tr>
<tr>
<td>X2 Attitude</td>
<td>1.00</td>
<td>-.12</td>
<td>.06</td>
<td>.07</td>
<td>.17</td>
<td>.08</td>
<td>.10</td>
<td>-.11</td>
<td>-.01</td>
<td>.17</td>
<td>.05</td>
<td>* .26</td>
<td>.10</td>
<td>.11</td>
<td>*.12</td>
<td></td>
</tr>
<tr>
<td>X3 Constraints</td>
<td>1.00</td>
<td>-.08</td>
<td>-.11</td>
<td>.17</td>
<td>-.07</td>
<td>.00</td>
<td>-.06</td>
<td>-.10</td>
<td>-.06</td>
<td>-.08</td>
<td>-.21</td>
<td>.02</td>
<td>.09</td>
<td>-.14</td>
<td>-.16</td>
<td></td>
</tr>
<tr>
<td>X4 Yrs Related</td>
<td>1.00</td>
<td>* -.18</td>
<td>*.52</td>
<td>*.47</td>
<td>*.28</td>
<td>*.29</td>
<td>*.35</td>
<td>*.24</td>
<td>*.13</td>
<td>.08</td>
<td>.08</td>
<td>.05</td>
<td>-.04</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X5 Yrs Teaching</td>
<td>1.00</td>
<td>*.33</td>
<td>*.19</td>
<td>-.10</td>
<td>*.65</td>
<td>.05</td>
<td>*.12</td>
<td>-.05</td>
<td>.09</td>
<td>-.04</td>
<td>-.11</td>
<td>-.01</td>
<td>-.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X7 Educationf</td>
<td>1.00</td>
<td>*.38</td>
<td>.09</td>
<td>*.28</td>
<td>*.40</td>
<td>.04</td>
<td>*.22</td>
<td>*.15</td>
<td>.02</td>
<td>.01</td>
<td></td>
<td>-.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X8 Certificationf</td>
<td>1.00</td>
<td>.07</td>
<td>*.20</td>
<td>*.20</td>
<td>.03</td>
<td>.08</td>
<td>.08</td>
<td>.06</td>
<td>.10</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X9 Age</td>
<td>1.00</td>
<td>.01</td>
<td>.07</td>
<td>-.01</td>
<td>.11</td>
<td>.07</td>
<td>-.05</td>
<td>-.05</td>
<td>-.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X10 Genderf</td>
<td>1.00</td>
<td>.03</td>
<td>-.11</td>
<td>.10</td>
<td>*.13</td>
<td>-.11</td>
<td>*.12</td>
<td>-.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X11 School Typef</td>
<td>1.00</td>
<td>.02</td>
<td>*.12</td>
<td>*.16</td>
<td>.10</td>
<td>-.05</td>
<td>*.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1 Objective</td>
<td>1.00</td>
<td>*.15</td>
<td>*.26</td>
<td>*.23</td>
<td>*.04</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2 Standardized</td>
<td>1.00</td>
<td>.03</td>
<td>*.13</td>
<td>*.30</td>
<td>*.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y3 Performance</td>
<td>1.00</td>
<td>*.51</td>
<td>*.21</td>
<td>*.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Y4 Informal</td>
<td>1.00</td>
<td>.05</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y5 Portfolio</td>
<td>1.00</td>
<td>*.28</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y6 Essay</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. Unless otherwise noted reported coefficients are Pearson Product Moment Correlations.  
a = Relationships among dichotomous nominal variables are reported as Phi Coefficients.  
b = Relationships among dichotomous and non-dichotomous variables are reported as Cramers V Coefficient.  
c = Relationships among dichotomous nominal and interval variables are reported as Point Biserial Coeff.  
d = Relationships among non-dichotomous and interval variables are reported as Multiple R Coefficient.  
e = Non-dichotomous nominal variable  
f = Dichotomous nominal variable  
* p<.05
Program area was not conducive to dummy coding as a dichotomous variable for use in a point biserial correlation calculation. Therefore, the variable was dummy coded into six levels and entered into a multiple regression equation. Multiple R values were examined to determine the level of association between program area and any interval type variables. Program area was shown to have a low association with the use of information from essay type assessment methods (.29) and performance assessment (.23).

Multiple Regression Models

Multiple regression analysis was used to identify the proportion of variance in the use of information from each of the various assessment methods that could be accounted for by the linear combination of selected independent variables. To ensure that the regression models were adequate for generating valid data for use in making inferences, the assumptions underlying the regression models were examined for violations. The residuals were found to be normally distributed with a mean of zero; errors were independent as demonstrated by the normal probability charts; and scatterplots indicated that residuals had a constant variance with no correlation among the independent variables. Multicollinearity among independent variables was not a problem as (1) no correlation value exceeded $r = .80$ and (2) equations with significant $R^2$ values all had partial
regression coefficients that were significantly different from zero (McCaslin, 1991).

A semi-partial regression model was used to describe the unique variance contributed by each of the variables entered into the equation. Those independent variables which had a low or moderate association with each of the methods used to collect assessment information were entered into the appropriate regression equation. Table 14 provided the intercorrelation values used to determine the direction and magnitude of relationships among variables used in the study.

Table 16 depicts the two variables that were shown to significantly contribute to the a small proportion of variance in use of objective paper and pencil assessment methods: Competence in Assessment and Years of Related Work Experience. In each case the partial regression coefficient was shown to be significant at the .05 level with $t$ values of 4.78 and 2.22 respectively. An interpretation of the partial regression coefficient for competence ($b = .15$) indicated that those teachers who perceived themselves to be more competent tended to use objective paper and pencil methods more than those whose perceptions of competence were lower.

The squared multiple correlation coefficient indicates that 11.5% of the variance in objective methods was accounted for by the optimal linear combination of
competence, years related work experience, and attitude towards assessment. This value was significant (F = 12.36, \( p < .001 \)). The semi-partial statistics indicate that competence in assessment uniquely accounts for 7.1% of the variance in objective assessment methods while years work experience uniquely accounts for 1.5%.

