Sustaining Innovation in Career and Technical Education

Brenda S. Clark
Western Michigan University

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SUSTAINING INNOVATION IN CAREER
AND TECHNICAL EDUCATION

by

Brenda S. Clark

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SUSTAINING INNOVATION IN CAREER AND TECHNICAL EDUCATION

Brenda S. Clark, Ed.D.

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There has been little research done in education to determine what makes programs sustainable once the person who started the program has left or funding has decreased or disappeared. Innovative and successful programs are frequently started only to close or to reach a dead end. This study will seek to determine what components are necessary to sustain and grow a Career and Technical Education program. The primary audiences for the research study will be community college and university teacher preparation departments and career and technical education departments.

A survey was sent to Occupational Education Studies (OES) students and to OES professionals at the 14 partnered community colleges and Western Michigan University (WMU). Follow-up surveys were sent to students and professionals who did not respond to the original surveys.

Three major themes were identified: (1) the recruitment strategies that were most successful in getting students into the OES degree program, (2) the levels of satisfaction for OES students and the professionals from the community colleges and
WMU staff that have participated with the OES teacher education program, and (3) the factors that affect sustainability of a program.

Respondents were satisfied overall with the OES program and its components. Students were least satisfied with understanding the steps needed to complete the OES degree. The most successful recruitment strategies were the OES brochures and WMU guidance staff. Additional information shows that occupational instructors and community college and WMU transfer counselors need to better understand the OES program so that they can share information with potential students.

Students enrolling in the OES program are from within a 100-mile range. One interesting finding is that the three schools that have the most students transferring are not the largest community colleges within the 100-mile radius. Kalamazoo Valley Community College, Muskegon Community College, and Southwest Michigan College account for almost 50% of students transferring.

The factors that will affect the sustainability of the OES program include geographic location, number of marketing techniques used by individual community colleges, and the involvement of the deans of occupation at the community colleges.
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CHAPTER I

INTRODUCTION

There is a serious problem in education that is threatening the nation’s continued economic growth and development. The problem is represented by a growing shortage of certified vocational and technical education teachers who annually prepare thousands of students for new and emerging careers. A potential solution to part of the problem may involve community colleges as a means for recruiting and training teachers.

According to a recent 1998 National Science Foundation study, “Investing in Tomorrow’s Teachers: The Integral Role of Two-Year Colleges in the Science and Mathematics Preparation of Prospective Teachers,”

It has become increasingly apparent that the resources of the nation’s community colleges must be utilized fully if the need for a teaching force well prepared in science, mathematics, engineering, and technology (SMET) is to be met. Generally, neither two-year colleges, nor the 4-year institutions where teachers complete their preparation, or the schools that hire teachers fully recognize the essential role of two-year colleges in teacher preparation. In many ways, the preparation of teachers is a hidden mission of two-year colleges. (Bragg, 1998)

The National Bureau of Labor Statistics (NBLS, 1998) reported that there were 419,625 vocational and technical education teachers in the U.S. The Bureau projects that in the next 5 years 50,000 additional vocational and technical education teachers will be needed on top of the replacement need for 188,831 technical teachers. One statewide study by Chrenka (1998), which indicated that 40% of all
vocational and technical education teachers in Michigan will need to be replaced in 5 years, is reflective of this trend.

The National Center for Research in Vocational Education (NCRVE) reports that vocational and technical education teachers are significantly older than their nonvocational counterparts. Coupled with a national retirement wave for aging teachers is the fact that “attrition in the first few years of teaching is, if anything, higher for vocational and technical education teachers than for non-vocational teachers” (NCRVE, 2000). This higher attrition rate may be due in part to the fact that many vocational and technical education teachers have technical degrees, but do not possess the required professional education degree for long-term success in the field. In addition, a large unknown number of prospective or practicing vocational and technical teachers have or are planning to leave teaching for much better paying technical and supervisory positions in the private sector.

A National Center for Research in Vocational Education (NCRVE) study conducted in 2000 found that there were more noncertified vocational and technical teachers at comprehensive high schools than fully certified vocational and technical teachers in comprehensive high schools. The vocational instructors were most likely to have an associate’s degree coupled with related work experience, but were teaching on annual authorizations. While there is need for vocational and technical teachers to have related work experience, there is a public policy need to ensure that technical instructors possess the necessary academic and professional education skills for full teaching certification.
The need for teachers of technical subjects in Michigan has been well documented by several studies. A study conducted by Ferris State University estimated that 40% of Michigan's career and technical teachers would retire by the end of 2003 (Chrenka, 1998). Another study conducted by the Industrial Education Department at Central Michigan University indicated that there were approximately 125 unfilled industrial technology-related positions during the summer of 1996 (Lutz, 1996). A status and future needs study of selected secondary and postsecondary institutions indicated that close to 100 teaching positions would be available in the next 5 years due to program expansions and retirements in southwest Michigan alone (Woloszyk & Buckley, 1999).

A study conducted by Chrenka (1998) supports the fact that in Michigan, and across the nation, the need for more technical teachers is critical. Additionally, the shortage of minority teachers is especially critical. At time when the numbers of minority students are steadily increasing (Franklin, 1987; National Education Association [NEA], 2003), the number of minority teachers continues to decrease (Chaika, 2001). Although 40% of U.S. students are from ethnically or racially diverse backgrounds—a percentage that is projected to rise to 54% over the next 20 years—just 10% of teachers are people of color (Chaika, 2001, p. 1).

The long-term effects of a decrease in technical teachers and a decrease in minority teachers will be far-reaching. One solution lies in utilizing the community college system to attract potential career and technical teachers and to attract minorities to the teaching ranks. Haberman (1987) suggests that the community
college is the logical place to start to recruit minority teachers. Over one half of all minority students take courses at the community college. Haberman states, "Two-year colleges serve minorities at the point of entry, provide remediation, and guide students through programs with counseling and support services" (p. 15).

More than one fourth of all postsecondary institutions in the United States are community colleges. These community colleges enroll almost one third of all college students (National Center for Education Statistics [NCES], 1992). With the sheer number of students enrolled in technical courses at the community colleges, it would seem that there would be an increase in teaching candidates. Research has shown that 3.5% of all community college freshmen indicate an interest in secondary teaching. Interested community college freshmen could account for approximately 25% of the teachers that will be needed over the next decade (Recruiting New Teachers, 2000). Woods and Williams (1987) stated that

very little of the literature on the teaching force has addressed the role of the two-year college in increasing the supply of teachers, generally, and minority teachers in particular. In overlooking the role of the two-year college in extending the teacher pool, we have naturally overlooked a primary source of minority students. (p. 5)

Statement of the Problem: The Shortage of Career and Technical Educators

One of the issues facing education today is a shortage of qualified teachers in specific fields such as mathematics, science, special education, and career and technical education. These shortages have led to a crisis in some districts, especially within the career and technical education fields. In response to an inability to recruit
qualified teachers, schools have resorted to using emergency certification and closing of programs, or both.

In Michigan, schools unable to find a qualified candidate to teach a specific career and technical education subject can apply for emergency certification. This emergency certification allows someone to teach a subject without having a teaching certificate in the area. Over the past decade, emergency certification requests have continued to rise as the shortage of career and technical educators has increased. While emergency certification is a short-term solution, it does nothing to prepare people with specific technical skills to be teachers. Alternative methods of certification are needed in order to prepare highly qualified career and technical education teachers to enter the classroom.

To address the need for certified technical teachers, states are looking to community colleges to help in the preparation of teachers. Millions of students enroll in community college courses (J. Curry, 1998). Among these students are people who aspire to become teachers, but lack the proper credentials to transfer to the university. For the purposes of the study, a transfer student is defined as entering Western Michigan University with a technical degree, 62 credits of technical training, or a combination of credits and completion of the MOCAC exam.

In Michigan, the community colleges and 4-year universities have partnered so students attending a community college can transfer general education credits to a 4-year university under a Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) agreement. The MACRAO transfer agreement stipulates that 30
or more semester hours of compatible, college-level coursework, from specified
distribution areas, completed at participating Michigan community colleges will
“transfer” to another participating Michigan college or university and be applied
toward meet the student’s general education requirements at the receiving institution.

This agreement [MACRAO], designed to facilitate transfer from community
colleges to baccalaureate college and universities, provides for transferability
of up to 30 semester credits to meet many of the general education
requirements at the 4-year colleges. Students may complete the MACRAO
agreement as part of an associate degree or as a stand-alone package.
(MACRAO Transfer Requirements, 2003)

The required courses include English Composition, Science/Math,
Humanities, and Social Science (MACRAO Transfer Requirements, 2003). The
MACRAO agreement, however, does not address technical courses earned in
Associate in Science degrees at the community college. Students who are highly
qualified in many career and technical fields often have to complete another 3 to 4
years of education beyond their technical degree in order to obtain teacher
certification.

One of the issues is (a) whether community colleges hinder the transfer of
students to 4-year institutions, and (b) whether the 4-year institutions create barriers
to seamless transitions from community colleges to alternative certification programs.

Technical coursework rarely, if ever, transfers to a 4-year institution.
Community colleges offer courses at the 100 and 200 levels. Many universities do not
accept technical courses at the 100 and 200 levels. Technical courses often need to be
re-taken at the 300 or 400 levels at the university. For students with technical degrees
and the occupational work experience needed for vocational certification, this fact
represents a huge barrier to obtaining a baccalaureate degree and teacher certification in Michigan. These students would be required to repeat courses at the university which would add to the cost and length of time it would take to obtain a baccalaureate degree and teacher certification.

In 1999, Western Michigan University (WMU) looked for an alternative method for certifying career and technical educators in order to meet the shortages of CTE teachers and to address the issue of technical courses transferring to 4-year institutions. In partnership with eight community colleges, the university established a Bachelor of Science (B.S.) degree in the Occupational Education Studies (OES) through the Division of Continuing Education. The degree allows students with technical degrees from community colleges to transfer their associate’s degree and/or technical courses to WMU, complete their education courses and intern teaching at WMU, and be available to teach in a shorter period of time. WMU partnered with six additional community colleges in 2002.

In part based on a study completed by Allan P. Chrenka in the fall of 1997, an initial meeting to discuss the shortage of technical teachers was held on October 10, 1997. The meeting included deans from the College of Education and Division of Continuing Education at WMU, deans of area community colleges, representatives from area technical centers, and professors representing the Family and Consumer Sciences Department at WMU. At this meeting the focus was placed on the development of fast-track teacher preparation strategies, which would include distance-learning opportunities for students. A proposal was submitted to the
Michigan Department of Education in 1998 with a proposed implementation date for the OES program in the fall of 1999.

Purpose of the Study

This study will contribute to the knowledge base by exploring how innovation in Career and Technical Teacher Education (CTE) can be sustained. This study examined (a) the direct effect of teacher recruitment strategies in CTE teacher education, (b) the satisfaction of OES participants, and (c) the components necessary to sustain a successful program in Career and Technical Education between an articulated university and community college teacher preparation program.

The 14 community colleges in Michigan that are partnered with WMU and the OES program were included in this comprehensive study. The study was a cross-sectional survey for the partnered community colleges with the data collected at one point in time. The study examined the factors that affect sustainability in CTE teacher education. *Sustainability* is the state in which the major activities of the OES program continue after the initial funding ends.

The factors that affected student and professional satisfaction with the program were investigated. The factors that affected sustainability of the program’s future were investigated.

To be more specific, the following issues were addressed: (a) student and professional perceptions of the Occupational Education Studies (OES) degree
program, (b) satisfaction of participants in the OES program, and (c) factors affecting the sustainability of a CTE articulated program.

Importance of the Study

Examining the factors that affect sustainability of CTE teacher education should provide a mechanism for examining the perceptions and motivating factors for students enrolling in the OES program. This study will help to strengthen the program and allow administrators to focus on improvement, where needed. Teacher education programs across the country can use the results of the study to refine and/or develop articulated career and technical education teacher education programs between community colleges and universities. Current research supports the need to utilize community colleges as teacher preparation institutions. This study will contribute a deeper understanding of the factors affecting sustainability, factors affecting student enrollment, and perceptions of administrators and students on an existing articulated teacher education program.

Two surveys were used for this study. The first survey was designed for students that were currently enrolled in, or graduated from, the OES degree program. The student survey determined (a) student perceptions of the Occupational Education Studies (OES) program, (b) factors affecting the sustainability of a CTE articulated program, and (c) satisfaction of student participants in the OES degree program.

The second survey was sent to deans of occupation at the 14 community colleges, transfer counselors at the community colleges, and selected WMU staff.
involved in the OES program. The professional survey determined (a) factors affecting sustainability of a CTE articulated program, and (b) satisfaction of professional participants in the OES degree program. The study is unique because there is very little research on sustainability of articulated CTE teacher education programs and the key factors in developing and maintaining articulated career and technical teacher education programs. Articulation is the process of developing ongoing communication and agreements between and among 2- and 4-year postsecondary institutions. The articulation process is intended to ensure problem-free transfer from one institution to another.

Three questions about the sustainability of articulated CTE teacher education programs were addressed using the perceptions of students and administrators.

The first question was, “What is the satisfaction level of participants in the OES program?” The means of student variables and the means of administrator variables were used to determine satisfaction with the OES program.

The second question was, “What are student perceptions of the Occupational Education Studies (OES) program?” This question examined the student’s perceptions of the OES program in 2003.

The third question was, “What are the factors affecting the sustainability of a CTE articulated program?” This question examined the specific components of the OES teacher education preparation program that makes the program sustainable. Geographic location, number of marketing techniques used, and involvement of the
deans of occupational education at the community colleges were the factors examined.

Strengths and Limitations of the Study

An important strength of this study was that it focused on a specific articulated teacher education program. It focused on enrolled and graduated student perceptions, community college administrator perceptions, and WMU staff perceptions. By surveying all parties involved in the OES program, comparisons could be made to determine the factors that might make a CTE program sustainable. It also allowed for generalizations to be made related to factors affecting sustainability, student satisfaction with the OES teacher education program, and effective recruitment techniques for attracting community college students to CTE teacher education.

