

AN ANALYSIS OF GATEWAY TECHNICAL COLLEGE INSTRUCTORS'
OPINIONS ON SECONDARY AND POSTSECONDARY PROGRAM ALIGNMENT

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Dedication

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Abstract

In December 2007, the researcher conducted a quantitative research analysis of Southeast Wisconsin's secondary technology education teachers' perceptions on aligning technology education with manufacturing and engineering programs at Gateway Technical College. The conclusions of that study led to a significant question for further study. Historically, research shows that program articulation is primarily driven by the opinions of teachers combined with the leadership of the participating institutions. At Gateway Technical College, articulation agreements and credit transfer are governed by represented union contract language. The ease of program alignment is often interfered with by the opinions of represented faculty and union leadership. The researcher selected this study to determine if Gateway Technical College instructors' opinions might provide a new approach to articulation and secondary and postsecondary program alignment.

The purpose of this study is to examine Gateway Technical College instructor's opinions on program alignment between secondary technology education and postsecondary occupational programs. There are two objectives achieved through this study:

1. A determination of Gateway Technical College instructors' perceptions of secondary and postsecondary program alignment.
2. A determination of any differences in individual perceptions based on selected demographic data.

A need was determined that was based on three factors. First, historically “Barriers to the recognition of transfer credits between different types of institutions pose challenges to students and prevent institutions from measuring capacity (Spellings, 2006).” Second, Gateway aligns its programs and services with regional workforce needs. “A student-centered system of alignment is needed to ensure value-added transition opportunities from high school to Gateway (G. Kacala in a speech presented to the Racine Economic Development Corporation, August 22, 2010).” Lastly, “The use of emerging programs of study that focus on transition from secondary to postsecondary create unique opportunities for education today (Folkers, 2010).”

A mixed methodology was used that included a quantitative web based survey and Likert scale to measure the range of opinions expressed by instructors across ten relational questions and five demographic data points. A second methodology, qualitative interview/focus group, was conducted that contended with each of the three factors identified above.

The results of the study showed that instructors at Gateway Technical College have a strong opinion on the need and value of alignment between secondary and postsecondary programming. Results showed the vast majority of postsecondary instructors believe alignment and career pathways are important for secondary program development but are less supportive of awarding postsecondary credit through articulation or youth options strategies.

Gateway instructors can make use of the knowledge acquired from this study to better prepare themselves for students who may have earned postsecondary credits while

in high school and then enroll in a postsecondary program. Gateway's administration and department leadership could use these study results to guide and inform themselves and staff about the decision-making process in working with secondary school administrators, teachers and students. This understanding can assist in improving their strategies to enhance opportunities for both program alignment and students' transitional experience into Gateway Technical College. Additionally, instructors at both levels can utilize the information to learn more about each other's programs, processes and services for students entering manufacturing, engineering and transportation careers.

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Chapter One

Background of the Study

Introduction

Gateway Technical College was established in 1911 as the first vocational training school in the state of Wisconsin. Since its inception, the college has had a mission of improving the educational opportunities for youth and adults. In its early years Gateway Technical College, then called the Racine Continuation School, served youth from 14-16 years of age. As the local economy changed, the skills necessary to sustain the workforce throughout southeast Wisconsin also changed. The mission of the Racine Continuation School evolved into a comprehensive vocational education and training school addressing the needs of youth and adults. In 1967, the Racine Continuation School expanded its service area, joining with Kenosha to form the Wisconsin Vocational, Technical and Adult Education District #6. In 1972, the Wisconsin legislature re-established the mission of schools like the Racine Continuation School into a state system of Vocational, Technical, and Adult Education (VTAE).

In 1987, the Wisconsin Board for Vocational, Technical, and Adult Education renamed the system the Wisconsin Technical College System. Over time, the need to align programs and services remained as a core mission of Gateway Technical College. Gateway's mission today reads "Gateway Technical College collaborates with communities in Kenosha, Racine, and Walworth counties to ensure economic growth and viability by providing education, training, leadership, and technological resources to meet the changing needs of students, employers, and communities." This study respects the historical value of vocational education and is intended to provide a foundation for

continued growth in aligning the needs of secondary and postsecondary education students and the skills needed for today's workforce.

Assessing the professional opinions of teachers, administrators and the community is a complex issue that varies throughout the history of technology education (Dugger, 2002). Positioning technology education so that society places value on its contribution of knowledge and skill may seem like a simple problem. However, finding a way to change the status of the discipline so others view it as essential in educating youth in schools has eluded professionals in the field for decades (Fullan, 2001). If technology education is valued, it would seem that the image would naturally be enhanced. While this may sound logical, further study will show that this problem is much more complex and diverse. Technology education professionals have debated the role and purpose of technology education and its predecessors in public education for more than a half century (Akmal, Oaks, & Baker, 2002; Erikson & Shumway, 2006; Sanders, 2001). In addition, these professionals have struggled with the "image" and perception that key stakeholders have of the field (Wicklein & Hill, 1996; Benson, 1993; Daugherty & Wicklien, 1993).