Table 16

**Semi-Partial Regression of Use of Objective Paper and Pencil Assessment Methods on Selected Characteristics (n = 290)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>( \hat{R}^2 )</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.071</td>
<td>.151</td>
<td>4.78</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Years of Work Exp.</td>
<td>.015</td>
<td>.131</td>
<td>2.22</td>
<td>.027</td>
</tr>
<tr>
<td>Attitude</td>
<td>.007</td>
<td>.076</td>
<td>1.49</td>
<td>.138</td>
</tr>
</tbody>
</table>

(Constant) 18.77

Standard error = 6.637
\( R^2 = .115 \)
Adjusted \( R^2 = .105 \)
For model: \( F = 12.36, \ p < .001 \)

The regression of use of standardized test scores on selected characteristics are summarized in Table 17. The variables constraints to assessment and level of education were found to make a small but significant contribution to the variance in use of standardized test scores. Level of education was dummy coded such that zero represented those who held at least a bachelor degree and one represented those respondents who did not. It was determined that 8.8%
of the variance in use of standardized test scores was uniquely accounted for by the linear combination of the independent variables. This value for the squared multiple correlation coefficient was considered to be significant ($F = 9.21, p < .001$).

Level of education contributed 3.2% to the variance in use of standardized test scores while constraints to the assessment process uniquely accounted for 3.8%. The partial regression coefficient for level of education was considered to be significant with a $t$ value of 3.17 and $p = .002$ while constraints to assessment was also significant at $t = -3.45$ with $p < .001$. The lower the education level ($b = 4.41$) the more teachers tended to use standardized test scores. The more constrained ($b = -.38$) teachers perceived themselves to be in the assessment process the less they used this type of assessment information.
Table 17

Semi-Partial Regression of Use of Standardized Test Scores on Selected Characteristics (n= 290)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\widehat{R}^2$</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Level(a)</td>
<td>.032</td>
<td>4.41</td>
<td>3.17</td>
<td>.002</td>
</tr>
<tr>
<td>Constraints</td>
<td>.038</td>
<td>-.381</td>
<td>-3.45</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Type of School(b)</td>
<td>.001</td>
<td>.579</td>
<td>.499</td>
<td>.518</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td>32.027</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard error = 8.906

$R^2 = .088$

Adjusted $R^2 = .079$

For model: $F = 9.21$, $p < .001$

a: 0 = Bachelor Degree, Some Graduate Work, Graduate Degree
   1 = High School or Equivalent, Some College, Associate Degree

b: 0 = Comprehensive High School
   1 = Joint Vocational School, Career Center, Other

The third statistical model regressed the dependent variable, use of performance assessment, on competence, attitude, type of program, level of education, gender, and type of school (Table 18). Level of competence, attitude towards assessment, and type of program were shown to explain significantly unique amounts of variance in use of performance assessment. Level of education uniquely accounted for 5.7% of the variance in use of performance assessment, attitude towards assessment uniquely contributed 3.0%, and type of program contributed 7.1%.
Table 18

Semi-Partial Regression of Use of Performance Assessment on Selected Characteristics (n= 290)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\Delta R^2$</th>
<th>$b$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.057</td>
<td>.125</td>
<td>4.46</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Attitude</td>
<td>.030</td>
<td>.146</td>
<td>3.23</td>
<td>.001</td>
</tr>
<tr>
<td>Type of Program$^a$</td>
<td>.071</td>
<td>-</td>
<td>-</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-</td>
<td>.166</td>
<td>.11</td>
<td>.915</td>
</tr>
<tr>
<td>Business</td>
<td>-</td>
<td>-4.294</td>
<td>-2.38</td>
<td>.018</td>
</tr>
<tr>
<td>Health</td>
<td>-</td>
<td>1.330</td>
<td>.66</td>
<td>.512</td>
</tr>
<tr>
<td>Marketing</td>
<td>-</td>
<td>-.077</td>
<td>-.044</td>
<td>.965</td>
</tr>
<tr>
<td>OWE</td>
<td>-</td>
<td>-5.498</td>
<td>-2.10</td>
<td>.037</td>
</tr>
<tr>
<td>T&amp;I</td>
<td>-</td>
<td>-7.671</td>
<td>-3.30</td>
<td>.001</td>
</tr>
<tr>
<td>Education Level$^b$</td>
<td>.004</td>
<td>1.258</td>
<td>1.15</td>
<td>.252</td>
</tr>
<tr>
<td>Gender$^c$</td>
<td>.003</td>
<td>-1.204</td>
<td>-1.08</td>
<td>.282</td>
</tr>
<tr>
<td>Type of School$^d$</td>
<td>.006</td>
<td>1.145</td>
<td>1.50</td>
<td>.135</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
<td>24.14</td>
</tr>
</tbody>
</table>

Standard error = 7.726

$R^2 = .201$

Adjusted $R^2 = .169$

For model: $F = 6.32$, $p<.001$

a: Non-dichotomous dummy coded variable; agriculture, business, health, home economics, marketing, occupational work experience, trade and industrial.
b: 0 = Completed college with bachelor degree, some graduate work, graduate degree; 1 = high school or equivalent, some college, associate degree
c: 0 = Female; 1 = Male
d: 0 = Comprehensive High School
   1 = Joint Vocational School, Career Center, Other
The partial regression coefficients for competence, attitudes, and type of program were shown to be significant at \( p < .05 \). The results indicated that teachers in business, occupational work experience, and trade and industry (\( b = -7.67 - 1.33 \)) tended to use performance assessments more than teachers in the other program areas. Teachers with more positive attitudes towards assessment (\( b = .13 \)) and with higher levels of competence in assessment (\( b = -.15 \)) tended to use performance assessments more than teachers with less positive attitudes and weaker competence in assessment.

The regression model was significant at \( F = 6.32 \), \( p < .001 \). Thus, the optimum linear combination of independent variables entered into the regression equation accounted for 20% of variance in use of performance assessment (\( R^2 = .20 \)).