Along with the strengths came limitations to the study. The OES degree program at WMU is less than 5 years old. As a result, many of the students did not fully complete the program. Additionally, six community colleges partnered with WMU in the OES program less than 3 years ago.

The information from this research study is beneficial to Career and Technical Education and to education in general. It is timely because of declining national enrollments in CTE teacher education programs and relates to current research on the role of community colleges in teacher preparation.
Summary

The shortage of career and technical education teachers and the sustainability of career and technical education teacher preparation programs need to be addressed. The introduction of this study emphasized the shortage of career and technical educators, the need to identify new and alternate methods for career and technical teacher education certification, and the need to identify the factors that affect the sustainability of innovative programs.

Western Michigan University (WMU) identified the need for alternative certification methods for CTE teachers. WMU partnered with selected community colleges to create a method for participants with technical degrees from community colleges to transfer to WMU and earn their teaching degree.

This study was unique because it studied a partnership between the 14 partnered community colleges and a 4-year university for the preparation of CTE teachers. It also identified the possible factors that can possibly make the program sustainable. It studied the recruitment strategies that were most effective in attracting students to a CTE teacher preparation program.

Chapter II describes the related research that provided the background for the study. The design and methodology for the research study is explained in Chapter III. Chapters IV and V present the results and recommendations of the study.
CHAPTER II

LITERATURE REVIEW

Students, community college personnel, and WMU staff perceptions of the Occupation Educational Studies (OES) program were examined in this study. The perceptions are described and compared. Student characteristics used for comparison include geographic location, gender, and previous degrees. The characteristics of community college personnel used for comparison and analysis included job position, length of involvement in the program, and location. WMU staff characteristics included length of involvement in the program and job position. The factors that make the Occupational Education Studies (OES) program sustainable were also examined.

Relevant literature in the areas of sustainability and innovation in career and technical education were reviewed. The review is organized into four sections: (1) the evolution of career and technical teacher education preparation, (2) community college roles in teacher preparation, (3) sustaining enduring innovations in career and technical education, and (4) a description of the Occupational Education Studies (OES) degree program.

The Evolution of Career and Technical Education

According to the Association for Career and Technical Education (ACTE, 2003), vocational education "is a large and diverse education enterprise spanning both
secondary and postsecondary education.” Vocational education, referred to in this dissertation as career and technical education, is designed to prepare students for employment. Career and technical education is defined by broad occupational areas such as “agriculture, business, family and consumer sciences, marketing, health, trade and industry, and technical/communications” (ACTE, 2003, p. 2). According to the National Association of State Directors of Career Technical Education Consortium (NASDVTEC, 2003), career and technical education seeks to “provide individuals with the skills they need to obtain economic freedom and to improve the productivity of our local, state and national economies.” The Perkins Act further defined vocational education as:

Organized educational programs offering a sequence of courses which are directly related to the preparation of individuals in paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advance degrees. Such programs shall include competency-based applied learning which contributes to an individual’s academic knowledge, higher-order reasoning, and problem-solving skills, work attitudes, general employability skills, and the occupational specific skills necessary for economic independence as a productive and contributing member of society. (NASDVTEC, 2003, p. 1)

Career and technical education continues to attract a diverse population of students. Approximately 14,000,000 or nearly all high school students take at least one career and technical education course while preparing for college or additional training (NASDVTEC, 2003; Scott & Sarkees-Wircenski, 2001). Over 26,000 high schools, community colleges, and other institutions offer at least one career and technical education course (American Vocational Association, 1993). Additionally, millions of adults take a career and technical education course to retrain for a new
job, acquire basic skills, or keep up with changing technology in the workplace (Association for Career and Technical Education [ACTE], 2001).

For many, career and technical education is viewed as a program that prepares them for work after graduation.

But many educators and policy makers believe it has a broader mission: to provide a concrete, relevant context for learning and applying academic skill concepts, to prepare people for participation in the family and community, and to prepare for college and other types of postsecondary learning. (NCES, 1992)

The preparation of students for the work force continues to be a national goal, as well as a goal of the career and technical education system.

A majority of career and technical programs are offered at comprehensive high schools. Secondary programs are also offered at area or vocational skill centers. An area center typically provides half-day instruction for students in a region. Two or three sessions are held at area vocational centers. In some vocational centers, adult education is offered during the evening hours (Adams, 1993).

Vocational Education had its beginnings well before the Smith Hughes Act of 1917 provided the first federal funding for CTE. Early vocational education in America evolved from reading the Bible, the principal method used for educating children, and from American apprenticeships. Early vocational (CTE) education included providing agricultural education and home economics education to students. These practical courses provided the early foundation for career and technical education.
Legislation has been pivotal to the continuance of career and technical education, starting with the Smith-Hughes Act of 1917 and continuing through the Carl Perkins reauthorization of 2002. The Smith-Hughes Act was pivotal in establishing federal, state, and local partnerships in education. It provided funding for noncollege degree people and was signed in perpetuity. However, in 1994 the U.S. Congress stopped funding for the Smith-Hughes Act.

The Vocational Education Act of 1963 was another major piece of federal legislation. It replaced the Smith-Hughes Act and eliminated categorical funding for specific vocational disciplines, such as agricultural education. Funding went to states on the basis of the population in specific age categories, and states decided how to spend the funds. Between 1917 and the present, many additional legislative acts provided career and technical education funding for the unemployed and underemployed adults.

The Carl Perkins Vocational Act of 1984 brought together the many legislative acts governing vocational education under one umbrella. The Perkins Act was reauthorized in 1990 as the Carl D. Perkins Vocational and Applied Technology Act of 1990, or Perkins II, and provided the “largest amount funds ever for vocational education” (Scott & Sarkees-Wircenski, 2001, p. 234). The Perkins Act was re-authorized again in 1998 as the Carl D. Perkins Vocational and Technical Education Act, better known as Perkins III. Perkins III is administered by the U.S. Department of Education and continues to have as its major goal “to improve the
quality of vocational education offered at both the secondary and post-secondary levels” (Shoreline Community College, 2003, p. 1).

Legislation has been of particular importance to career and technical education. It has provided funding to prepare secondary and postsecondary students for the workforce and for the preparation of career and technical education teachers.

Career and Technical Teacher Education Preparation

Career and technical teachers must be experts in two areas: (1) teaching skills or pedagogy, and (2) technical skills in the craft or trade area. Throughout the history of career and technical education in this country, “the value of occupational experience for the vocational education teacher has been proclaimed (The Quality of Vocational Education, 1998). While teachers in academic disciplines need to be fully certified, career and technical education instructors are often hired to teach in their field of expertise without having a teaching degree.

The practice of hiring experts to teach without a degree dates back to the National Society for the Promotion of Industrial Education (NSPIE, 1914, as cited in The Quality of Vocational Education, 1998). The NSPIE felt that

Trade teachers should first of all be masters of their trade. To be qualified to teach their trade they must have lived it; from this trade experience they bring skill and intimate acquaintance with the best practices of its every branch. (p. 12)

The federal government also felt that career and technical teachers must have the pedagogy to teach technical courses in some areas. Career and technical teacher preparation was part of the Smith-Hughes Act of 1917. The Federal Board for
Vocational Education administered the Smith-Hughes Act of 1917. This Board felt that universities would be useful for training agricultural and home economics teachers, but was not necessarily for the other skilled trades areas (Prosser & Quigley, 1949, p. 310, as cited in The Quality of Vocational Education, 2003). Others felt much the same way. For example, Roberts (1957) identified as a major principle of vocational education, “Vocational Education personnel should be occupationally competent” (p. 586). Miller (1985) also stated as an essential principle: “Teachers of vocational education are both professionally and occupationally competent” (p. 81).

Mason, Furtado, and Husted (1989) stated, “Prospective vocational education coordinators need the equivalent of at least two years (4,000 hours) of business or industrial experience” (p. 124, as cited in The Quality of Vocational Education, 2003).

The Smith-Hughes Vocational Education Act of 1917 also stated that any instructor in a federally funded vocational education program had to have occupational work experience in that field. Many states followed the lead of the federal government and set policies and processes to recruit skilled workers to teach in a vocational field without requiring a degree or teaching certification. Michigan requires career and technical education teachers to have 4,000 hours of recent and relevant work experience in order to receive their vocational certification. Recent and relevant is defined as work experience within the last 6 years.

Potential CTE teachers in Michigan may get their 4,000 hours of work in a number of ways: (a) work 4,000 hours in their field, (b) take a cooperative work
experience class at the postsecondary level for 2,000 hours and work an additional 2,000 hours, or (c) take the Michigan Occupational Competency Assessment Center (MOCAC) exam and pull their work experience from more than 6 years ago forward.

The MOCAC exams are an alternative method for getting a teachable major for those with recent (within the past 6 years) and relevant work experience. The MOCAC can help the student establish a major or minor for a person with a degree who wants to teach. The MOCAC can also be used to substitute for 2,000 hours of work experience but this substitution rarely occurs. Most students elect a cooperative work experience at the community college or university instead.

The philosophy that career and technical education teacher preparation, especially in the trade and industrial area, is somehow unique continues today. The conclusion in 1917 by the Federal Board that is still prevalent today is that “alternative schemes for vocational education teachers were needed and that important modifications must be made in state certification from those used to certify academic teachers. At that time, college-level preparation was not warranted and indeed not desirable” (The Quality of Vocational Education, 1998, p. 2). Leighbody (1972, as cited in The Quality of Vocational Education, 1998) goes on to conclude that trade and industrial educators have long insisted that the necessary subject competence can only be attained by lengthy experience on the job and to secure such teachers it is necessary to forego formal education in favor of occupational experience, and convert craftsmen into teachers. (p. 138)

The practice of certifying career and technical teachers without having a formal teaching degree continues today. For many schools, faced with a shortage of
technical teachers, demonstration and verification of occupational experience and competency is enough to acquire a teaching position. Many states, including Michigan, have rules, regulations, or laws allowing alternative certification. Teachers in 43 states can teach career and technical education classes if they have occupational experience, even if they have no formal postsecondary training (Duenk, 1989). Two states (Hawaii and Wisconsin) require a baccalaureate degree for all teachers, seven states require an associate degree, and five a baccalaureate degree for teacher certification. (Duenk, 1989, p. 4).

Current research, however, contradicts the belief that occupational experience is enough to be successful in the classroom. Research conducted in 1989 and 1998 by Camp and Heath-Camp (as cited in The Quality of Vocational Education, 2003) identified some of the issues surrounding the alternative certification of career and technical teachers. Their research found that of the 149 participants in their survey, 43% were alternatively certified. Their findings include:

- Nondegreed and alternatively certified teachers were much older than those prepared through college teacher education programs. On average, they were in their mid-30s, had children, were married, and had over 10 years of occupational experience.
- CTE teachers with little or no pedagogical training had more problems in the classroom than beginning teachers with preparation.
- Alternatively certified teachers had fewer technical specific problems, but were insecure in their relationships with others in the educational system.
• Alternatively certified teachers stated that they needed help with curriculum and lesson planning. Their number one need was for a mentor in their subject area (p. 6).

A number of universities have developed programs to provide pedagogical training for emergency certified teachers or potential teachers who have the occupational experience but lack the education courses. Beidel (1993, as cited in The Quality of Vocational Education, 2003) described four types of alternative certification for career and technical educators:

1. Short-unit, continuous, intensive workshops conducted in the summer or when schools are typically not in session, usually about 4 weeks in length;
2. Short-unit, discontinuous training, dispersed throughout the school year on weekends or on teacher workdays;
3. One-on-one, on-site teacher training provided by an itinerant teacher education (sometimes in conjunction with #1 and #2); and
4. Long-term continuous training and education, resulting in a college degree(s) while teaching in a public school. Various surveys placed the clock hours of professional training for alternatively certified vocational education teachers, including those without baccalaureate degrees range from 0 to 576 hours with an average of 120 clock hours.

The first three methods of alternative certification are often considered “survival skill training” (Duenk, 1990). The courses offered often are very basic and focus on specific training for the classroom. These programs help the teacher to
survive in the classroom by providing training in basic classroom management and lesson planning, but do little to help prepare instructors in their role as teachers. The fourth method of alternative certification, long-term continuous training and education, has met with the most success in teacher retention.

According to Feistritzer, 2002, as cited in Szuminski, 2003), alternatively certified teachers remain in the profession longer than those teachers who have been traditionally trained. However, teaching CTE is often an underrated challenge because “the need for industry expertise negates traditional teacher education training, thus creating an entry route for many CTE teachers” (Szuminski, 2003, p. 1).

The need for alternative certification programs and methods to recruit new teachers to CTE continues to grow as the nation continues to face a shortage of technical teachers. This shortage and recruitment is well documented.

Successful Recruitment Techniques

The current and projected teacher shortage in specific subjects has been well documented. Research on the best recruitment methods continues as schools struggle to fill positions, especially in math, science, technology, and career and technical education. Alternative sources of potential teaching candidates have been identified as new sources of recruits. Olson (1993) identified one new source for teachers. She suggested looking to business and industry to find qualified candidates, especially in career and technical education. Career and technical education has long recruited skilled workers without degrees due to a lack of trained teachers. Olson found that
73% of trade and industrial teachers did not have teaching degrees and half of health occupation teachers had no formal degree in education. These teachers often received emergency certification that allowed them to teach while returning to school to earn a teaching certificate.

Another identified source of potential teacher recruits is from the paraprofessional staff already in the school (National Education Association, n.d.). NEA reports the following benefits of recruiting paraprofessionals and other support personnel.

The benefits of recruiting para- and support personnel include:

- A large number of the candidates are minorities.
- Many are mature individuals who have classroom experience and understand students and the educational field.
- They have a higher retention rate than teachers entering the field without experience.
- They have established roots in their community and are less likely to leave. They also are more involved in community service activities.
- They are accustomed to working with challenged and difficult students. In fact, they may have been hired to work with that population.
- Their previous experience in the school and industry has helped them make connections between the classroom and the community.