Technology education has roots traceable to 18th and 19th century influences, specifically the Enlightenment period in European cultures. However, within the United States, these origins are closely tied to economic interests and influences (Wright, Washer, Watkins & Scott, 2008). According to Wicklein and Hill (1996), the identity crisis, or perceptions thereof, includes both internal and external ignorance about the field, which is being exacerbated by a resistance to change among technology education professionals.

It is also important that other education professionals value technology education (Rose, Lowell C., Dugger, 2002). For those with a history deeply rooted in industrial education, it should not come as a surprise that the change in technology education during the past decade has not changed the image in the minds of many in the profession or the public. Perhaps it is time to assess the profession as it relates to the alignment of secondary technology education curriculum and postsecondary occupational programming from a teacher's perspective.

Engineering and Technology

Aligning technology education to better position the teaching of technology will require a dramatic new mindset. A mindset that no longer positions technology education at the center of technological literacy, but as a contributing discipline that adds value to the student's knowledge and skills, a core discipline that shares the responsibility of technological literacy with mathematics, science, engineering, and the humanities (Layton, 1993).

Shaping the professional image of technology education is rooted in the debate regarding where it appears in the educational pecking order. Technology education is often referred to as an applied science or as contextual mathematics and the relationship between mathematics and science adds value to technology education (Newberry, 2002). Technology has been around as long as there have been people. Technology, like language, ritual, value, commerce and the arts, is an intricate part of a culture system. It both shapes and reflects the system's values. Even with this basic and evolutionary understanding of technology, the discipline has suffered from the constant struggle for recognition (Williams, 2003).

The professional status and growth of the discipline will be dependent upon a new alignment of the core value of technology education. Such an alignment would remove technology education from the center of the technological literacy model and embrace symmetry with science and engineering.

The first formalized education program for engineers was established in 1794 by Congress for the Corps of Artillerists and Engineers, where engineering education was assigned to the garrison at West Point. The Accreditation Board for Engineering and Technology (ABET) defines engineering as: “The profession in which knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind (Sheppard & Jenison, 1996).”

Engineering, the systematic application of scientific knowledge in developing and applying technology, has grown from a craft to become a science in itself. In today’s complex technological world, science, and engineering can scarcely be separated.

This new order of innovation and design has changed the way society thinks about education. Citizens must use knowledge of science and technology together with strategies of design to solve practical problems. This interplay between science and technology is not limited to contemporary practice. Rob Larsen and Susan Dunn comment in their book *Design Technology-Children’s Engineering* that those concepts draw on long traditions of educational thought going back to John Locke, Jean-Jacques Rousseau, and a series of British educational and American progressive educational traditions like that of John Dewey (Larsen and Dunn, 1990).

The alignment between the philosophy of engineering education and technology education are strikingly similar and in many cases, it is difficult to recognize any difference at all. Take, for example, the message that is inherent in the statements describing the overall purpose and mission of the Triangle Coalition for Science and Technology Education. The Triangle Coalition describes its mission as focusing action in three major areas: advocacy, communication, and programmatic efforts to advance science, mathematics, and technology education (V. Ablott, personal communication, November 13, 2006). The Triangle Coalition is comprised of more than 100 member organizations with representation from three primary sectors: business, education, and scientific and engineering societies. In this example, one might ask the questions, “What is the closest natural alignment between the educational disciplines identified by the coalition and the members that make up the organization?” and “Is technology education assimilated with business, education, or science and engineering?”

In 2008, the Wisconsin Technology Education Association (WTEA) state president Steve Johnson advocated for WTEA members to change the name of the WTEA to the Wisconsin Technology and Engineering Association (WTEA) to demonstrate the importance of the alignment between technology education and engineering education. “Unless action is taken, we are at a crossroads where citizens can be trained to do a skilled job but not understand the benefits or consequences of using a present or future technology rationally and responsibly (Johnson 2008).”

As the economy becomes increasingly global and technologically complex, our educational programs need to be strengthened to prepare today’s students to be tomorrow’s productive workers, citizens, and leaders (American Society of

Manufacturing Engineers, 2002). Technology education is a broad field of study that leads to technological literacy (WMAS, 1998 p. 12). Technological literacy is the ability to initiate and conduct activity associated with technological processes, systems, problems, opportunities, history, future, impact, ethics, and consequences (WMAS, 1998 p. 12). Engineering education applies knowledge of mathematics, and natural sciences to create new products (Wright, 1994). In comparing the two distinct fields of technology education and engineering education, it is evident that there is a strong relationship between the two disciplines. Understanding the perceptions that postsecondary professionals in the fields of technology and engineering education have on the value of program alignment will add to the knowledge base within the respective fields of study as well as the overall profession of career and technical education.