The use of informal observation had only one independent variable which showed a significant degree of association. Table 19 summarizes the regression of use of informal observation on level of competence in assessment. It was found that competence in assessment contributed 3.9% of the variance in the use of informal observations with the model being significant at \( F = 11.54 \), \( p < .001 \).
Table 19

Regression of Use of Informal Observation on Competence in Assessment (n= 290)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$r^2$</th>
<th>$b$</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.039</td>
<td>.090</td>
<td>3.40</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard error = 5.612
$r^2 = .039$
Adjusted $r^2 = .035$
For model: $F = 11.54$, p<.001

The regression of the dependent variable, use of portfolios, on competence in assessment, constraints to assessment, and gender are shown in Table 20. A significant proportion of variance in use of portfolios (5.5%) was accounted for by the linear combination of the three independent variables. The regression model was significant as $F = 5.52$ with p<.001. The two independent variables, level of competence in assessment and constraints to the assessment process were both found to explain a significant amount of unique variance in use of portfolios. Level of competence uniquely accounted for 1.7% of variance while constraints to assessment accounted for 1.6%. 
Table 20

Semi-Partial Regression of Use of Portfolios on Selected Characteristics (n= 290)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\Delta R^2$</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.017</td>
<td>.114</td>
<td>2.28</td>
<td>.024</td>
</tr>
<tr>
<td>Constraints</td>
<td>.016</td>
<td>-.293</td>
<td>-2.18</td>
<td>.030</td>
</tr>
<tr>
<td>Gender$^a$</td>
<td>.012</td>
<td>-2.463</td>
<td>-1.91</td>
<td>.058</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
<td>25.638</td>
</tr>
</tbody>
</table>

Standard error = 10.656
$R^2 = .055$
Adjusted $R^2 = .045$
For model: $F = 5.52$, $p < .001$
$^a$: 0 = Female, 1 = Male

Table 21 summarizes the results from the regression of use of essay type assessment methods on competence in assessment, constraints to assessment, type of program, type of school, gender, and level of education. The squared multiple correlation coefficient indicated that 17.5% of the variance in use of essay type assessment methods was uniquely explained by the linear relationship of the independent variables entered into the regression model. This model was significant as $F= 4.89$ with $p < .001$. 
Table 21
Semi-Partial Regression of Use of Essay Type Assessment Methods on Selected Characteristics (n= 290)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\hat{R}^2$</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.026</td>
<td>.135</td>
<td>2.93</td>
<td>.004</td>
</tr>
<tr>
<td>Constraints</td>
<td>.017</td>
<td>-.289</td>
<td>-2.41</td>
<td>.017</td>
</tr>
<tr>
<td>Type of Program(^a)</td>
<td>.071</td>
<td></td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td>-3.296</td>
<td>-1.30</td>
<td>.194</td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td>-4.294</td>
<td>-2.38</td>
<td>.018</td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td>1.783</td>
<td>.54</td>
<td>.591</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td>3.553</td>
<td>1.24</td>
<td>.215</td>
</tr>
<tr>
<td>OWE</td>
<td></td>
<td>-5.498</td>
<td>-2.10</td>
<td>.037</td>
</tr>
<tr>
<td>T&amp;I</td>
<td></td>
<td>-7.671</td>
<td>-3.30</td>
<td>.001</td>
</tr>
<tr>
<td>Type of School(^b)</td>
<td>.025</td>
<td>-3.636</td>
<td>-2.91</td>
<td>.004</td>
</tr>
<tr>
<td>Gender(^c)</td>
<td></td>
<td>2.033</td>
<td>1.11</td>
<td>.268</td>
</tr>
<tr>
<td>Education Level(^d)</td>
<td>.002</td>
<td>1.138</td>
<td>.80</td>
<td>.423</td>
</tr>
</tbody>
</table>

(Constat)                | 20.00       |     |      |     |

Standard error = 9.361
$R^2 = .175$
Adjusted $R^2 = .140$

For model: $F = 4.89$, $p < .001$

\(^a\): Non-dichotomous dummy coded variable; agriculture, business, health, home economics, marketing, occupational work experience, trade and industrial.
\(^b\): 0 = Comprehensive High School
\(^c\): 0 = Female, 1 = Male
\(^d\): 0 = Completed college with bachelor degree, some graduate work, graduate degree; 1 = high school or equivalent, some college, associate degree

Competence in assessment, constraints towards assessment, type of program, and type of school were each found to uniquely account for small but significant amounts of variance in use of essay assessment methods. Competence
in assessment accounted for 2.6% of unique variance in use of essay methods, constraints to assessment accounted for 1.7% unique variance, type of program explained 7.1%, and type of school accounted for 2.5%.

The partial regression coefficients for competence, constraints, type of program and type of school were shown to be significant at $p<.05$. Joint vocational school/career center teachers used essay tests to a lessor extent than did teachers in comprehensive high schools ($b = -3.64$) Teachers in trade and industry ($b = -7.67$), occupational work experience ($b = -5.50$), and business ($b = -4.29$) tended to use essay tests less than did teachers in agriculture, health, marketing, and home economics. Teachers who perceived themselves to be more competent in assessment use tended to use essay tests to a greater extent ($b = .135$) than did those who saw themselves as being less competent. Those teachers who said they faced greater constraints tended to use essay tests to a lessor extent ($b = -.29$) than did those who faced fewer constraints.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Until we understand assessment in the teachers' world in terms relevant to the teacher and translate our concepts into those terms, we will remain unable to alter teacher's perceptions of either the validity or the relevance of systematic assessment."


This descriptive study was designed to describe teachers use of assessment methods in the vocational classroom and laboratory. The study investigated the relationships between use of student assessment information and characteristics of vocational education teachers in Ohio. The teacher characteristics, which served as major independent variables were: teacher perceived level of competence in assessment, teacher attitude towards assessment, constraints to the assessment process, and selected demographic and background variables.

Summary of Procedures

Data for this study were collected through the use of a mailed survey. A five-part questionnaire was designed by the researcher, validated by a panel of 10 experts, and assessed for reliability. Internal consistency was measured
for each part of the questionnaire and test-retest data were obtained for each question. The questionnaire was mailed to a stratified random sample of vocational education teachers in Ohio (n=390). Usable responses were received from 74% of those surveyed (n=290). To account for non-response, 10% of the nonrespondents were randomly selected and interviewed by telephone. No significant differences were found between nonrespondents and respondents on the variables of interest.