In addition to the shortage of teachers, the need to attract minority teachers is as important. According to Education World (2000), currently 30% of U.S. students
are from ethnically or diverse backgrounds, but only 13% of teachers are minorities. The decline in African American and Hispanic students majoring in education is higher than the overall decline in education majors. Minority teachers are also leaving teaching at higher rates than white teachers (Kaufmann, 2000).

Additionally, the National Bureau of Labor Statistics (NBLS, 1998) reported that there were 419,625 technical education teachers in the U.S. The Bureau projects that in the next 5 years 50,000 additional technical education teachers will be needed on top of the replacement need for 188,831 technical teachers. One statewide study by Chrenka (1998), which indicated that 40% of all technical education teachers in Michigan will need to be replaced in 5 years, is reflective of this trend. This trend isn’t unique to Michigan. Statistics show that across the country more and more technical education teachers are reaching retirement age or choosing to leave education to pursue other opportunities.

More recent data from CareerInfoNet (2002) shows that nationally there will be a 13% increase in the need for career and technical educators in the classroom. There will be 4,780 annual job openings in career and technical education. Some career and technical education programs are being hit harder than others by the lack of qualified teachers. Weston reported in 1997 that “industrial arts” vacancies were either difficult or impossible to fill. Weston further reported that in 1996 a total of 256 technology education positions went unfulfilled.

In a study completed for The National Center for Research in Vocational Education (NCRVE), Guarino, Brewer, and Hove (2000) reported that technical
education teachers were significantly older than their nontechnical counterparts. At the same time, fewer students were identified career and technical education majors. "The proportion of new entrants . . . declined . . . between 1988 and 1991" (p. 88).

The aging of career and technical educators isn't anything new. Many institutions are offering early retirement incentives for older staff members in an attempt to reduce costs. These early retirement incentives exacerbate the shortage of career and technical education teachers.

Career and technical educators have the skills necessary to obtain a job in business and industry after retirement. This “dual qualification” of sorts is both help and hindrance to Career and Technical Education. With their technical skills, CTE teachers at all levels and ages can leave teacher education at any time to seek employment in industry. The perception, not the reality, is that industry pays higher wages and may become more attractive to teachers frustrated with the educational system.

Coupled with a national retirement wave for aging teachers is the fact that “attrition in the first few years of teaching is, if anything, higher for . . . technical education teachers” (Guarino et al., 2000, p. 86). This higher attrition rate may be due in part to the fact that many technical education teachers have technical degrees, but do not possess the required professional education degree for long-term success in the field.
The Role of Community Colleges in Teacher Preparation and Articulation

The community college can be an excellent source for identifying and encouraging students to pursue a teaching degree. According to Jennifer Curry (1988), community colleges are an ideal place to encourage students, particularly minority students, to enter teaching occupations. "These institutions enroll 54% of all Hispanics and 45% of all Blacks currently pursuing higher education in the United States" (p. 2).

Community colleges also enroll more nontraditional, older students who are looking for a career change. The teacher shortage, according to Woods and Williams (1987), requires that teacher recruitment efforts "extend beyond traditionally aged college students." Many community college students also enter school without a clear career goal (Shavelson et al., 1983). The counselors and advisors can influence and provide information to potential CTE teacher candidates.

Additional data support the utilization of community colleges in teacher preparation:

- 3.5% of all community college freshmen indicate an interest in secondary teaching. This interest can account for approximately 25% of the teachers needed over the next decade (Recruiting New Teachers, 2000).
- Four of every 10 teachers have taken some coursework at a community college (Boggs & Bragg, 1999).
- Community colleges have the capacity to increase the ethnicity of the teaching field (U.S. Department of Education, 1999).
Community colleges can play a unique role in preparing more educators for the classroom. It is estimated that one fifth of all teachers began their studies at a community college (Community College Policy, 2001, p. 1). In some universities, almost one half of the students come from community colleges (Mellander & Robertson, 1992, cited in Ignash, 1992). Additional studies have shown that community college students who transferred to a university performed as well academically and obtain degrees at the same rate as students who have attended the university for their entire degree (Barry & Barry, 1992).

Community colleges can also play a unique role in increasing the diversity of the current teaching force. As stated earlier, community colleges attract a higher percentage of minorities and other underrepresented populations than their 4-year university counterparts. The diversity at community colleges is significant given the fact that today’s student population is over 30% minority (much higher in some states and urban areas) and yet only 13% of the teaching force is an ethnic minority (U.S. Department of Education, 1999).

Sadie Bragg, at a 1998 National Science Foundation workshop, stated that 2-year colleges “should play a major role in recruiting students to the teaching profession.” Some of the recommended methods to recruit community college students into teaching included involving faculty and administrators; visiting area high schools to meet with students and counselors; recruiting students from a variety of backgrounds, especially minorities and underrepresented populations; and recruiting efforts as part of the community colleges’ mission and strategic plan (pp. 6-7).
Beyond community college efforts to attract students to teaching, universities should partner with the 2-year colleges to provide a seamless transition. Partnerships between universities and community colleges are a natural step to identifying potential technical teachers.

Community colleges provide technical training for larger numbers of students and are often the place for displaced workers, older workers looking for a career change, and others to update their technical skills. These partnerships, however, must find ways to creatively recruit teachers and provide methods to transfer credits so students can complete a teaching degree.

One of the barriers identified is the transferability of previous coursework. According to Bragg (1998), community colleges and universities need to reduce the barriers of course transferability by articulating transfer agreements between 2-year colleges and 4-year universities. These agreements need to include not only the general liberal arts courses that often transfer to the university, but also technical courses for those students interested in obtaining technical teaching degrees. Some states, such as Florida, have mandated articulation agreements, while others allow the community colleges and universities to create their own articulation agreements.

Many states are looking to community colleges to help identify and train prospective teachers. There are at least 20 states that are working with community colleges to help recruit and prepare elementary and secondary educators (Evelyn, 2002).
One of the most controversial plans is in Florida, where plans are in place to allow community colleges to actually award bachelor’s degrees in education (Evelyn, 2002). In Maryland and Michigan, a different approach is being tested to allow students who are pursuing education degrees to make a seamless transition from the community college to the university (Evelyn, 2002). In Michigan, WMU has worked with Career and Technical degree holders from community colleges through an articulated teacher education program. CTE students can transfer to the university through the OES degree program to become technical teachers.

Instituting and Sustaining Enduring Innovations in Career and Technical Education

Many educators have seen educational reform efforts come and go, only to be replaced by a new and “better” reform effort. The parade of reforms often makes educators skeptical of change and innovation. As reforms come and go, many educators are left to puzzle over the design of their own innovation and to determine the best approach to gather support and commitment from colleagues. Organizational change is a process that takes time, and time often is the thing that kills true innovation and keeps an innovative program from becoming sustained over time.

Organizational change often happens in response to a crisis. In career and technical education, the crisis revolves around the shortage of certified and qualified instructors. This is a serious problem in education that is threatening the nation’s continued economic growth and development. The problem is represented by a growing shortage of certified vocational and technical education teachers who
annually prepare thousands of students for new and emerging technical careers. Retirements, instructors leaving the field, and the reduction in teacher education programs have contributed to the shortage of qualified career and technical teachers.

New and innovative programs for the preparation of career and technical educators are emerging as universities attempt to recruit minorities and nontraditional students. These innovative programs hold the key to reversing the trend of declining enrollments in career and technical teacher education and provide alternative methods for allowing CTE candidates to become teachers. The OES program at Western Michigan University was started in response to the need for additional CTE instructors.

One of the factors identified is that it takes a strong leader to institutionalize enduring innovations in career and technical education. Many leaders have implemented innovative and successful changes in their institutions. Many innovations die after the leader left, as administrative changes occurred, or as the district chose to move in a new and different direction. The change is not given time to be sustained or institutionalized.

Fullan and Miles (1992) state, "After years of failed education reform, educators are more and more in the habit of saying that knowledge of the change process is crucial. But few people really know what that means" (p. 745) According to Fullan (1991), change is a 2–3 year process. After that time, the organization must institutionalize the change—or abandon it. Too often, the change is abandoned before that time. Frustration with the amount of time it takes to institutionalize the
innovation, lack of sustained funding, and other initiatives that detract from current practices work against real transformation.

To institute enduring innovations in any organization, including career and technical education, organizational change must be understood. Organizational change is not about overnight solutions, jumping from one new initiative to another, or changing the course of the school district based on the comings and goings of administration. Organizational change and institutionalization is about staying the course, providing support, and working towards a common goal.

Szuminski (2003) reported that there are five core components that foster success in alternative teacher certification programs. These components have significance for teacher preparation programs in career and technical education. These five components are:

- **Partnerships between schools and teacher education institutions.** She considered partnerships to be one of the most significant “components to the success of new models because teacher education institutions have traditionally been one of the gatekeepers to certification” (Szuminski, 2003, p. 2).

- **Continuous support.** Continuous support occurs in two ways: Emotional/psychological (Hansman, 2002; Stansbury & Zimmerman, 2002, as cited by Szuminski, 2003) and instructional. The support structure can be both formal and informal.
• Administrative commitment to support. Administrators must provide financial, resources, and other assistance to assist new career and technical education teachers entering from industry to become familiar with the unique practices found in education.

• Job-embedded teacher development activities. It is important that new CTE teachers, in addition to course work, have release time to receive training and develop curriculum.

• Flexibility. The program design and implementation of successful teacher preparation programs must be flexible to meet the needs of the new CTE teachers. “Flexibility on the part of university partners and school administrators to design teacher development activities to meet these needs must be both encouraged and allowed” (Szuminski, 2003, p. 3).

Part of Szumanski’s (2003) study focused on assessing the extent to which the OES program integrated pedagogy with stronger emphasis on partnerships with community colleges, marketing of CTE teacher education as a viable degree, and increased enrollment in the program. It was important to identify factors within the OES program that make it sustainable and institutionalized. Institutionalization refers to the activities that have been incorporated into the normal, ongoing activities at both the community college and at the university (Bailey, Matsuzuka, Jacobs, Morest, & Hughes, 2003).

Sustainability is also important because as initial grant funds run out, the programs that the funds initially started tend to fade away (Shaping the Future,
The tendency to abandon programs is endemic to educational reform. Too often major projects using private and/or public funds are begun only to end as soon as funding ends.

Organizational theorists have determined that the technical activities associated with education, especially those related to the students' education, are loosely coupled with the more public activities of administrators (Brint & Karabel, 1991; Meyer & Rowan, 1977; Meyer, Scott, & Deal, 1981). It is often the administrators who write the grants, receive the grants, and administer the grants without taking the time to get staff buy-in. People within the organization that received funding are often resistant to incorporating the reforms into core activities.

In a study of K–12 federally funded education reform programs, Meyer, Scott, and Strang (1987) found that programs designed to influence teacher behavior actually had a greater impact on administrators. Similarly, a study conducted by DiMaggio in 1983 found that funding had a greater impact on state art councils than on the local councils that received the funding. These examples suggest that even if administrators support the program, the teachers and students impacted most directly by the programs are less likely to receive benefits from them.

While institutionalization is related to sustainability, they are not the same. For example, OES activities can be sustained for a period of time, even if they are not institutionalized. If reforms are actually incorporated into the regular operation of the community colleges and the university, then the OES program and its influence will
be sustained and institutionalized. "Thus an institutionalized reform is likely to last," (Bailey et al., 2003).

The Occupational Education Studies (OES) Program

Based on several recent studies and a compelling need, a Bachelor of Science (B.S.) degree in Occupational Education Studies (OES) was approved by the Western Michigan University (WMU) Board of Trustees. The OES degree was initiated in the 1999–2000 academic year to address the current and expected shortage of technical subject matter teachers.

The B.S. degree in OES was designed for individuals who wish to become fully certified teachers in a technical subject area. The degree is awarded from WMU, but is completed in collaboration with community colleges. The community colleges deliver the technical subject courses for a teachable major at the secondary level, along with some of the required math, science, and technological literacy courses. Community college coursework transfers to WMU and leads to a Bachelor of Science degree in Occupational Education Studies with a secondary teaching certificate and a vocational education (CTE) endorsement.

Western Michigan University has formal articulation agreements with 14 community colleges in Michigan. The 8 original community colleges included Glen Oaks Community College, Grand Rapids Community College, Kalamazoo Valley Community College, Kellogg Community College, Lake Michigan Community College, Lansing Community College, Muskegon Community College, and
Southwestern Michigan College. The Michigan State Board of Education initially approved various programs of study for technical subject areas offered at the community colleges for secondary teaching certification with related vocational endorsements in August of 1999. During the 2000–2001 academic year, 6 additional community colleges also articulated their technical programs with WMU. The 6 additional colleges are as follows: Alpena Community College, Bay de Noc Community College, Jackson Community College, Mid Michigan Community College, Montcalm Community College, and North Central Michigan College.

The articulation agreements provide for a transferable program of technical studies to WMU's Career and Technical Teacher Education program. This articulated CTE teacher education program accepts an Associate in Science degree in a technical program of study or a maximum of 62 transferable semester hours of academic and technical credits. The credits can be used to fulfill the university graduation requirements of 122 semester hours for the Occupational Education Studies degree. An approved Program of Work from Kalamazoo Valley Community College for Drafting Technology can be found in Appendix A.

The OES degree program leads to a State of Michigan Secondary Provisional Certificate with a vocational endorsement in a technical subject area. The articulated technical programs are all in critically needed subject areas and include the programs listed in Figure 1.

A crosswalk of approved articulated programs and the “partnered” community colleges can be found in Appendix B.
<table>
<thead>
<tr>
<th>Air Conditioning, Refrigeration &amp; Heating</th>
<th>Graphic Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive Technology</td>
<td>Industrial Maintenance, Technology</td>
</tr>
<tr>
<td>Drafting, Architectural</td>
<td>Law Enforcement</td>
</tr>
<tr>
<td>Drafting, Design/CAD</td>
<td>Machine Maintenance</td>
</tr>
<tr>
<td>Drafting, Mechanical</td>
<td>Materials Tool</td>
</tr>
<tr>
<td>Electrical Technology</td>
<td>Materials Technology</td>
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<tr>
<td>Electronics Technology</td>
<td>Plastics Technology</td>
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<tr>
<td>Fire Science</td>
<td>Video Technology</td>
</tr>
<tr>
<td>Geographic &amp; Environmental Technology</td>
<td>Welding Technology</td>
</tr>
</tbody>
</table>

Figure 1. Articulated Programs From Community Colleges.