Work and Human Resource Development

The culture and policy influences on vocational education draw from centuries of educational philosophy. Timothy Regan in his book *Non-Western Educational Traditions* reminds us that it is imperative that one understands that traditions are processes that continually change, develop and evolve over time (Regan, 1996). The influence of opinion on what has become common practice in many of our schools continues to be important for educators to improve school and student performance (Westrich, 2010). Bronfenbrenner refers to school-to-work systems as a “meso-system” (Bronfenbrenner, 1979). The hypothesis is that human development is enhanced by establishing connections within the different systems in which people function. Studying the concept of transition from the perspective of human resource development provides for a single point of influence. In Germany, for example, there are two key features that

support the foundation of youth transition into adult education systems - “transparency” and “permeability” (Bronfenbrenner, 1979). According to Bronfenbrenner, transparencies refer to how well young people can see the system and plan a sequence of courses that lead toward a future career goal. Students can readily explain how a person moves through the educational system into a chosen career. Permeability refers to the ease of movement from one system to another. Students can transition easily from formal secondary education to the adult workplace or higher education.

Appreciation for the history of education, especially for the concepts of “tech prep” and “school-to-work,” build a professional foundation for further study. The core values of the relationship between the individual, in this case the teacher, and the educational delivery model (school) chosen by the community continue to influence policy and decision-making even in the 21st century.

In June 2002, the United States Department of Education released “Program Memorandum FY 2002-02: The Role of Tech Prep Education in Preparing America’s Future.” The program memorandum was the first step by the Department of Education in describing the legislative intent for the requirements within the Carl D. Perkins Vocational and Technical Education Act of 1998 (Perkins III). Section 202(a) (3) of the federal Perkins III Act defines “tech prep” as a program of study that:

- combines at a minimum 2 years of secondary education with a minimum of 2 years of postsecondary education in a non-duplicative, sequential course of study;
- integrates academic, and vocational and technical instruction, and utilizes work-based and worksite learning where appropriate and available;

- provides technical preparation in a career field such as engineering technology, applied science, a mechanical, industrial, or practical art or trade, agriculture, health occupations, business, or applied economics;
- builds student competence in mathematics, science, reading, writing, communications, economics, and workplace skills through applied, contextual academics, and integrated instruction, in a coherent sequence of courses;
- leads to an associate or baccalaureate degree or a postsecondary certificate in a specific career field; and
- leads to placement in appropriate employment or to further education (U.S. Department of Education, 2002).

Further supporting the need to align secondary and postsecondary programs, the United States Department of Labor in 1994 released the congressional intent of The School-to-Work Opportunity Act of 1994. The intent of the legislation was to provide venture capital for states for the development of local partnerships dedicated to linking the worlds of school and work among secondary and postsecondary educational institutions. Section 3 of the Act describes one aspect of the purpose, which is to improve the knowledge and skills of youth by integrating academic and occupational learning, integrating school-based and work-based learning, and building effective linkages between secondary and postsecondary education. It goes on to state the need to include a range of promising school-to-work activities such as tech prep.

The study of culture and tradition within work and family provides understanding of the relationships and a historical perspective of the root meaning of what John Dewey, in the early 1900's, fashioned: a concept known today as vocational education, or more

recently as career and technical education (Dewey, 1904). Dewey, in his vocational education philosophy, largely grounded in the integration of “liberal and occupational studies that can provide both technical skills and liberal insights,” (Wirth, 1992, p. 161) set the stage for what is now over 100 years of education reform efforts attempting to advance this basic educational concept.

Gateway Technical College

Gateway Technical College’s service district is located in southeast Wisconsin and includes Kenosha, Racine, and Walworth counties. The total population in southeast Wisconsin exceeds 400,000 and includes 15 community-based high schools. According to the Kenosha Area Business Alliance, during the past 20 years, more than 25,000 family-supporting wage jobs have been lost due to a changing economy and the lack of qualified workers in southeast Wisconsin. Companies such as Western Publishing, Massey Ferguson, Chrysler Manufacturing, and Jacobson-Textron have closed their operations leaving thousands of under-skilled manufacturing workers with limited options for jobs and future careers. In 2006, Gateway Technical College participated in three distinct efforts to solicit input from employers regarding their current and future workforce needs. Wisconsin’s Department of Workforce Development data shows that in 2010 Racine County faced one of the highest unemployment rates in the state’s history at 16.7 percent. Kenosha County also reached record levels of unemployment at 10.2 percent, and Walworth County in 2010 saw unemployment levels hovering around 7.6 percent. With their changing economic conditions, Racine, Kenosha, and Walworth county officials came together to assess what role Gateway Technical College could play in preparing employees with the skills necessary to rebuild southeast Wisconsin’s

regional economy. The result of this effort was a focus on the need for advanced manufacturing, engineering, and transportation training programs.