Frequencies, percentages, and measures of central tendency and variability were used to obtain a descriptive profile of the Ohio vocational education teachers sampled. Measures of association were used to determine the linear relationships between use of assessment information and competence in assessment, attitude towards assessment, constraints to assessment, and selected demographic and background characteristics. Semi-partial simultaneous multiple regression analyses were used to determine the proportion of variance in the use of assessment methods that could be explained by the independent variables.

Summary and Conclusions Related to Variables

The following sections provide a summary of the findings found in Chapter IV. Comparisons with findings from previous research in use of assessment are also included for the support of conclusions and recommendations.
Use of Assessment Information

Teachers rated information provided from performance assessments as being of more use in addressing day to day classroom decisions (M = 4.3) than information obtained from the other five assessment methods. Informal observations provided teachers with information that was rated second highest in addressing classroom decisions (M = 4.1). Information derived from objective paper and pencil assessment methods was rated third (M = 3.8), portfolios were rated fourth (M = 2.7), and essay type methods rated fifth (M = 2.5). Standardized test scores provided information of least use in making classroom decisions (M = 2.3).

Prior studies in assessment use found that teacher made objective tests and informal observations were the assessment methods which teachers of academic subjects primarily relied upon (Dorr-Bremme, Dorr-Bremme and Herman, Yeh et al. 1981; Stiggins & Bridgeford, 1985; Gullickson, 1984). The results from this research study corroborate the findings from previous studies and supported the conclusion that vocational education teachers placed a heavy reliance on the use of their own informal observations and objective paper and pencil methods.

It was also found that vocational education teachers tended to use performance assessments more than any other type of assessment method. This stands in slight contrast to Stiggins and Conklin (1992) who found that academic
teachers placed more reliance on their own objective type assessment activities rather than on performance assessments for addressing instructional decisions. Stiggins and Conklin did find that writing and speech teachers placed a heavier reliance on performance tests than did other teachers of academic subjects. Given that vocational education teachers use a competency based curriculum, it was not surprising to the researcher that a performance based method of assessment was of more use than objective methods.

Portfolios were not found to be of much use for generating information in decision making. Although this innovative assessment method continues to be promoted in education circles today vocational education teachers did not give particular emphasis to the information generated. It may be that teachers simply did not find the results of portfolios to be of much use. A mediating factor that could account for such low reliance on portfolios would be the relative newness of this assessment method. Teachers may have yet to grasp the importance of a long term assessment method and may have yet to build an assessment method of this type into their overall assessment system.

Standardized test scores were found to be the least used source of information for decision making. This study supported the findings from other studies (Goslin, 1967; Yeh et al., 1981; Green, 1990; and others) regarding the lack of use of standardized test scores in addressing educational
decisions. After years of standardized testing, the use of standardized test scores by teachers continued to be minimal.

It is unlikely that the required implementation of standardized tests will diminish. The initiation of statewide standardized assessments in Ohio, which are designed specifically for measuring vocational education students' occupational and academic competency gain, will provide not only a measure of student achievement but also a measure of program and school effectiveness. Teachers will be expected to interpret and use the information generated from the standardized assessments to document the effectiveness of instruction and the learning of competencies.

**Perceived Level of Competence in Assessment**

A measure of perceived competence in assessment was calculated using teacher responses to 26 competency statements. The summed scores across the 26 statements indicated that 8% of vocational education teachers considered themselves to be extremely competent in the overall assessment process, 63% to be very competent, and 29% to be moderately competent. Only 1% considered themselves to be slightly competent in assessment.

Competency in assessment had a moderately positive association with teachers' use of information from objective
paper and pencil methods and performance assessments. A low positive association was identified with use of informal observations.

Competence in assessment was found to contribute 7.1% of the variation in teachers use of objective paper and pencil methods, 5.7% in use of performance assessment, and 3.9% in use of informal observation. While competence accounted for only a small percent of the variation in teachers' use of objective methods, performance assessment, and informal observations, there appeared to be little practical variance explained with portfolios, essays, and standardized tests.

Vocational education teachers in this study reported that they perceived themselves to be moderately to very competent in the assessment process. These results were congruent with findings by Gullickson and Hopkins (1987) which described teachers as being comfortable in their knowledge of assessment. Dorr-Bremme (1983) also concluded that teachers perceived their use of assessment techniques as accurately measuring the effects of instruction that they have provided.

Rather than being supportive of adequate levels of teacher competence in assessment, previous research found that teachers were lacking the necessary skills in assessment selection, development, and use (Newman & Stallings, 1982; Carter, 1984; & Hills, 1991). In addition,
Gullickson and Hopkins, (1987) and Schafer and Lissitz (1987) supported the position that preservice courses have not been adequate to develop the level of desired assessment skills in teachers.

There is some evidence to suggest that teachers tend to exaggerate their level of competence in assessment when data is obtained in a self-reported manner. Marso and Pigge (1989) found that teachers, principals, and supervisors do not agree on the proficiency level of teachers' test construction and test planning proficiencies. Teachers rated themselves as much more proficient in assessment than did their supervisors or principals. Findings reported by Green and Williams (1989) indicated that teachers with less training in tests and measurement perceived themselves to be more knowledgeable about interpreting standardized tests than did teachers with more training.

If teachers perceived competence levels can be construed as being overstated then the fact that 29% of teachers reported a moderate level of assessment competence becomes more significant. The moderate levels of perceived assessment competence as documented in this study, the small but significant relationship with use of five of the six assessment methods, along with research which has identified the deficiencies of teacher assessment skills, and the inadequate preservice preparation in assessment allude to
the potential necessity for the upgrading of vocational education teacher competence in assessment practices.

**Teacher Attitude Toward Assessment**

Few teachers reported being either completely positive or negative towards assessment. Twelve percent of teachers perceived assessment to be somewhat negative while 43% perceived the process to be somewhat positive. Thirty percent of the teachers reported being neutral in their attitude towards assessment. Attitude towards assessment had a low association with the use of performance assessments and was found to explain 3% of the variation in teachers use of this same assessment method.