An established advisory board meets twice a year to review the progress of the OES program and to make recommendations to the program. The advisory board consists of the deans of occupation from each of the community colleges, transfer counselors from the community colleges and the university, CTE teacher education staff from the university, select secondary counselors and administrators, and administrative staff from the Department of Distance Education at WMU. The delivery of required academic, professional education, and technical courses in the OES degree program is done through traditional courses and distance-learning alternatives including compressed video interactive TV (CVIT), correspondence courses (both paper and online), and 2-week summer institutes.
As of October 2003, 55 students had either entered, planned to enter, or had graduated from the OES program. A timeline for development of the OES program is shown in Table 1.
Table 1

Timeline for Development of OES Program

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 16, 1997</td>
<td>Concept paper submitted for Two Plus Two Program</td>
<td>Move forward with development of concept</td>
</tr>
<tr>
<td>October 10, 1997</td>
<td>Advisory Board meets for the first time</td>
<td>Continue discussing and planning for a fast track teacher preparation program; distance learning opportunities</td>
</tr>
<tr>
<td>October 1997 – November 1998</td>
<td>Monthly advisory board meetings held</td>
<td>Developed concept paper to submit to state for implementation of OES program; designed distance learning courses (CVIT)</td>
</tr>
<tr>
<td>April 2, 1998</td>
<td>$25,000 grant received from Michigan Department of Education</td>
<td>Grant to continue development of OES program</td>
</tr>
<tr>
<td>Spring 1998</td>
<td>Brochure/newspaper ads developed</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Development of distance learning curriculum and two week summer institutes</td>
<td>WMU instructors modify curriculum for 4 CTE courses to meet distance learning demands and summer institute courses</td>
</tr>
<tr>
<td>August 3, 1998</td>
<td>Recruitment Fair held</td>
<td>Over 100 interested students submit information</td>
</tr>
<tr>
<td>Fall 1998</td>
<td>First students enroll in courses for the OES program</td>
<td></td>
</tr>
<tr>
<td>November 1998 – June 1999</td>
<td>Quarterly advisory board meetings held</td>
<td>Finalized proposal for State Department of Education, Teacher Certification approval</td>
</tr>
<tr>
<td>April 1999</td>
<td>$25,000 Grant received from State Department of Education to continue work on OES program</td>
<td></td>
</tr>
<tr>
<td>Fall 1999</td>
<td>Proposal approved to State Department of Education</td>
<td></td>
</tr>
<tr>
<td>November 1999 – Today</td>
<td>Semi-annual advisory board meetings held</td>
<td>Develop promotional plans, identification of additional community colleges, review programs of work, additions to programs of work</td>
</tr>
<tr>
<td>Fall 2000</td>
<td>WMU web page added for OES program</td>
<td></td>
</tr>
<tr>
<td>Spring 2001</td>
<td>First three students graduate with OES degree</td>
<td></td>
</tr>
<tr>
<td>Fall 2001</td>
<td>Student assistant hired to assist Dr. Woloszyk with OES program</td>
<td></td>
</tr>
<tr>
<td>October 26, 2001</td>
<td>Six additional community colleges join OES program</td>
<td>Alpena Community College, Bay de Noc Community College, Jackson Community College, Mid Michigan Community College, Montcalm Community College, North Central Michigan College</td>
</tr>
<tr>
<td>Spring 2003</td>
<td>Seven graduates of the OES program; 41 pending or enrolled in the OES program</td>
<td></td>
</tr>
<tr>
<td>Fall 2003</td>
<td>55 students pending or enrolled in OES program</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER III

RESEARCH METHODOLOGY

Overview of Research Methodology

Survey data can provide information to improve programs. (Walonick, 1998). The survey data collected can show trends, including growth or decline, changes in attitudes, and perceptions of participants, to name a few. The survey method was selected for data collection because of its ease of administration and the various geographic locations of the 14 community colleges and participants involved with the study.

This study examined the results of two surveys. The first survey was sent to OES students and graduates. The second survey was sent to community college deans, community college counselors, and WMU staff involved in the OES program. The surveys were completed during the fall of 2003. Grouped into three major questions, the study determined (1) how satisfied OES participants were with the program, (2) what were the perceptions of OES participants in relationship to the marketing techniques used, and (3) factors that affected sustainability of the OES program. The two surveys, and qualitative data provided by the OES Advisory Board meeting, were used to answer the question on sustainability.

A description of the participants, instrumentation, data analysis, and the limitations of this study are included in this chapter. A review of the literature
revealed previous studies on sustainability of educational programs in general. However, none of these previous studies focused on the sustainability of career and technical teacher preparation programs.

This study was unique because (a) it determined the satisfaction level of participants in the OES program, (b) it focused on student perceptions of the Occupational Education Studies (OES) program, and (c) it determined the factors affecting the sustainability of a CTE articulated program.

Mail surveys are a cost effective and efficient way to survey a population. They are ideal when the sample comes from a wide geographic area. They cost less than a telephone interview, but normally take longer to complete. Because a personal interviewer is not involved, there is no possibility of interviewer bias affecting the results of the survey. The major disadvantage of the mailed survey is its inability to probe for more detailed and explicit information (Walonick, 1998).

According to Walonick (1998), there are a number of advantages to using a written questionnaire. These advantages include:

- Questionnaires are very cost effective compared to face-to-face interviews. The cost advantage is especially true for the research conducted for this study, because of the large geographic area from which the respondents were surveyed.

- Questionnaires are easy to analyze. Statistical Package for the Social Sciences (SPSS) was the computer software used to analyze the data from the two surveys, making it an efficient method to tabulate and analyze.
• Questionnaires reduce bias. Since there were no face-to-face interviews, the survey reduced the bias inherent with interviews. There were no verbal or visual clues that could influence the respondent's answer to questions.

• Questionnaires are less intrusive. When the respondents received the questionnaires in the mail, they were free to complete the questionnaire on their own timetable. They were not interrupted by a phone interview or required to set an appointment for a face-to-face interview.

The disadvantages of the written questionnaire include:

• Low response rates. A low response rate is a concern because of the low number of potential respondents. The questionnaire needed to be designed so that a high rate of response was obtained.

• Inability to probe for responses. There was very little flexibility with the questionnaire. By allowing for comments or providing open-ended questions, the researcher reduced this disadvantage.

• Lack of personal contact. Since over 90% of all communication is visual, the personal contact is lost and important information may not have been obtained.

• Inability to determine who completed the questionnaire. A mailed survey might have been completed by anyone in the household where it arrived. It was natural to assume that the person who received the survey actually completed the survey, but there was no guarantee.
Questionnaires are not suited for some people. People are often turned off by written questionnaires. Like the perennial phone call from a salesperson during the dinner hour, some people will just throw away any survey they receive (Walonick, 1998, pp. 28–29).

Research Data

Three sources of data were used in this study. The first source of primary data was the results of two survey instruments sent in the fall of 2003 to student and professional participants involved with the OES program. Each survey instrument contained two sections: (1) questions about participants' demographics, and (2) questions about participants' experiences. The results of the two surveys were used to address the research questions for this study. The researcher developed the surveys, with input from OES Advisory Board members who attended the spring 2003 OES advisory board meeting. The surveys contained forced-choice options using Likert scales. Each survey instrument also contained one open-ended question.

A Likert scale is a measurement scale consisting of a series of statements followed by five response categories, typically ranging from strongly agree to strongly disagree (Walonick, 1996). The Likert scale questions in the professional survey instrument dealt with the importance of advisory committee meetings and the importance of programs of work on the WMU website and used five intervals with 1 = not important, 2 = somewhat unimportant, 3 = somewhat important, 4 = important; and 5 = very important. Additional questions dealing with the level of
satisfaction and overall program satisfaction used five intervals with 1 = dissatisfied, 2 = somewhat satisfied, 3 = somewhat satisfied, 4 = satisfied, and 5 = very satisfied.

The student survey instrument also contained Likert type scales. The Likert scale options in three of the student questions used five intervals with 0 = dissatisfied, 1 = somewhat dissatisfied, 2 = somewhat satisfied, 3 = satisfied, and 4 = very satisfied. Each question also had a “not applicable” option.

A secondary data source used for this study was information provided by WMU’s Director of Kalamazoo and Statewide Programs. The Director provided updated information about student OES enrollment by status and the number of students who had transferred from each community college as of fall 2003. This information was used to answer four specific questions regarding: (1) how geographic distance affected OES enrollments, (2) whether a correlation existed between promotional activities and enrollment from each community college, (3) whether a correlation existed between length of involvement of the community college and enrollment, and (4) whether a correlation existed between professional involvement in OES advisory meetings and enrollment. Enrollment of OES students by community college can be found in Appendix C.

The third source of secondary data was the records of OES Advisory Committee meetings dating back to 1998. The meeting minutes were used to determine the number of meetings the administrators from each community college attended. These data were used to answer a question on whether there was a
correlation between the amount of involvement of OES community college deans and enrollment of students.

Human Subjects Institutional Review Board Approval

Western Michigan University's Human Subjects Institutional Review Board (HSRIB) approved the procedures, protocol, and methodology used in this study on November 3, 2003. Copies of (a) the cover letters, (b) the student and professional surveys, and (c) the HSRIB approval letter from WMU can be found in Appendix D, Appendix E, and Appendix F, respectively.

Validity and Reliability

The survey method was used for this study since the following conditions were present as indicated by Isaac and Michael (1982). The survey method was (a) systematic—carefully planned and executed, (b) representative of the population under study, (c) objective, and (d) quantifiable—yielding data that could be expressed numerically.

Data Collection Procedures

Two different survey instruments were sent—one to students and one to administrators and counselors. The purpose of the survey was threefold: (1) it determined the satisfaction level of participants in the OES program, (2) it focused on student perceptions of the Occupational Education Studies (OES) program, and (3) it determined the factors affecting the sustainability of a CTE articulated program.
The survey was a self-administered questionnaire. Because it was a mailed survey, there was a four-phase administration process. The first phase involved the development and field-testing of the survey instrument. The OES Advisory Committee, at its April 2003 meeting, reviewed the survey and made recommendations for changes. The cover letter, survey and HSIRB application were sent for approval.

The second phase of the study involved mailing the actual survey with an attached letter explaining the research effort. The third phase involved a second mailing sent 2 weeks after the initial mailing to nonrespondents. The survey was sent again with a handwritten signature, questionnaire, and preaddressed return envelope to the nonrespondents. The fourth phase involved a third mailing sent to all nonrespondents 2 weeks after the second reminder mailing. The total administration period took 5 weeks.

There were 12 questions on the student survey. The first 6 questions asked for demographic information. The final 6 questions asked students about their OES experience. The professional survey had 12 questions. The first 5 questions asked for demographic information. The final 7 questions asked professionals about their OES experience.

Participants

The population for the survey included students enrolled in the Occupational Education Studies program and the professionals associated with the OES teacher.
education program. Students included pre-OES students, OES students, and OES graduates. Professionals included the deans of occupational education and transfer counselors at the 14 community colleges, and selected WMU staff involved in the OES program. A list of the OES students was obtained from Western Michigan University, and all students were contacted. All 55 students enrolled in the Occupational Education Studies program and all 40 professionals involved with the program were sent surveys.

A census study was conducted, since the entire population was included (Walonick, 1998). The survey was also cross-sectional, since all data were collected at one point in time. The students were classified as pre-OES students, OES students, or OES graduates. A pre-OES student was a student who had been accepted to WMU, but had not been accepted into the WMU College of Education. An OES student was a student who had been accepted to both WMU and the WMU’s College of Education. An OES graduate was a student who graduated from WMU and who had obtained his or her CTE teacher certification.

The second group surveyed was the administrators and counselors for the OES program at the 14 community colleges with signed articulation agreements. Sixteen administrators and 17 counselors from the community colleges were surveyed.

The third group surveyed was the administrators responsible for the OES program at Western Michigan University. Eleven WMU staff members were surveyed.
Of the 55 student surveys sent, 9 were either returned with undeliverable addresses or were returned by the student stating they were no longer in the OES program. Seventeen, or 37%, of the remaining 46 student surveys were returned. Of the 46 professional surveys sent, 23, or 50%, were returned.

Data Analysis

Student Questions

Research Question 1: What are the demographics of OES students?

The variables used for Question 1 of this study were the six demographic questions asked on the student survey. Descriptive statistics were compiled.

Research Question 2: Why did the student choose the Occupational Education Studies (OES) teacher education program?

The variable used for Question 2 of this study was the open-ended question asked on the student survey. Descriptive statistics were used to display the results.

Research Question 3: Is there a difference in the number of students transferring to the OES program based on geographic distance?

The independent variable used for Question 3 was the geographic distance of each community college and home addresses of the five students taking the MOCAC exam. The dependent variable was the number of students transferring from each community college.

A t test was conducted to determine if there was statistical significance by using a p value of ≤ .05. Descriptive statistics were used to display the results.
Research Question 4: Is there a difference in student satisfaction based on OES status?

The independent variable for Question 4 of this study was OES student status. The dependent variable was the satisfaction levels of OES students. Analysis of variance (ANOVA) tests were used to analyze the data related to the question to determine if significant differences occurred in satisfaction levels based on OES student status. Statistical significance was determined by using a $p$ value $\leq .05$. Descriptive statistics were also described.

Research Question 5: How satisfied are OES students with the aspects of the OES program?

The variables used for Question 5 included the level of satisfaction with each of several studied aspects of the OES program. Descriptive statistics were used to display the results. The data were adjusted to include only those students who had used community college guidance services and had completed the steps needed to complete a student teaching internship.

Professional Questions

Research Question 6: Is there a difference between professional satisfaction and length of participation in the OES teacher education program?