The generally positive attitudes found by this study are in agreement with findings reported by Green (1990) where opinions of both experienced and preservice teachers towards classroom assessment were positive. Green and Stager (1986) found that the relationship between attitude and assessment use was of no practical importance. The results of this study also seem to confirm that a practical relationship between these two variables does not exist. Attitude had a low relationship with use of performance assessments and accounted for only a small percent of the variance in use of performance assessment.
Constraints to the Assessment Process

The largest group of teachers (62%) neither agreed nor disagreed that they were constrained in conducting their classroom assessment activities. Twenty-four percent of teachers agreed that they were constrained in the assessment process while 12% disagreed that constraints affected their assessment activities. For eight of the specific constraint areas, teachers neither agreed nor disagreed that the constraints affected them in their assessment activities (M = 2.87-3.45). Teachers did believe that additional planning time would be of benefit in allowing them to use assessment methods more effectively (M = 3.71). Constraints to the assessment processes was found to have a low negative relationship with the use of standardized test scores. Only 3.8% of the variation in teachers use of standardized test scores was uniquely accounted for by constraints.

Vocational education teachers neither agreed nor disagreed that they were constrained in their assessment activities. The results of this study were very similar to those findings reported by Gullickson (1984). In addition to the predominantly neutral findings, both studies found that limited time for planning was the constraint which received the highest level of agreement.

This study was also unable to demonstrate that constraints were a factor in explaining the variation in teacher use of assessment methods. Only one assessment
method was shown to have a relationship of practical importance with constraints. Constraints had a low relationship with use of standardized test scores and explained only a very small proportion of the variance in use of standardized test scores.

Demographic and Background Characteristics of the Sample

As a part of this study, eight demographic and background characteristics for the sample were described: age, gender, years of teaching experience, years of related work experience, program area, type of school, level of education, and certification route. When considering the first variable, age, it was found that 42% of the sample were in an age group which ranged from 40-49 years. Twenty-seven percent of the sample were between 50-59 and 20% were between 30-39 years of age. Teachers ranged in age from 23 to 66 with a mean age of 43. Gender data revealed that females comprised 55% and males 45% of the sample.

Years of teaching experience ranged from less than 1 year and up to 35 years with the mean being 15 years of experience. The largest group of teachers (25% of the sample) taught for 16-20 years while the smallest group (8% of the sample) taught for more than 25 years. In terms of related work experience, 10% of teachers had 15-20 years of non-teaching job experience prior to teaching, 18% had 10-14 years, and 26% had 5-9 years related work experience. Forty
percent of the teachers had 0 to 5 years of experience before entering the teaching profession. This large proportion of teachers with little to no related work experience can be partially explained by the large numbers of home economics teachers who are not required to have related work experience for teaching a non-occupational oriented program.

The sample was stratified across program area to accurately reflect the population of vocational education teachers in the state. Home economics teachers comprised the largest group in the study with 32% of all teachers. Trade and industrial education also contributed a large proportion of the sample with 27%. Health education was the smallest program area and comprised only 3% of the sample.

A total of 54% of the teachers surveyed were located in comprehensive high schools with 36% located in joint vocational schools or career centers. The remaining 10% of the sample were located in middle schools and correctional facilities.

The majority of teachers had completed a bachelor degree and had gone on to take graduate coursework (69%). Twenty percent of the sample had taken some college coursework after completing high school while 7% held only a high school diploma or its equivalent.

Sixty-six percent of vocational education teachers completed a teacher preparation program prior to entering
teaching. Thirty-four percent of the teachers received their teaching certification after entering teaching with 13% becoming certificated after receiving a bachelor degree and 21% becoming certified without receiving a bachelor degree.

Two variables were shown to account for a small but significant amount of variation in teachers use of certain assessment methods. Level of education was shown to have a low association with standardized test use while a regression analysis determined that only 3% of the variation in use of standardized tests could be accounted for by education level. Program area was found to have a low association with the use of performance assessments and essay type assessment methods. Program area was found to contribute 7.1% of the variation in teachers use of both performance assessments and essay type methods. An interpretation of partial correlation coefficients indicated that teachers in business, occupational work experience, and trade and industry tended to use performance assessments and essay tests less than teachers in agriculture, health, and marketing.

This study failed to demonstrate that teacher characteristics accounted for much of any variation in teachers' use of assessment information. Age, gender, years teaching experience, years related work experience, and route to certification were all shown to have low to
negligible relationships with use of assessment and accounted for no significant variation in teachers use of any assessment method. These findings are not in agreement with a study by Yeh (1981) who found that years of teaching experience was related to different patterns of assessment use. Contradictory evidence was also found by Ryan (1960) where significant differences in the more general area of teachers classroom behavior was found to be due to age, gender, and teaching experience.

Recommendations for Further Research

The use of classroom assessment practices and the factors which are related to their use are complex. Through a review of literature, the findings of this study, and the subsequent conclusions the researcher has proposed the following recommendations for further study:

1. Due to the fact that this study was able to explain only small amount of variance in teachers' use of assessment methods it is recommended that a qualitative research effort be undertaken to examine the use of assessment methods by vocational education teachers. Variables which contribute additional variance in the use of assessment information could be identified and examined. Through a direct analysis of assessment instruments and assessment procedures, teacher attitude towards
assessment, competence in assessment, constraints in the assessment process, and use of assessment methods could be further studied.

2. It is recommended that research be conducted to further investigate the use of portfolio assessment. The use of portfolio assessment is currently being promoted in education circles as a means to complement point-in-time assessment techniques. Yet, the use of portfolio assessment was not shown to be of much use to vocational education teachers nor was there a relationship with any of the independent variables investigated. The researcher believes that vocational education teachers may only be in an awareness stage in terms of their adoption of the portfolio assessment method.

3. It was concluded that attitude towards the overall assessment process contributes little to understanding the use of assessment. It is recommended that future research focus on an examination of attitude towards use of specific assessment methods. Given the current trends in assessment it would be appropriate to focus research on vocational education teachers' attitude towards standardized testing and the use of authentic assessment methods.
4. Overall competence in assessment explained only a small proportion of the variation in teachers use of three of the most used assessment methods. It is recommended that a competency measure oriented toward a specific assessment methods be used to more clearly identify specific strengths and weaknesses related to the use of that particular assessment method.