The independent variable for Question 6 of this study was length of professional participation. The dependent variable was the satisfaction level of professional participants. This research question was analyzed using one-way analysis.
of variance. A *t* test was conducted to test for statistical significance by using a *p* value of ≤ .05. No statistical differences were identified so additional post hoc tests were not conducted.

*Research Question 7: Is there a correlation between length of community college involvement and the number of students from the community college enrolled in the OES teacher education program?*

The variables used for Question 7 were the length of community college involvement and number of enrolled students.

Correlation statistical tests were conducted to determine if a relationship existed between level of involvement and enrollment.

**Combined Student and Professional Questions**

*Research Question 8: Is there a difference between student and professional satisfaction length with the OES teacher education program?*

A *t* test was conducted to determine if there was a difference in means between student and professional levels of satisfaction with the OES program. The variables used were student and professional status, and satisfaction levels of participants with the OES program. Statistical significance was determined by using a *p* value ≤ .05. No additional post hoc tests were run because there was no statistical significance.
Research Question 9: Is there a correlation between the recruitment methods used by individual community colleges and the number of students enrolled in the Occupational Education Studies (OES) teacher education program?

The variables used for Question 9 included the number of students enrolled and the number of recruitment methods used by each community college. The number of recruitment methods was taken from the professional survey. Recruitment methods were determined by adding the number of recruitment methods identified by each community college and regrouping into four categories: 1 = 0–3 strategies used, 2 = 4–6 strategies used, 3 = 7–9 strategies used, and 4 = 10–13 strategies used.

Correlation statistical tests were conducted to determine if a relationship existed between recruitment methods and enrollment.

Research Question 10: Are there specific variables that affect sustainability of the OES degree program?

The independent variables used for Question 10 were the number of marketing techniques used by each community college, geographic location of the community college, and amount of involvement of the deans of occupational education for each community college. The dependent variable was the number of students transferred from each community college.

A linear regression test was conducted to determine if there was a relationship between the number of students enrolled by community college and the number of marketing techniques used by the community college, the geographic location of the community college, and the amount of involvement of the deans of occupational
education for each community college. Statistical significance was determined by using a \( p \) value \( \leq .05 \).

Summary

Table 2 summarizes the data analysis methods used for the research questions. The results of the entire set of 10 research questions are presented in Chapter IV.
Table 2

Data Analysis for the Research Questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Student demographics</td>
<td>Gender, location, time in program, age</td>
<td></td>
<td>Descriptive</td>
</tr>
<tr>
<td>Q2: Why students chose program</td>
<td></td>
<td></td>
<td>Descriptive</td>
</tr>
<tr>
<td>Q3: Difference in enrollment by geographic distance</td>
<td>Geographic distance</td>
<td>Enrollment</td>
<td>t test</td>
</tr>
<tr>
<td>Q4: Satisfaction by OES status</td>
<td>OES status</td>
<td>Satisfaction</td>
<td>ANOVA</td>
</tr>
<tr>
<td>Q5: Student satisfaction</td>
<td>Acceptance, transfer credits, intern teaching, guidance, courses, location of courses, programs of work, understanding steps</td>
<td></td>
<td>Descriptive</td>
</tr>
<tr>
<td>Q6: Difference between professional satisfaction and length of participation</td>
<td>Length of involvement</td>
<td>Satisfaction</td>
<td>t test</td>
</tr>
<tr>
<td>Q7: Correlation between level of involvement and enrollment</td>
<td>Enrollment</td>
<td>Level of involvement</td>
<td>Correlation</td>
</tr>
<tr>
<td>Q8: Difference between student/professional satisfaction</td>
<td>Student satisfaction</td>
<td>Professional satisfaction</td>
<td>t test</td>
</tr>
<tr>
<td>Q9: Correlation between recruitment methods and enrollment</td>
<td>Enrollment</td>
<td>Recruitment strategies</td>
<td>Correlation</td>
</tr>
<tr>
<td>Q10: Sustainability of program</td>
<td>Marketing techniques, geographic location, amount of involvement</td>
<td>Student transfers</td>
<td>Linear</td>
</tr>
</tbody>
</table>
CHAPTER IV

DATA ANALYSIS RESULTS

The main purpose of this study was to determine the satisfaction levels, effective marketing techniques, and sustainability of the OES program. The results of the survey can guide future articulated programs between community colleges and 4-year universities. This study utilized the concepts of a data-driven decision-making process to determine which areas of the program needed improvement, which marketing techniques were most effective in attracting OES students, and what factors affected sustainability of the program.

Results of Research Question 1

Research Question 1: What are the demographics of OES students?

This research question determined the demographics of the OES students using gender, age, previous degrees, and OES status as of fall 2003.

Of the OES students, 17, or 100%, were found to be nontraditional students. Ten of the students, or 58.8%, were males, and 7 of the students, or 41.2%, were female. Table 3 shows OES student gender.

The students ranged in age from 25 to over 55. Thirteen, or 73.5%, of the students were between the ages of 25 and 44. Table 4 shows OES student ages.
Table 3

OES Student Gender \((N = 17)\)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10</td>
<td>58.8</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>41.2</td>
</tr>
</tbody>
</table>

Table 4

OES Student Ages \((N = 17)\)

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25–34 years</td>
<td>5</td>
<td>29.4</td>
</tr>
<tr>
<td>35–44 years</td>
<td>8</td>
<td>47.1</td>
</tr>
<tr>
<td>45–54 years</td>
<td>3</td>
<td>17.6</td>
</tr>
<tr>
<td>55 and older</td>
<td>1</td>
<td>5.9</td>
</tr>
</tbody>
</table>

A vast majority of the students had completed degrees before entering the OES program. Sixteen, or 97.2\%, of the students earned an associate’s degree prior to entering the OES degree program, and all students had completed a certificate program or degree. Table 5 shows OES student degrees as of September 2003.

Four of the respondents, or 23.5\%, were pre-OES students, eight of the respondents, or 47.1\%, were OES students, and three of the respondents, or 23.5\%,
were OES graduates and are currently employed in education. Table 6 shows OES participant status as of September 2003.

Table 5

<table>
<thead>
<tr>
<th>OES Student Degrees as of September 2003 (N = 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
</tr>
<tr>
<td>Apprenticeship/Journeyman's card</td>
</tr>
<tr>
<td>AA or AS degree</td>
</tr>
<tr>
<td>BA or BS degree</td>
</tr>
<tr>
<td>Master's degree</td>
</tr>
</tbody>
</table>

Table 6

<table>
<thead>
<tr>
<th>OES Participant Status as of September 2003 (N = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OES Status</td>
</tr>
<tr>
<td>Pre-OES student</td>
</tr>
<tr>
<td>OES student</td>
</tr>
<tr>
<td>OES graduate</td>
</tr>
</tbody>
</table>

Frequency missing = 2
Results of Research Question 2

Research Question 2: Why did the student choose the Occupational Education Studies (OES) teacher education program?

Students were asked why they selected the OES program. Fourteen of the OES degree program students responded to this open-ended question. Answers fell into two categories: 100% responded that they had an interest in teaching, and 35.7% responded that they wanted a career change. Some students responded with more than one answer. Student responses to the open-ended questions can be found in Appendix G.

Results of Research Question 3

Research Question 3: Is there a difference in the number of students transferring to the OES program based on geographic distance?

The data showed (a) whether there was a significant difference in enrollment based on geographic distance, and (b) the location of the community colleges from which students transferred.

Based on the results of the survey, along with data obtained from the Department of Distance Education, 46 of the students, or 97.9%, transferred to WMU from within a 100-mile radius of the university.

A majority of the students, or 87.2%, transferred from the eight original articulated community colleges (Glen Oaks Community College, Grand Rapids Community College, Kalamazoo Valley Community College, Kellogg Community College, etc.).
Three community colleges—Kalamazoo Valley Community College, Lake Michigan College, and Muskegon Community College—accounted for 48.9% of the total transferred students. Five additional students, or 10.7%, passed the MOCAC and transferred. The five students who took the MOCAC had home addresses within a 100-mile radius of WMU. One student, or 2.1%, transferred from Henry Ford Community College. However, Henry Ford Community College is not one of the articulated community colleges.

An independent t test was conducted to determine if there was a significant difference in the mean number of OES transfer students between community colleges located 100 miles or less from WMU’s main campus in Kalamazoo and community colleges located more than 100 miles from WMU’s main campus. t test results indicated that there was a statistically significant difference ($p < .01$) in the mean distance between enrollment from schools less than 100 miles and schools more than 100 miles.

Table 7 presents the means for students transferring from within a 100-mile radius.

The enrollment of OES students by community college is shown in Table 8. As can be seen in Table 8, the six community colleges that articulated in 2001 have not had any students enroll in the OES program. All six of the additional partnered schools are outside a 100-mile radius of WMU’s main campus in Kalamazoo.
Table 7

Students Transferring From Within a 100-Mile Radius (N = 47)

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100 miles</td>
<td>5.11</td>
<td>2.90</td>
</tr>
<tr>
<td>&gt; 100 miles</td>
<td>.14</td>
<td>.38</td>
</tr>
</tbody>
</table>

Table 8

Enrollment of OES Students by Community College (N = 47)

<table>
<thead>
<tr>
<th>School</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpena CC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bay de Noc CC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Glen Oaks CC</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Grand Rapids CC</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Jackson CC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kalamazoo Valley CC</td>
<td>7</td>
<td>14.9</td>
</tr>
<tr>
<td>Kellogg CC</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Lake Michigan College</td>
<td>9</td>
<td>19.1</td>
</tr>
<tr>
<td>Lansing CC</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Mid Michigan CC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Montcalm CC</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Muskegon CC</td>
<td>7</td>
<td>14.9</td>
</tr>
<tr>
<td>North Central Michigan</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Southwestern Michigan</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Other (MOCAC)</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>Other (Henry Ford CC)</td>
<td>1</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*aColleges or addresses are within a 100 mile radius of the campus.
Results of Research Question 4

Research Question 4: Is there a difference in student satisfaction based on OES status?

An ANOVA was conducted comparing the mean satisfaction between OES student status levels and OES status. Four Pre-OES students, eight OES students, and three OES graduates responded to this item on the survey. Two students did not respond to the question on OES status. There was not a statistically significant difference in satisfaction between OES status levels. The finding was different than originally anticipated. The research felt that students who had completed the OES program would be more satisfied than those who were just beginning in the OES program. The means and standard deviations for OES status are presented in Table 9.

Table 9

Means and Standard Deviations for OES Status

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-OES student</td>
<td>4</td>
<td>3.4</td>
<td>1.14</td>
</tr>
<tr>
<td>OES student</td>
<td>8</td>
<td>3.17</td>
<td>1.32</td>
</tr>
<tr>
<td>OES graduate</td>
<td>2</td>
<td>3.67</td>
<td>1.14</td>
</tr>
</tbody>
</table>

Results of Research Question 5

Research Question 5: How satisfied are OES students with the aspects of the OES program: acceptance to College of Education, transferring credits, applying
for intern teaching, obtaining guidance services from community college and WMU, obtaining courses, location of courses, locating programs of work, and understanding steps to achieve an OES degree?

OES student participants were asked about their satisfaction with the steps required to complete the degree. Mean satisfaction with steps needed to complete OES teacher education program, in order, are shown in Table 10. Students were most satisfied with their programs of work and acceptance into the College of Education and least satisfied with understanding the steps to obtain a degree and WMU’s guidance. An interesting finding is that many of the OES students did not utilize community college guidance services. Only 5 of the 17 respondents had met with a community college guidance person.

Results of Research Question 6

Research Question 6: Is there a difference between professional satisfaction and length of participation in the OES teacher education program?

This research question was analyzed using one-way analysis of variance. The dependent variable was level of satisfaction with the OES teacher education program. The independent variable was the length of professional participation with the OES teacher education program.

Overall, professionals are satisfied with the OES teacher education program. The average length of time that the professionals had been involved with the OES program was 1 to 2 years. An independent t test was conducted to test for
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs of work</td>
<td>12</td>
<td>3.75</td>
<td>1.29</td>
</tr>
<tr>
<td>Acceptance to College of Education</td>
<td>12</td>
<td>3.58</td>
<td>.996</td>
</tr>
<tr>
<td>Internship</td>
<td>5</td>
<td>3.20</td>
<td>1.79(^a)</td>
</tr>
<tr>
<td>Convenient course location</td>
<td>12</td>
<td>3.08</td>
<td>1.31</td>
</tr>
<tr>
<td>Variety of course</td>
<td>12</td>
<td>2.92</td>
<td>1.31</td>
</tr>
<tr>
<td>Credit transfer</td>
<td>12</td>
<td>2.58</td>
<td>.996</td>
</tr>
<tr>
<td>CC guidance</td>
<td>11</td>
<td>2.25</td>
<td>1.67(^a)</td>
</tr>
<tr>
<td>Understood steps to obtain OES degree</td>
<td>13</td>
<td>1.92</td>
<td>1.50</td>
</tr>
<tr>
<td>WMU guidance</td>
<td>13</td>
<td>1.85</td>
<td>1.41</td>
</tr>
</tbody>
</table>

\(^a\) Means run for student who had been accepted for internship and used community college guidance services.

significance. There were no statistically significant differences in professional satisfaction with the OES program and the length of participation in the program. Professionals with 1 to 2 years of involvement were the most satisfied. Satisfaction by length of participation are found in Table 11.
Table 11
Satisfaction by Length of Participation

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>4</td>
<td>3.75</td>
<td>.50</td>
</tr>
<tr>
<td>1–2 years</td>
<td>5</td>
<td>4.20</td>
<td>.45</td>
</tr>
<tr>
<td>3–4 years</td>
<td>6</td>
<td>3.33</td>
<td>1.37</td>
</tr>
<tr>
<td>&gt; 4 years</td>
<td>5</td>
<td>4.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

Results of Research Question 7

Research Question 7: Is there a correlation between length of community college involvement and the number of students from the community college enrolled in the OES teacher education program?

A correlation test was used to determine if there was a relationship between the length of time that the community colleges had been involved in the OES degree program and the number of students transferring from each community college. A significant correlation was found, \( p < .05 \), between the length of involvement and the number of students transferring. Community colleges with 3 or more years of involvement had enrollments of at least three students. Community colleges with less than 2 years of involvement with the OES program did not have any students enrolled in the OES degree program. The correlation between length of community college involvement and student enrollment is found in Table 12. The supporting statistics for
Research Question 7, correlation between length of time that community colleges had been involved and student enrollment, are in Appendix H.

Table 12

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year involvement</td>
<td>3</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2 years involvement</td>
<td>3</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>3 years involvement</td>
<td>1</td>
<td>3.0</td>
<td>—</td>
</tr>
<tr>
<td>4 years involvement</td>
<td>5</td>
<td>4.4</td>
<td>1.5</td>
</tr>
<tr>
<td>5 years involvement</td>
<td>2</td>
<td>8.0</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Results of Research Question 8

*Research Question 8: Is there a difference between student and professional satisfaction levels with the OES teacher education program?*

A *t* test was conducted to determine if there was a difference in means between student and professional levels of satisfaction with the OES program. Thirty-four professionals or 83% responded to the question on overall satisfaction, and 13 students or 76% responded to the question on overall satisfaction with the OES teacher education program. There was not a statistically significant difference in satisfaction levels of students and professionals. This is different than anticipated. The
researcher felt that professionals would be significantly more satisfied than students. The student and professional satisfaction levels are in Table 13.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>13</td>
<td>3.31</td>
<td>1.6</td>
</tr>
<tr>
<td>Professional</td>
<td>34</td>
<td>3.62</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Table 13
Student and Professional Satisfaction Levels

Results of Research Question 9

Research Question 9: Is there a correlation between the recruitment methods used by individual community colleges and the number of students enrolled in the Occupational Education Studies (OES) teacher education program?

A correlation test was used to determine if there was a relationship between the recruitment methods used by the community colleges and the number of students enrolled. An analysis of the marketing strategies identified by professionals and students as being most effective was also conducted. Students and professionals were able to choose multiple responses to this survey question.

Professional respondents were asked to rank the effectiveness of the recruitment strategies used by their community college. The respondents felt brochures, community college counselors, community college instructors, other students, and WMU's counselors were the most effective strategies. Of those that
used brochures intended to recruit students, 88.4% felt that the brochures were either “somewhat effective” or “effective.” A total of 86.7% of the professionals felt that the community college counselors were either “somewhat effective,” “effective,” or “very effective” in recruiting students. An additional 84.7% of the professionals felt that community college instructors were an effective recruiting strategy. Recruitment strategies used by professionals are found in Table 14. The supporting statistics for Research Question 9, correlation between the number of recruiting strategies used by the community colleges and student enrollment, are found in Appendix I.

Student participants indicated that WMU’s counselors, brochures, and career nights were how they most frequently learned about the OES program ($N = 16$). A total of 47.1% of the students learned about the program through WMU’s counselors, while 23.5% of the students learned about the program through brochures or career night.

Interestingly enough, only one career night was held during the early implementation of the OES program (see Table 1 on page 38). Those that responded that they learned about the program from a career night are graduates that responded to the survey. Table 15 shows how student participants learned about the program.

Professionals differed from the students in their choices of marketing techniques that were most effective for recruitment. The comparison of marketing techniques ranked by professionals and students is shown in Figure 2. As can be seen in the figure, professionals felt that WMU’s counselors, brochures, WMU’s website, community college counselors, and community college instructors were most
effective. Students felt that WMU’s counselors, brochures, WMU’s website, other students, and career nights were most effective.

Table 14
Recruitment Strategies Ranked by Professionals \( (N = 24) \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Not Effective</th>
<th>Somewhat Ineffective</th>
<th>Somewhat Effective</th>
<th>Effective</th>
<th>Very Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochure</td>
<td>0.0</td>
<td>11.8</td>
<td>52.9</td>
<td>35.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Career night</td>
<td>0.0</td>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
<td>0.0</td>
</tr>
<tr>
<td>CC counselor</td>
<td>6.7</td>
<td>6.7</td>
<td>53.3</td>
<td>26.7</td>
<td>6.7</td>
</tr>
<tr>
<td>CC occupational instructor</td>
<td>7.7</td>
<td>7.7</td>
<td>30.8</td>
<td>46.2</td>
<td>7.7</td>
</tr>
<tr>
<td>CC catalog</td>
<td>30.0</td>
<td>20.0</td>
<td>20.0</td>
<td>30.0</td>
<td>0.0</td>
</tr>
<tr>
<td>CC website</td>
<td>30.0</td>
<td>10.0</td>
<td>30.0</td>
<td>20.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Other students</td>
<td>0.0</td>
<td>12.5</td>
<td>25.0</td>
<td>50.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Newspaper ads</td>
<td>0.0</td>
<td>71.4</td>
<td>28.6</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Poster</td>
<td>0.0</td>
<td>23.1</td>
<td>46.2</td>
<td>23.1</td>
<td>7.7</td>
</tr>
<tr>
<td>Student newspaper</td>
<td>0.0</td>
<td>20.0</td>
<td>80.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>WMU counselor</td>
<td>0.0</td>
<td>0.0</td>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
</tr>
<tr>
<td>WMU website</td>
<td>0.0</td>
<td>15.4</td>
<td>53.8</td>
<td>7.7</td>
<td>23.1</td>
</tr>
</tbody>
</table>
Table 15

How OES Students Learned About the Degree Program ($N = 17$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMU counselors</td>
<td>8</td>
<td>47.1</td>
</tr>
<tr>
<td>Brochure</td>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>Career night</td>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>WMU website</td>
<td>3</td>
<td>17.6</td>
</tr>
<tr>
<td>Other$^a$</td>
<td>3</td>
<td>17.6</td>
</tr>
<tr>
<td>Other students</td>
<td>2</td>
<td>11.8</td>
</tr>
<tr>
<td>CC occupational instructor</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td>CC catalog</td>
<td>1</td>
<td>5.9</td>
</tr>
</tbody>
</table>

$^a$Responses included: asked questions, on my own.

Figure 2. Comparison of Marketing Techniques Ranked by Professionals and Students.
A correlation statistical test was run to see if there was a significant relationship between the number of marketing techniques used and the enrollment of students by college. A $p$ value of $\leq .05$ was used to determine if there was a statistically significant relationship between the marketing techniques and enrollment. A significant relationship was identified: There was a strong relationship between the number of marketing techniques used and the enrollment of students. There is a significant increase in mean number of students enrolling when seven or more marketing techniques are used. The mean number of students enrolling based on number of marketing techniques used is shown in Table 16.

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–3 marketing techniques</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>4–6 marketing techniques</td>
<td>2.75</td>
<td>1.9</td>
</tr>
<tr>
<td>7–9 marketing techniques</td>
<td>3.50</td>
<td>.7</td>
</tr>
<tr>
<td>10–13 marketing techniques</td>
<td>7.67</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Results of Research Question 10

*Research Question 10: Are there specific variables that affect sustainability of the OES degree program?*
A linear regression test was conducted to determine if there is a relationship between the number of students enrolled by community college and (a) number of marketing techniques used by the community college, (b) the geographic location of the community college, and (c) the amount of involvement of the deans of occupational education for each community college.

There is a very strong relationship, or about 88%, between student enrollment and the number of marketing techniques used by each community college, the geographic distance of the community colleges from WMU's main campus, and the amount of involvement of the deans of occupational education (as determined by the number of OES advisory meetings attended). The mean number of students enrolling is expected to be greater (higher) by 20% when geographic location is less than 100 miles from WMU's campus. The mean number of students enrolling is expected to be greater by 9% when deans of occupational education attend a majority of the advisory committee meetings. The mean number of students enrolling from a community college is expected to be greater by 85% when the community college uses 7 or more of the 13 recruitment strategies utilized by the community colleges. The relationship between student enrollment and number of marketing techniques, geographic location, and involvement of deans of occupational education can be seen in Table 17. The supporting statistics for Research Question 10, the specific variables that affect sustainability of the OES degree program, are in Appendix J.

Additional information on the sustainability of the OES program was gained from the open-ended question asked of professionals. Professionals were asked to
identify the most significant barrier to students enrolling in the OES program.

Responses fell into three distinct categories: (1) lack of understanding, (2) geographic distance, and (3) lack of training for counselors and staff at the community colleges. Of those responding, 7 of 14, or 50%, felt that there was a lack of understanding the OES program and process on the part of students and counselors. Five respondents, or 36%, felt that there was a need for training of counselors and staff at the community colleges. Two respondents, or 14%, identified geographic distance as a barrier to enrollment. Professional responses to the open-ended question can be found in Appendix K.

Table 17

Linear Regression of Relationship Between Student Enrollment and Number of Marketing Techniques, Geographic Location, and Involvement of Deans of Occupational Education

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>113.35</td>
<td>3</td>
<td>37.78</td>
<td>32.68a</td>
</tr>
<tr>
<td>Error</td>
<td>11.58</td>
<td>10</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>124.93</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $R^2 = .91$. Adjusted $R^2 = .88$

*aPredictors: (constant), marketing techniques, mileage from schools, number of advisory meetings attended.
CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter contains a summary of the study of the OES teacher education program, student and professional satisfaction, successful marketing techniques, and factors that affect sustainability.

Conclusions

Conclusions from this study are both consistent with previously cited research about sustainability and yet add to research on sustainability of CTE teacher preparation programs and techniques to attract additional students to teaching. The student respondents provided insight into the issues and trends of the OES teacher education program. The OES professional respondents provided insight into issues, marketing strategies, and satisfaction with the OES teacher education program.

Demographics of OES Students

OES students are nontraditional students. Respondents’ ages ranged from a low of 25 to over 50 with the mean age ranging from 35–44 years old. The students had all earned a journeyman’s card, associate’s, bachelor’s, or master’s degree prior to enrolling at WMU to complete the OES bachelor’s degree. All but one of the students transferring to WMU was from within a 100-mile radius of the main campus. Forty-nine of the 55 transferred students were from the original eight partnered...
community colleges, 5 transferred using the MOCAC exam, and 1 student transferred from Henry Ford Community College. All of the students responded that they had become interested in the program because they wanted to teach.

**Satisfaction Level by OES Status**

Although OES graduates were more satisfied with the OES teacher education program than pre-OES or OES students, there was not a statistical difference in satisfaction levels of students.

**Satisfaction Level of Participants**

Students were satisfied with the career and technical education courses offered, the location of the courses, and the flexibility offered by the variety of course format. Students liked the fact that they could take courses on line, on and off campus, through a weekend format, and through 2-week summer institutes.

OES students were also satisfied with the ease in being accepted to WMU's College of Education, ease of obtaining their internship, convenience of taking courses, and the programs of work. Students were less satisfied with the guidance they received from community college and WMU transfer counselors, ease in transferring credits to WMU, and the clearness of the steps needed to enroll in the OES degree program. Students perceive it as difficult to follow the procedures necessary to enroll in the OES degree program.
Professional Satisfaction and Length of Involvement

There was no statistical difference in professional satisfaction and length of participation in the OES teacher education program. No strong conclusions can be made regarding the relationship between professional satisfaction and length of participation in the OES teacher education program.

Student and Professional Satisfaction Levels

The results from the survey show that there is no statistical difference in satisfaction levels between OES students and professional respondents in the OES teacher education program.

Geographic Distance and the OES Program

Geographic location plays a significant role concerning enrollment of OES students. A total of 97.6% of the students who enrolled in the OES program were from within a 100-mile radius of WMU’s main campus in Kalamazoo.

Relationship Between Length of Community College Involvement and Enrollment

There was a strong correlation between the length of the involvement of the community college and the number of students enrolled from the community college. Of the students who transferred to WMU from a community college, 97.6% came from the eight original community college partners. No students had transferred from
one of the six additional partnered community colleges that signed articulation agreements in 2001 and 2002.

**Relationship Between Recruitment Methods Used and Enrollment**

There is a statistical difference in the marketing techniques identified by students and those identified by professionals. Students identified the transfer counselor at WMU and the brochures as the two most often used methods to learn about the OES teacher education program. OES graduates also identified career nights as how they learned about the program. This finding is interesting, since a career night was only held once during the early stages of the program.

Professionals felt that WMU’s counselor, brochures, website, community college counselors, and instructors were most effective. The findings indicate that there is a statistical difference in perception of effective marketing techniques.

There is a strong correlation between the number of students enrolling in the OES teacher education program and the recruitment methods used. The community colleges with the three largest enrollments (Kalamazoo Valley Community College, Muskegon Community College, and Lake Michigan College) all used a minimum of 10 of the 13 recruitment techniques identified. Those community colleges using less than 4 marketing techniques had zero OES students transferring to WMU. The community colleges that have the largest enrollments are not the community colleges with the largest number of students.
Factors Affecting the Sustainability of a CTE Articulated Program

There was a statistical significance between the number of students enrolled in the OES teacher education program and the geographic location, number of marketing techniques used, and the amount of involvement in the OES degree program by the deans of occupational education.

Student enrollment should continue to increase for those schools that are within a 100-mile radius of the university’s main campus, use a majority of the marketing techniques identified by the advisory committee, and have actively involved deans of occupational instruction.

Implications

The results of this study can be used to support previous research findings. Statistical significance was detected and strong conclusions can be made about the factors affecting sustainability, the geographic distance for which articulation agreements are most effective, and the need to identify ways to make a seamless transition from the community college to the university for alternatively certified students. The limitations discussed in Chapter IV highlight the fact that the limited number of potential survey respondents and the newness of the OES teacher education program may have affected the outcome of the research.

The results of this study can provide other universities and community colleges a guideline for the development and implementation of an articulated program. There are several factors to consider when developing the articulated
program and recruiting potential teachers. Some of these factors include (a) determining which community colleges to partner with based on geographic location; (b) training of transfer counselors and instructors; (c) developing clear, easy enrollment steps for potential students to follow; (d) involving administrators at the community colleges in the implementation and operation of the articulated program; and (e) continuous marketing of the program to all students, including nontraditional students.