5. In this era of increased accountability, administrators of vocational education will be required to make more effective use of assessment information. It is recommended that assessment use practices of vocational education administrators be investigated to determine what assessment methods are used, for what purpose and what variables contribute to variation in such use.

6. Although the accountability movement has focused primarily on secondary education, teachers involved in postsecondary education are also responsible for measuring student outcomes. It is recommended that assessment use practices be investigated in postsecondary vocational education programs offered at secondary schools and community or technical colleges.
Recommendations for Practice

1. Given the competency based nature of the programs in vocational education, and given the findings from this study which document the high level of use of performance assessments by vocational education teachers, it is recommended that teacher preservice assessment curriculum pay particular attention to the development of competence in the use of performance assessments.

2. Findings from this study indicate that years of teaching experience, years of related work experience, and education level had no practical relationship with assessment use practices. It seems that either assessment practices change very little as a teacher gains instructional and educational experience or that teacher assessment strategies and preferences developed early in their careers are modified little through time. It is recommended that preservice and inservice providers structure curriculum in order to stimulate creative and innovative assessment use practices. It is also recommended that schools consider motivating and rewarding teachers for using appropriate assessment practices.

3. Teachers are not using standardized test results yet it is expected that they use the results of current
and upcoming standardized assessments for enhancing instruction and learning. Since the Ohio State Department of Education is taking a leadership role in promoting the use of standardized assessment, it should also be responsible for promoting activities which will motivate and assist teachers in using standardized test information.

4. It is recommended that business, occupational work experience, and trade and industry teachers, be encouraged to use performance assessments. Their use of other assessment methods may not necessarily be appropriate for measuring learning in a performance based learning environment.
APPENDIX A

Instrument
Assessment In The
Vocational Classroom

Using Information
For
Instructional Decisions
INTRODUCTION

This questionnaire is composed of several parts with directions provided at the beginning of each. It is very important that you answer all questions. This questionnaire is not being used to test your ability. Rather it is meant to measure your attitudes towards the use of classroom assessment information. All answers will be kept confidential.

Please take a moment to familiarize yourself with the key terms that will be used throughout the questionnaire.

Assessment: refers to the overall process of gathering and using information on student knowledge and performance. Teachers commonly use this information for measuring and improving learning and instruction. The 6 items below are assessment methods used to collect this information.

1. Objective paper and pencil methods: These are classroom tests, quizzes or exercises that are generally made up of multiple choice, true-false, matching, and short answer questions.

2. Standardized test scores: Examples of such tests would include the Iowa Test of Basic Skills, the 9th Grade Proficiency Test, and the upcoming Vocational Education Competency Assessment. This category covers locally purchased, state-wide or district-wide tests. These tests may be either norm referenced or criterion referenced.

3. Performance assessments: These are planned activities in which you observe students in the process of doing things or in which you examine products created by students. This assessment method would have pre-specified purposes, exercises, observations and scoring procedures.

4. Informal measures: These are methods used in a spontaneous way with naturally occurring classroom/lab events. The two methods in this category are observations you make and oral questions you ask.

5. Portfolios: Is a collection of student work which reflects student achievement over time. A portfolio might contain drawings, photographs, written documents, tests, notes, and especially comments from the student, teachers and peers.

6. Essay type methods: These items require an extended written response to questions, problems or situations. Responses will not be as structured as in objective methods. Examples include essay test items and written papers.
PART 1
USE OF ASSESSMENT INFORMATION

Directions: For each question below please indicate the extent to which you use results from each of the 5 assessment methods in making instructional decisions. Circle the number which best indicates your response by using the following scale.

<table>
<thead>
<tr>
<th>Key</th>
<th>3 = Of Some Use</th>
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<tbody>
<tr>
<td>1 =</td>
<td>Of No Use</td>
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<tr>
<td>2 =</td>
<td>Of Limited Use</td>
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<td>4 =</td>
<td>Of Much Use</td>
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<tr>
<td>5 =</td>
<td>Of Considerable Use</td>
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</table>

Here is an example:

No Use Considerable Use

| (Circle one answer) |

1. When communicating student achievement with parents, of what use are results from each of the following assessment methods?

a. Objective paper and pencil methods

By circling 3, this individual indicated that objective paper and pencil items were of some use in providing information to be used when communicating student achievement results with parents.

1. When planning for instruction, of what use are the results from each of the following assessment methods?

a. Objective paper and pencil methods
b. Standardized test scores
c. Performance assessments
d. Informal observations
e. Portfolios
f. Essay methods

2. When diagnosing student weaknesses, of what use are the results from each of the following assessment methods?

a. Objective paper and pencil methods
b. Standardized test scores
c. Performance assessments
d. Informal observations
e. Portfolios
f. Essay methods
3. When monitoring student progress towards course objectives, of what use are the results from each of the following assessment methods?

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<tbody>
<tr>
<td>a. Objective paper and pencil methods</td>
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<td>b. Standardized test scores</td>
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<td>c. Performance assessments</td>
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<td>d. Informal observations</td>
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<td>e. Portfolios</td>
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<td>f. Essay methods</td>
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4. When communicating student achievement with parents, of what use are the results from each of the following assessment methods?

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<td>c. Performance assessments</td>
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<td>d. Informal observations</td>
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<td>f. Essay methods</td>
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5. When motivating students to learn, of what use are the results from each of the following assessment methods?

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<tr>
<td>a. Objective paper and pencil methods</td>
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<td>b. Standardized test scores</td>
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<td>c. Performance assessments</td>
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<td>d. Informal observations</td>
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<tr>
<td>e. Portfolios</td>
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<td>f. Essay methods</td>
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6. When evaluating the effectiveness of your instruction, of what use are the results from each of the following assessment methods?

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<td>b. Standardized test scores</td>
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<tr>
<td>c. Performance assessments</td>
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<td>d. Informal observations</td>
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<td>e. Portfolios</td>
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<tr>
<td>f. Essay methods</td>
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7. When **evaluating the instructional materials you use**, of what use are the results from each of the following assessment methods?

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<thead>
<tr>
<th></th>
<th>No Use</th>
<th>Considerable Use</th>
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<td>1</td>
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<td>(Circle one answer)</td>
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- a. Objective paper and pencil methods
- b. Standardized test scores
- c. Performance assessments
- d. Informal observations
- e. Portfolios
- f. Essay methods

8. When **grouping students for instructional activities**, of what use are the results from each of the following assessment methods?

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<tr>
<th></th>
<th>No Use</th>
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<td>(Circle one answer)</td>
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</table>

- a. Objective paper and pencil methods
- b. Standardized test scores
- c. Performance assessments
- d. Informal observations
- e. Portfolios
- f. Essay methods

9. When **encouraging students to assess their own work**, of what use are the results from each of the following assessment methods?

<table>
<thead>
<tr>
<th></th>
<th>No Use</th>
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- a. Objective paper and pencil methods
- b. Standardized test scores
- c. Performance assessments
- d. Informal observations
- e. Portfolios
- f. Essay methods

10. When **assigning grades**, of what use are the results from each of the following assessment methods?

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<tr>
<th></th>
<th>No Use</th>
<th>Considerable Use</th>
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</table>

- a. Objective paper and pencil methods
- b. Standardized test scores
- c. Performance assessments
- d. Informal observations
- e. Portfolios
- f. Essay methods
PART 2
COMPETENCE IN ASSESSMENT

Directions: Each statement below represents a teacher competency in the assessment process, i.e. communicate assessment results to students. For each statement, circle the number at right which best represents how you perceive your level of competence in assessment to be.

<table>
<thead>
<tr>
<th>Key</th>
<th>Not Competent</th>
<th>Extremely Competent</th>
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</thead>
<tbody>
<tr>
<td>1 = Not Competent</td>
<td>4 = Very Competent</td>
<td></td>
</tr>
<tr>
<td>2 = Slightly Competent</td>
<td>5 = Extremely Competent</td>
<td></td>
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<tr>
<td>3 = Moderately Competent</td>
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</table>

1. Select assessment methods for monitoring student learning

2. Identify the weaknesses of assessment methods

3. Select methods for assessing student performance

4. Develop a performance assessment rating scale

5. Select a representative sample of items to use for assessment purposes

6. Determine appropriate number of items of assessment method

7. Determine proper difficulty of items

8. Identify structural problems in objective questions

9. Examine items for gender bias

10. Write directions for assessment methods

11. Match items to intended learning outcomes

12. Compile a student portfolio

13. Prepare students to take tests

14. Grade objective paper and pencil items

15. Administer a performance assessment
16. Score a performance assessment
17. Score an essay
18. Analyze the validity of test items
19. Interpret the scores of standardized achievement tests
20. Use assessment results to organize a sound instructional plan
21. Use assessment results to monitor student learning
22. Develop student grading procedures
23. Communicate assessment results to students
24. Communicate assessment results to parents
25. Communicate assessment results to employers
26. Recognize unethical methods of using assessment

Please continue with the questionnaire on the next page
PART 3
YOUR ATTITUDE TOWARDS ASSESSMENT

Directions: The term assessment is described below using 10 pairs of opposite adjectives. Place a check mark within one of the 7 scales (\(\checkmark\)) that best indicates how you would describe your attitude towards the overall assessment process. The closer you place a check to one of the adjectives the stronger it describes your attitude towards assessment. There are no right or wrong answers.

Example: the adjectives “Positive” and “Negative” are given. You believe that “Positive” best describes your attitude towards assessment. You would then place your check mark as follows:

Negative \(\checkmark\) : ____ : ____ : ____ : ____ : ____ : Positive

If “Positive” only slightly represents how your attitude towards assessment then you would place your check mark as follows:

Negative ____ : ____ : ____ : \(\checkmark\) : ____ : ____ : Positive

Always place your check mark in the middle of the space.

Like this
\(\checkmark\) : ____ : ____ : ____ : ____

Not like this
____ : ____ : ____ : ____

Please respond to each set of adjectives by placing a check mark in the appropriate location.

Assessment

5. Good ____ : ____ : ____ : ____ : ____ : ____ : Bad

Please continue with the questionnaire on the next page
PART 4
CONSTRAINTS IN ASSESSMENT

Directions: Each statement below represents a potential constraint which you may face in conducting your assessment activities. For each statement below please circle the number at right which best indicates your level of agreement or disagreement. There are no right or wrong answers.

<table>
<thead>
<tr>
<th>Key</th>
<th>1 = Strongly Disagree</th>
<th>4 = Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Disagree</td>
<td>5 = Strongly Agree</td>
</tr>
<tr>
<td>3</td>
<td>Neither Agree or Disagree</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Circle one answer)</td>
<td></td>
</tr>
</tbody>
</table>

1. I decide what assessment methods to use in courses I teach
2. I have assistance in preparing student assessment activities
3. I do not have information on published assessment materials
4. Quality published assessment materials are hard to find
5. Equipment is available in my school for use in scoring tests
6. Inservice activities have helped develop my assessment skills
7. Additional planning time would allow me to use assessment methods more effectively
8. Funds are available for buying published assessment materials
9. College courses were of little help in preparing me to assess student learning

Please continue with the questionnaire on the next page
PART 5
GENERAL INFORMATION

Directions: To finish this survey, we would like to ask questions about yourself and your professional background. All information will remain confidential.

1. How many years of related work experience did you have prior to teaching?
   ____________YEARS

2. For how many years have you been employed as a teacher?
   ____________YEARS

3. In what program area are you currently teaching? (Circle one number)
   1 AGRICULTURE
   2 BUSINESS
   3 HEALTH OCCUPATIONS
   4 HOME ECONOMICS
   5 MARKETING
   6 OWE
   7 TRADE AND INDUSTRIAL
   8 OTHER (please specify)_____________________

4. What is the highest level of education that you have completed? (Circle one number)
   1 HIGH SCHOOL OR EQUIVALENT
   2 SOME COLLEGE
   3 COMPLETED COLLEGE WITH ASSOCIATE DEGREE
   4 COMPLETED COLLEGE WITH BACHELOR DEGREE
   5 SOME GRADUATE WORK
   6 A GRADUATE DEGREE (specify degree)________________

5. How did you receive your teaching certification? (Circle one number)
   1 TEACHER PREPARATION PROGRAM COMPLETED PRIOR TO TEACHING
   2 TEACHER PREPARATION PROGRAM COMPLETED AFTER ENTERING TEACHING AND BEFORE RECEIVING BACHELOR DEGREE
   3 TEACHER PREPARATION PROGRAM COMPLETED AFTER ENTERING TEACHING AND AFTER RECEIVING BACHELOR DEGREE

6. Your present age:
   __________ YEARS
7. Your gender. (Circle one number)
   1 FEMALE
   2 MALE

8. In what type of school do you teach? (Circle one number)
   1 COMPREHENSIVE HIGH SCHOOL
   2 JOINT VOCATIONAL SCHOOL
   3 CAREER CENTER
   4 OTHER (please specify) ________________________

9. Is there anything you would like to say about your experiences with assessing student achievement and performance? Please feel free to write your comments in the space provided.