Other universities and community colleges interested in articulating programs should study the results to assist in the development of a successful articulated community college partnership.

The findings also have implications for currently articulated programs. Successful recruitment methods, the critical involvement of administrators and transfer counselors, the need to create awareness at the community college and university level, and geographic distance could all be used to improve an existing articulated program.

Recommendations

The development of articulated teacher education programs is needed if Michigan and other states are to attract students to teach career and technical education. The shortage of teachers in CTE is well documented and recommendations for how to recruit new teachers have been written about in many journals. These programs will not work, if they are not built to become sustainable. The research
conducted for this study can be applied to other partnered university and community college partnerships to build similar programs.

There are a number of recommendations to be made based on the results of this survey.

Recommendation 1

University and community college partnerships must look closely at the geographic location of the community colleges. If each of the remaining CTE state-approved institutions for CTE teaching universities were to model WMU's OES degree program, additional CTE teachers could become more readily available.

The results show that a majority of students transfer from within a 100-mile radius of the university. If there are limited time and resources, the university's efforts might be best utilized in recruiting students within that 100-mile radius. However, WMU should maintain the articulation agreements with the community colleges outside the 100-mile radius, since there is little additional cost for students who transfer to the main campus.

By limiting the geographic area, additional efforts could be made to identify the secondary CTE programs in the area for recruitment purposes. Community college instructors and transfer counselors should be updated frequently. Focus should be placed on developing relationships with secondary administrators, counselors, instructors, and students.
Additional research will need to be conducted to determine if geographic distance continues to influence student enrollment.

**Recommendation 2**

Transfer counselors at both the community colleges and at WMU need annual updates on the OES degree program. These updates should occur at a centrally located meeting or could be completed on a school-by-school basis. Currently, students are not learning about the OES program from their community college transfer counselors or occupational instructors.

Occupational instructors also need to be made aware of the OES program. Updates for occupational instructors should be done through the coordinated efforts of the occupational deans or through a visit from a WMU staff member. Yearly updates via mail to occupational instructors are recommended.

Additionally, the partnered schools and WMU should look at the secondary schools to increase awareness among counselors, instructors, and administrators.

**Recommendation 3**

Direct communication between CTE instructors and students needs to increase. The CTE faculty and transfer counselor need to take a more active role in communicating with potential and current OES students in order to help reduce the student’s difficulty in enrolling in the OES degree program.
The communication can be as simple as a monthly e-mail via list serve sent to all students inquiring about the OES program. It would, however, put a name or a personal contact to the program and provide a contact if the student is having difficulty with the enrollment process.

**Recommendation 4**

Communication between WMU, occupational deans, occupational instructors, and transfer counselors is critical. The professionals are satisfied with the level of communication and it is important to maintain that level of meetings, e-mails, and mailings. The WMU OES website needs to be maintained and updated frequently. The changes need to be sent to the individual community college deans, transfer counselors, and instructors.

Community college deans’ attendance at the advisory board meetings is critical. One of the meetings should be held at the Trends Conference in order to ensure that deans from all of the community colleges can attend at least one of the two yearly meetings. This will enable those deans that are more than 100 miles from Kalamazoo to attend a meeting.

**Recommendation 5**

Partnered community colleges should increase and/or maintain a high level of involvement in the marketing of the program. Current articulated partners should identify the techniques they will implement within the next 2 years. Both the
community college's and WMU's website information on OES must be updated annually and be easy to access. At the Fall 2004 meeting, community colleges should identify the current marketing techniques used, or planned.

Recommendation 6

The Extended University Program's transfer counselor responsible for the OES program needs to attend career nights at all community colleges within a 100-mile radius. Over 100 students indicated an interest in the OES program at the first, and only, career night held. This activity could be an effective recruitment tool.

Recommendation 7

The factors affecting sustainability must be monitored to ensure the continued success of the OES program. Geographic distance, involvement of the deans of occupational education, and recruitment strategies are important to the program's growth.

Because it takes 3–5 years to sustain and institutionalize change (Fullan, 1991), it will be important to conduct additional research at some future point in time. Additional research will provide the data that will support these recommendations for sustainability.

Recommendation 8

The deans of occupational education have a strong influence in the success of the program. This influence must be clearly discussed at the next advisory meeting.
Deans should (a) identify the person who is responsible for the OES program at their institution, and (b) discuss the program with their occupational education staff and transfer counselors. The dean, or the dean’s representative, should provide an annual update of the program to staff.

Recommendation 9

Additional research on the three partnered schools with the largest enrollments (Kalamazoo Valley Community College, Muskegon Community College, and Southwest Michigan College) should be completed. A qualitative study which would include interviews with the deans, transfer students, and transfer counselors could help identify specific factors that have caused their enrollments to be more than twice that of the other community colleges.

Recommendation 10

Lastly, future research should be conducted on the OES program, especially in the area of sustainability. Future research could determine if the amount of communication, flexibility of the program, and training of transfer counselors, secondary personnel, and occupational instructors affect student enrollment and growth of the OES degree program.

Students currently enrolled in the OES program should be followed for the next 5 years to determine their success in the teaching field. As new students enter the program, the survey should be replicated in the future to determine if student and
professional satisfaction levels change, perceptions change, and/or the factors affecting sustainability change.
Appendix A

Sample Program of Work From Kalamazoo Valley Community College
Kalamazoo Valley Community College – Western Michigan University  
Teacher Education Preparation Program  

Program of Work for Drafting  

The articulated program will allow a student to complete a teacher education program with a major in Drafting (with VT endorsement) and an appropriate teachable minor. Note: The VT endorsement requires 4000 hours of recent and relevant work experience. 

University Graduation Requirements include:  

Minimum: 122 credits  
Minimum: 2.0 cumulative GPA  
Minimum: 30 credits from WMU (No credit by exam, self-instructional, or correspondence except General University Studies (GUS) through Continuing Education  
Minimum: 10 of the last 30 credits from WMU (No credit by exam, self-instructional, or correspondence except GUS)  
Minimum: One-half total required credits from 4-year institution  

I. Admission to the WMU teacher education program will include these requirements:  
A. 2.5 or higher Grade point  
B. Satisfactory completion of the State of Michigan Basic Skills Test (math, reading, communication)  
C. PSY 160 (KVCC) and MSC 114 (KVCC) satisfactorily completed  

II. Teaching major satisfied by choosing 30 credits from this list of KVCC courses:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRFT 100</td>
<td>Fundamentals of Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 101</td>
<td>Technical Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 102</td>
<td>Production Drafting</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 105</td>
<td>Blueprint Reading</td>
<td>2</td>
</tr>
<tr>
<td>DRFT 113</td>
<td>Architectural Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 120</td>
<td>Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 150</td>
<td>Computer Aided Drafting</td>
<td>4</td>
</tr>
<tr>
<td>DRFT 155</td>
<td>AutoCAD Computer Aided Drafting</td>
<td>4</td>
</tr>
<tr>
<td>DRFT 201</td>
<td>Machine Design</td>
<td>4</td>
</tr>
<tr>
<td>DRFT 205</td>
<td>Mold Design</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 210</td>
<td>Kinematics of Mechanisms</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 250</td>
<td>CAD Solids</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 255</td>
<td>Advanced AUTOCAD/3D</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 265</td>
<td>CAD-CAM</td>
<td>4</td>
</tr>
<tr>
<td>MACH101</td>
<td>Trends in Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MSM 120</td>
<td>Basic Fluid Power</td>
<td>2</td>
</tr>
<tr>
<td>MSM 240</td>
<td>Statics &amp; Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>MSM 260</td>
<td>Metallurgy and Mechanical Testing</td>
<td>4</td>
</tr>
</tbody>
</table>

Teaching minor completed by choosing 21 credits of the WMU courses in an appropriate program.  

State Board of Education approved: August 26, 1999
III. Professional Education Courses (21 credits) taken at WMU will include:

   ED 305  Secondary Content Literacy (Reading)          3 credits
   CTE 305  Career and Employability Skills              3 credits
   CTE 348  Student Assessment & Management
            (includes 60 hours Pre-Internship)          3 credits
   CTE 510  Special Populations in Career & Technical Education 3 credits
   CTE 512  Principles of Career and Technical Education   3 credits
   CTE 513  Teaching Methods for Career & Technical Education 3 credits
   CTE 542  Curriculum Development in Career & Technical Education 3 credits

IV. Directed Internship (12 credits)

   CTE 410  Seminar in Education                          2 credits
   CTE 475  Directed Field Experience (Intern Teaching)   10 credits

V. University Requirements include a Computer Literacy Course. BUS 103 (KVCC) will satisfy that requirement.

VI. To complete the freshman-sophomore WMU general education requirements, transfer students from Kalamazoo Valley Community College must present transcripts that indicate "MACRAO Agreement Satisfied" or have completed 29-31 hours as listed on the General Education Program Transfer Guide for KVCC. An updated guide may be found at www.wmich.edu/admi/macc/.

VII. General Education Graduation Requirements include the following areas, 6 credit hours in 2 of the 8 Distribution areas must be completed at WMU with courses at 300 level or above.

<table>
<thead>
<tr>
<th>Proficiencies</th>
<th>Distribution Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficiency 1: College Level Writing</td>
<td>Area I  Fine Arts</td>
</tr>
<tr>
<td>Satisfied by taking an KVCC course that is listed</td>
<td>Satisfied by taking an KVCC course that is listed in</td>
</tr>
<tr>
<td>in the WMU Transfer Guide for this area*</td>
<td>the WMU Transfer Guide for this area*</td>
</tr>
<tr>
<td>Proficiency 2: Baccalaureate Level Writing</td>
<td>Area II Humanities</td>
</tr>
<tr>
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* NOTE: Consult your KVCC counseling staff to make sure that you take the proper courses to complete your Occupational Education Studies Degree Transfer Program.

State Board of Education approved: August 26, 1999
1st Revision: February, 2003

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Appendix B

Sample Matrix of Programs of Work
<table>
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<tr>
<th>Occupational Education Studies Program Matrix</th>
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<tbody>
<tr>
<td>Click on the checkmark to link to the program of study available at the selected community.</td>
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|                      | Allegany CC | Cattaraugus CC | Chautauqua CC | Cazenovia CC | Chemung CC | Delaware CC | Erie CC | Franklin CC | Genesee CC | Hamilton CC | Herkimer CC | Jefferson CC | Keuka College | Livingston CC | Madison CC | Marcellus CC | Monroe CC | Niagara CC | Onondaga CC | Oswego CC | Orleans CC | Oneida CC | St. Lawrence CC | Steuben CC | Wayne CC | Wyoming CC |
|----------------------|-------------|----------------|---------------|--------------|------------|-------------|---------|-------------|------------|-------------|-------------|--------------|---------------|---------------|-------------|------------|-------------|----------|------------|-------------|-----------|------------|------------|----------------|-----------|----------|-------------|
| College Proficiencies| ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Transfer Guidance    | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Air Conditioning, Refrigeration & Heating | ✔ |                      | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Automotive Technology | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Graphic Design       | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Drafting, Design/CAD | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| General Science      | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Health Professions   | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Hotel, Catering      | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Trades             | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Electrical Technology | ✔         | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Computer Networking | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |
| Fire Science         | ✔           | ✔              | ✔             | ✔            | ✔          | ✔            | ✔       | ✔           | ✔          | ✔           | ✔            | ✔            | ✔              | ✔             | ✔          | ✔           | ✔         | ✔          | ✔           | ✔         | ✔          | ✔          | ✔              | ✔         | ✔        | ✔           |

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For Programs Pending contact Carl Woloszyk

Updated 03/31/2004
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Appendix C

Enrollment Data
### Enrollment of OES students by community college as of April 2004

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<td>Kellogg CC*</td>
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Report provided at the spring OES Advisory Board update
Appendix D

Student and Professional Letters for Survey
November 10, 2003

Dear Administrator or Counselor:

As an administrator or counselor participant of the Occupational Education Studies (OES) program we are requesting your participation in a study of the OES program. As you may be aware, the OES program is designed to prepare future Career and Technical Education (CTE) teachers.

You are invited to participate in a research project entitled Sustaining Innovation in Career and Technical Education designed to analyze the components of the OES program and its sustainability.

The study is being conducted by Dr. Carl Woloszyk and Brenda Clark from the Department of Family and Consumer Sciences. This research is being conducted for Brenda Clark as part of a Doctoral Educational Leadership Dissertation in Career and Technical Education.

The survey instrument is comprised of five demographic questions and seven questions about your OES experience. Your replies will be completely anonymous; so do not put your name anywhere on the form. You may choose not to answer any question by simply leaving it blank. If you choose not to participate, you may either return the blank survey or you may discard it.

If you have any questions regarding the survey instrument, you may contact Dr. Carl A. Woloszyk at 616-771-9912 or Brenda Clark, Doctoral Student at 616-667-3376. You may also contact the Chair, Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research (269-387-8298), if questions or problems arise during the course of the study.

After you have completed the survey instrument please return it in the enclosed business reply envelope. If you need additional information about the OES program please consult our website at http://www.wmich.edu/fcs/cte/ Thank you in advance for your assistance with this survey and for your involvement with the OES program. Returning the survey instrument will serve as your consent to participate in the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right hand corner. Do not participate in this study if the stamped date is older than one year.

Sincerely

Carl A. Woloszyk, Ph.D.
Professor, Career and Technical Education

Brenda S. Clark
Doctoral Student
November 10, 2003

Dear Student:

As a student participant or a recent graduate of the Occupational Education Studies (OES) program we are requesting your participation in a study of the OES program. As you may be aware the OES program is designed to prepare future Career and Technical Education (CTE) teachers.

You are invited to participate in a research project entitled Sustaining Innovation in Career and Technical Education designed to analyze the components of the OES program and its sustainability.

The study is being conducted by Dr. Carl A. Woloszyk and Brenda Clark from the Department of Family and Consumer Sciences. This research is being conducted for Brenda Clark as part of a Doctoral Educational Leadership Dissertation.