   Thank You Very Much
APPENDIX B

Cover Letter
April 20, 1993

Dear «fullname»:

The public is demanding that we in education be more accountable for student learning outcomes. To document the effectiveness of vocational education, the State of Ohio will soon test all vocational program completers to measure occupational competency. Such information can be very useful for comparing the performance of groups of students. However, the daily information that you collect in the classroom and lab also has tremendous potential for use in documenting and enhancing student learning.

A small group of vocational teachers in Ohio has been selected to participate in a statewide survey. The survey is designed to identify characteristics of teacher assessment practices in the vocational classroom and lab. As a part of this group, your help is needed in documenting how teachers are using assessment information for various instructional decisions.

It will take approximately 20 minutes to complete the enclosed questionnaire. In order for this study to reflect the views of all vocational teachers in Ohio it is important that the completed questionnaire be returned in the enclosed envelope by April 30, 1993.

All information will be kept strictly confidential. Your name will not appear on the document nor will it be used at any time in the study. The code number that appears on your questionnaire is only used to help us follow up with people who may have forgotten to return it.

A summary of the research findings will be published upon completion of the study. Should you desire a copy of the summary please write on the back of the return envelope "copy of results requested" along with your name and address. Please do not write this information on the questionnaire itself.

I am available to answer any questions you may have. I can be contacted by phone at (614) 292-1354 or by mail at the above address.

A small packet of "Vocational Education" stick on notes has been enclosed as a small way of thanking you for taking time out of your busy schedule to be a valuable part of this study. Thank you for your consideration and cooperation. I look forward to hearing from you soon.

Sincerely,

Isaac Kershaw
Curriculum Specialist
APPENDIX C

Postcard Reminder
April 26, 1993

Hello!

Last week a questionnaire seeking information about your experiences in using student assessment information was mailed to you.

If you have already completed and returned it to us please accept our sincere thanks. If not, please do so today. The questionnaire was sent to only a small, but representative, sample of vocational teachers. It is very important that your information be received so that the results will accurately represent all vocational teachers in Ohio.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me at (614) 292-6321 and we will get another one in the mail to you immediately.

Sincerely,

Isaac Kershaw
The Ohio State University
APPENDIX D

Second Cover Letter
May 4, 1993

Dear [fullname]:

About two weeks ago I wrote to you seeking information on how teachers are using assessment information gathered from students. The information generated from this study will document the sources of information that are important to teachers for making various classroom decisions. As of today, we have yet to receive your completed questionnaire.

I am writing to you again because of the importance each questionnaire has to the usefulness of this study. You are part of a small group of vocational teachers that has been randomly selected to represent the entire population of vocational teachers in the State of Ohio. In order for the results to be truly representative of Ohio's vocational teachers your [response] is needed.

If you have already mailed your questionnaire please disregard this notice. In the event that your questionnaire has been misplaced, a replacement has been enclosed. Please take a moment to complete the questionnaire and return it in the enclosed, stamped envelope. It is important that the questionnaire be completed and returned by May 14, 1993. Should you have any questions give me a call at (614) 292-1354.

Thank you for your cooperation. I look forward to hearing from you soon.

Sincerely,

Isaac Kershaw
Curriculum Specialist
APPENDIX E

Second Postcard Reminder
May 24, 1993

Hello Again!

The year is drawing to a close and I am sure that you are both very busy completing this school year's tasks and hesitant to take on anything additional. But I would like to ask one last time if you could please take a few minutes to fill out and return the questionnaire sent to you three weeks ago.

Your response is very important as you represent a significant number of vocational teachers in the state of Ohio. The information you provide will help to provide a better understanding of how teachers collect information on student learning and how they are using it. If we can emphasize the importance and quality of teacher assessment efforts perhaps external assessments will have a less threatening role.

Thank you for your assistance and enjoy the summer.

Sincerely,

Isaac Kershaw
The Ohio State University
Appendix F

Comparison of Respondents to Nonrespondents
### Table 22
Comparison of Respondents to Nonrespondents on Selected Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Respondent (n=290)</th>
<th>Nonrespondent (n=11)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Assessment Methods</td>
<td>99.70</td>
<td>96.82</td>
<td>.64</td>
<td>.52</td>
</tr>
<tr>
<td>Competence in Assessment</td>
<td>48.76</td>
<td>47.09</td>
<td>.84</td>
<td>.40</td>
</tr>
<tr>
<td>Attitude towards Assessment</td>
<td>47.20</td>
<td>47.82</td>
<td>-.23</td>
<td>.82</td>
</tr>
<tr>
<td>Years of Related Work Exp.</td>
<td>7.60</td>
<td>8.09</td>
<td>-.24</td>
<td>.81</td>
</tr>
<tr>
<td>Years Employed Teaching</td>
<td>14.62</td>
<td>18.55</td>
<td>-1.61</td>
<td>.11</td>
</tr>
<tr>
<td>Age</td>
<td>42.98</td>
<td>44.55</td>
<td>-.60</td>
<td>.55</td>
</tr>
</tbody>
</table>


Fairfax County Public Schools. (1982). Tests can be used to improve instruction. *Familygram*. Fairfax, VA: Fairfax County Public Schools.


Ohio Department of Education. (1990, June). Ohio's future at work: Action plan for accelerating the modernization of vocational education in Ohio. (Available from [Ohio Department of Education, Division of Vocational and Career Education, Columbus, OH]).