The survey instrument is comprised of six demographic questions and six questions about your OES experience. Your replies will be completely anonymous; so do not put your name anywhere on the form. You may choose not to answer any question by simply leaving it blank. If you choose not to participate, you may either return the blank survey or you may discard it.

If you have any questions regarding the survey instrument, you may contact Dr. Carl A. Woloszyk at 616-771-9912 or Brenda Clark, Doctoral Student at 616-667-3376. You may also contact the Chair, Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research (269-387-8298), if questions or problems arise during the course of the study.

After you have completed the survey instrument please return it in the enclosed business reply envelope. If you need additional information about the OES program please consult our website at http://www.wmich.edu/fcs/cte/. Thank you in advance for your assistance with this survey and for your involvement with the OES program. Returning the survey instrument will serve as your consent to participate in the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right hand corner. Do not participate in this study if the stamped date is older than one year.

Sincerely

Carl A. Woloszyk, Ph.D.
Professor, Career and Technical Education
The Graduate Center - Downtown
200 Ionia Avenue SW, Grand Rapids, Michigan 49503
Phone: 616 771-4100, Fax: 616 771-4200

Brenda S. Clark
Doctoral Student
The Graduate Center - Belkline
3333 E. Beltline Avenue SE, Grand Rapids, Michigan 49516
Phone: 616 771-9470, Fax: 616 771-9483

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Appendix E

Student and Professional Surveys
2003 Occupational Education Studies Professional Survey

Directions: In the first section of the questionnaire we would like to obtain the following demographic information about you. Please check the appropriate answer.

Section I. Demographic Information

1. Sex?
   __ Male
   __ Female

2. What is your primary job title (50% or more of your assignment)?
   __ Community College Program Administrator
   __ Counselor/Academic Advisor
   __ Dean
   __ Department Chair
   __ Instructor
   __ Secondary Administrator/Area Center Director
   __ WMU Regional Director
   __ Other, please list _______________________

3. Educational institution where you are employed
   __ Alpena Community College
   __ Bay de Noc Community College
   __ Glen Oaks Community College
   __ Grand Rapids Community College
   __ Jackson Community College
   __ Kellogg Community College
   __ Kalamazoo Valley Community College
   __ Lake Michigan College
   __ Lansing Community College
   __ Mid Michigan Community College
   __ Montcalm Community College
   __ Muskegon Community College
   __ North Central Michigan Community College
   __ Southwestern Michigan Community College
   __ Western Michigan University
   __ Other, please list _______________________

4. Do you serve on the OES Advisory Committee?
   __ Yes
   __ No

5. How long have you been involved with the OES program?
   __ Less than one year
   __ One to two years
   __ Three to four years
   __ Over four years

Directions: In the second section of the questionnaire we would like to obtain information about your experience with the OES program. Please check the appropriate answer or write in the answer.

Section II. Occupational Education Studies (OES) Experience

6. In your opinion, how effective are the following promotional methods at your institution for reaching potential OES students? (Rank only those promotional methods used at your institution)

   1 = Not Effective  2 = Somewhat Ineffective  3 = Somewhat Effective  4 = Effective  5 = Very Effective

   __ Brochure
   __ Career night
   __ Community College Counselor
   __ Community College Occupational Instructor
   __ Local Community College Catalog
   __ Local community college website
   __ Other students
   __ Newspaper advertisement
   __ Poster
   __ Student newspaper article
   __ WMU Counselor/Regional Staff
   __ WMU website
   __ Other, please list _______________________

   Please see reverse Page 1
7. Which of the following promotional methods not currently used at your institution will you begin to use during the next 12 months? (Check all that apply)

- Brochure
- Newspaper advertisement
- Career night
- Community College Counselor
- Community College Occupational Instructor
- Local Community College Catalog
- Local community college website
- Other students
- College Counselor/Regional Staff
- Student newspaper article
- WMU website
- Will not be adding additional promotional methods
- Other, please list

8. In your opinion, how important are the advisory committee meetings to the success of the OES program?

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Somewhat Unimportant</th>
<th>Somewhat Important</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

9. In your opinion, how important are the Programs of Work listed on the WMU website?

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Somewhat Unimportant</th>
<th>Somewhat Important</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

10. How satisfied are you with the level of communication from WMU Counselors/Regional Staff?

<table>
<thead>
<tr>
<th>Dissatisfied</th>
<th>Somewhat Dissatisfied</th>
<th>Somewhat Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

11. As an institutional representative, how satisfied are you with the OES program?

<table>
<thead>
<tr>
<th>Dissatisfied</th>
<th>Somewhat Dissatisfied</th>
<th>Somewhat Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

12. In your opinion, what is the most significant barrier to students enrolling in the OES program?

________________________________________

________________________________________

________________________________________
2003 Occupational Education Studies (OES) Student Survey

DIRECTIONS: Please complete the following demographic information about yourself. Please check the appropriate answer or write in the answer.

SECTION I. DEMOGRAPHIC INFORMATION

1. Sex?
   ___ Female  ___ Male

2. Age?
   ___ Under 25  ___ 25-34  ___ 45-54
   ___ 55 and over

3. What is the highest educational level you have obtained as of today?
   ___ High school graduate  ___ AA or AS degree
   ___ 1 year certificate  ___ BA or BS degree
   ___ 2 year certificate  ___ Master's degree
   ___ Apprenticeship/ ___ Other, please list
       journeyman's card

4. Did you have an associate degree prior to enrolling in the OES program?
   ___ Yes  ___ No

   If yes, in what discipline (i.e. Welding, Graphic Arts)

5. What community college are you currently attending or transferred from to participate in the OES program?

   ___ Alpena Community College  ___ Lake Michigan College
   ___ Bay de Noc Community College  ___ Lansing Community College
   ___ Glen Oaks Community College  ___ Mid Michigan Community College
   ___ Grand Rapids Community College  ___ Montcalm Community College
   ___ Jackson Community College  ___ Muskegon Community College
   ___ Kellogg Community College  ___ North Central Michigan College
   ___ Kalamazoo Valley Community College  ___ Southwestern Michigan College
   ___ Other, please list

6. What is your current status?
   ___ Pre-OES (not accepted in the College of Education)  ___ OES Graduate--seeking a teaching position
   ___ OES (accepted into the College of Education)  ___ OES Graduate—not seeking a teaching position
   ___ OES Graduate—currently teaching

DIRECTIONS: In the second section of the questionnaire we would like to obtain information about your experience in the OES program. Please check the appropriate answer or write in the answer.

SECTION II. OES EXPERIENCE

7. How did you learn about the OES Program? (Check all that apply)

   ___ Brochure  ___ Newspaper advertisement
   ___ Career night  ___ Other students
   ___ Community College Counselor  ___ Poster
   ___ Community college Occupational Instructor  ___ Schedule of classes
   ___ High School/Area Center Instructor  ___ Student newspaper article
   ___ Local community college Catalog  ___ WMU Counselor/Regional Staff
   ___ Local community college Web site  ___ Web site
   ___ Other, please list

Page 1

Please see reverse
8. Please identify the types of CTE courses you have taken as a student in the OES program at WMU (check all that apply)

- Computer video interactive television (CVIT)
- Off campus courses—face to face
- On campus courses—face to face
- Self-instructional program (SIP)—in paper format
- Two week summer institutes on campus
- Web enhanced (face to face instruction with online activities)
- Have not taken any CTE courses as of this time

9. How satisfied are you with the delivery format for the CTE courses taken at WMU?

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Video interactive television (CVIT)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Off campus courses (face to face)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>On campus courses (face to face)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Self-instructional program (SIP) courses—in on-line format</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Self-instructional program (SIP), courses—in paper based format</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Two week summer institutes on main campus</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Web enhanced courses</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

10. As a student, how satisfied were you with the following aspects of the OES program?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being accepted to WMU's College of Education</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Transferring credits to WMU</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Applying for student teaching (intern teaching)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Obtaining guidance services offered by local community college</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Obtaining guidance services offered by WMU</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Obtaining courses when needed</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Convenience of course offering locations</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Locating Programs of Work on WMU Web site</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Clear understanding of the steps and process required to achieve an OES degree</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

11. Overall, how satisfied are you with the OES program? (Circle your response).

<table>
<thead>
<tr>
<th>Dissatisfied</th>
<th>Somewhat Dissatisfied</th>
<th>Somewhat Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

12. Why did you originally enroll in the OES program?

---

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Appendix F

Human Subjects Institutional Review Board
Letter of Approval
Date: November 3, 2003

To: Carl Woloszek, Principal Investigator
    Brenda Clark, Student Investigator for dissertation

From: Mary Lagerwey, Chair

Re: HSIRB Project Number 03-10-19

This letter will serve as confirmation that your research project entitled “University and Community College Partnerships in CTE Teacher Education” has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: November 3, 2004
Appendix G

Student Responses to Open-Ended Question
STUDENT RESPONSES TO OPEN-ENDED QUESTION

Student responses to Question 12.

Why did you originally enroll in the OES program?

Specific student responses included:

- Vocational teaching certificate
- OES best fits my training and degree
- To obtain a BA in education
- This program is unique in that it offered a teaching certificate with night classes available. Most programs do not accommodate the "non-traditional" student.
- I thought it would be faster and closer than Ferris State. I was wrong and I was much happier at FSU.
- Career change and desire to teach
- To help others obtain the knowledge and skills necessary to enhance their future
- To become a teacher
- Earn teaching degree
- To be able to educate the next generation with my knowledge exceeding that of books
- To become a welding teacher
- Was out of work and decided to do what I wanted to do for the rest of my life.
- I liked the idea of distance classes that were offered at the time that allowed me to maintain my job and still progress with my education.
I wanted to teach industrial arts, until the department told me at graduation I could only teach vocational Machine Tool. But,...all is cool-I teach Technology Education.
Appendix H

Question 7: Correlation Between Length of Involvement and Enrollment
QUESTION 7: CORRELATION BETWEEN LENGTH OF INVOLVEMENT AND ENROLLMENT

<table>
<thead>
<tr>
<th></th>
<th>LENGTH OF INVOLVEMENT</th>
<th>number of students by school</th>
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</thead>
<tbody>
<tr>
<td>LENGTH OF INVOLVEMENT</td>
<td>Pearson Correlation</td>
<td>.913(**)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>number of students by</td>
<td>Pearson Correlation</td>
<td>.913(**)</td>
</tr>
<tr>
<td>school</td>
<td>Sig. (2-tailed)</td>
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</tr>
<tr>
<td></td>
<td>N</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**
Appendix I

Question 9: Correlation Between Number of Marketing Techniques and Enrollment
**QUESTION 9: CORRELATION BETWEEN NUMBER OF MARKETING TECHNIQUES AND ENROLLMENT**

<table>
<thead>
<tr>
<th></th>
<th>number of students by school</th>
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<tbody>
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</tr>
<tr>
<td></td>
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<td>N</td>
<td>14</td>
</tr>
<tr>
<td>Marketing techniques</td>
<td>Pearson Correlation</td>
<td>.923(**)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
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<tr>
<td></td>
<td>N</td>
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</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
Appendix J

Question 10: Linear Regression of Relationship Between Student Enrollment and Number of Marketing Techniques, Geographic Location, and Involvement of Deans of Occupational Education
RESEARCH QUESTION #10: LINEAR REGRESSION OF RELATIONSHIP BETWEEN STUDENT ENROLLMENT AND NUMBER OF MARKETING TECHNIQUES, GEOGRAPHIC LOCATION, AND INVOLVEMENT OF DEANS OF OCCUPATIONAL EDUCATION

Model Summary (b)

<table>
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<th>Model</th>
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<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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<tbody>
<tr>
<td>1</td>
<td>.953(a)</td>
<td>.91</td>
<td>.88</td>
<td>1.08</td>
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</tbody>
</table>

a Predictors: (Constant), marketing techniques, mileage from schools, number of committee meetings
b Dependent Variable: number of students by school

ANOVA (b)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tbody>
<tr>
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<td>Regression</td>
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<td>37.78</td>
<td>32.64</td>
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<td>1.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>13</td>
<td>1.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Predictors: (Constant), marketing techniques, mileage from schools, number of committee meetings
b Dependent Variable: number of students by school

Coefficients³

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
<th>95% Confidence Interval for B</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Lower</td>
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<tr>
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<td>Mileage from schools</td>
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<td>.07</td>
<td>.20</td>
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<td>.09</td>
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<td>Marketing techniques</td>
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<td>.27</td>
<td>.86</td>
<td>8.34</td>
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</tr>
</tbody>
</table>

a. Dependent Variable: number of students by school

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Appendix K

Professional Responses to Open-Ended Question
Professional Responses to Question 12. In your opinion, what is the most significant barrier to students enrolling in the OES program?

- Lack of knowledge about the program
- Knowledge of program and distance from MMCC
- Local advising
- Our students just need to be more aware of the program. We need to work on spreading the word more at this end—the community college. Communication could probably be most effective coming from faculty advisers. I am no longer in an advising position but I did fill out the survey because the new person is not familiar with the program yet.
- Not sure it will continue. Courses are not offered locally.
- I think the curriculum is too difficult for most counselors and prospective students to understand. At the same time, I am a supporter of the concept behind the OES degree.
- Not sure
- Their lack of knowledge, understanding of the OES program and career path
- Remains a rather narrow potential audience. Need presentation to occupational faculty by WMU including work force department heads, assistant deans, and dean.
- Lack of knowledge about the program
• Honestly, I am very unfamiliar with the OES and a part from sending some curriculum to Brenda, have done very little. Thus, I'm not really in a position to answer many of your questions.

• Lack of communication between WMU and community college counselors (these are the recruiters for the OES program)

• The confusion usually comes with students who do not follow the programs of work to the letter and then the process for substitutions gets a little fuzzy. Otherwise I have no problems with the OES program.

• Unless students self-identify, it is difficult to know your audience. The brochures are good info, but somewhat confusing to beginners—students can’t seem to figure out whether this is appropriate for them or not just by reading a brochure.
BIBLIOGRAPHY


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