Gateway Technical College began expanding its capacity to meet the needs of the changing economy within the region in 2006. With the establishment of five advanced technology centers and new programs in advanced manufacturing, engineering, and transportation, Gateway's administration has positioned the college for growth in each of these key industry sectors. The challenge now is to expand Gateway Technical College's student capacity to ensure that program outcomes are achievable and that employers have the necessary qualified employees to grow their businesses. Programs of study that align secondary with postsecondary occupational courses provide a seamless education pathway to work and careers (Hull & Hinckly, 2007). The economy of southeast Wisconsin is dependent upon a highly educated and skilled workforce. Gateway programs must align with the employment needs of the community. (Kacala, 2010).

In 2007, the Wisconsin Technical College System and the Department of Workforce Development, in partnership with the Joyce Foundation, launched the *Shifting Gears* initiative to meet the challenge of increasing the number of graduates from Wisconsin colleges. The initiative supports Wisconsin's work to strengthen postsecondary, adult basic education, and workforce development systems so that low-skilled adult workers gain education, skills, and credentials needed to advance and succeed in a changing economy. Fundamental to the effort is a close alignment between secondary and postsecondary programming to ensure a pathway to career success. The *Shifting Gears* initiative was intended to influence state policy and strengthen support systems through the development of innovative career pathways.

Over the last decade, Gateway Technical College has been challenged by a state memorandum of understanding (MOU) agreement signed in 2003 between the Wisconsin Technical College System Board (WTCS), the Wisconsin Department of Public Instruction (DPI), the Wisconsin Education Association Council (WEAC), and the American Federation of Teachers (AFT). Articulation and program alignment has not been a smooth and student-supportive process. The MOU specifically states,

Articulation agreements developed between a technical college and a K-12 district shall be authorized by the following signatures:

- Discipline-specific secondary school and technical college instructors who have agreed as to course content; and
- Technical college and secondary school administration; and
- WEAC and AFT-WI representative as collective bargaining agents for the district personnel (WTCS, 2003).

This study is important to fully understanding what the underlying perceptions are of Gateway Technical College instructors related to secondary and postsecondary program alignment. Gateway Technical College instructors are WEAC members and are provided guidance and best practices on the requirements within the state MOU by their represented union leadership. Gateway Technical College is governed by the WTCS and is also required to comply with the intent of the MOU language although compliance is left up to the mutual agreements between the college administration and the represented unions within the college. This often results in variations in the implementation of the agreement and can cause conflict in the way instructors are expected to respond to articulation requests from secondary school partners.

Statement of the Problem

Since 2006, Gateway Technical College has implemented a systematic restructuring of programs and services. A strong focus of this restructuring has been the alignment of programs and services by occupational clusters. Defining the following problem will strengthen Gateway Technical College's programs and services to secondary schools. *The factors that influence alignment between secondary and postsecondary programs at Gateway Technical College have not been studied.*

Purpose of the Study

The purpose of this study is to determine what factors influence, from a postsecondary instructor's perspective, the alignment of secondary and postsecondary programming.

Technology is often referred to as an object of study, often theoretically presented (Layton, 1993) rather than a set of knowledge and skills in its own right. From an ethical perspective, depersonalizing the client's opinion from experiences possibly as a student is important to ensuring a true perception of the discipline. Opinions gathered through the survey of Gateway Technical College instructors in the manufacturing, engineering, and transportation programs served as the participant data, gathered through a survey and focus group, and were used to make recommendations for secondary and postsecondary program alignment improvements at Gateway Technical College.

Technology education in Wisconsin encompasses a wide variety of general education and occupational or vocational courses. The broad nature of technology education in Wisconsin makes course offerings unique in every school district. This study provided insight into the professional opinions of Gateway Technical College

instructors on secondary technology education throughout the Gateway District. Additionally the study added knowledge to the field of technology and engineering education and enhanced the professional development strategies used by Gateway Technical College.

Hypotheses of the Study

This study investigated instructors' opinions toward program alignment thus influencing the transition opportunities available to students.

Assumptions of the Study

There are three assumptions of this study:

1. Gateway Technical College instructors will provide honest opinions of their perceived role in secondary programming;
2. Gateway Technical College instructors are knowledgeable of secondary programs within the Gateway District; and
3. Gateway Technical College instructors have experience in secondary and postsecondary curriculum alignment.

Research Questions

The following questions will be addressed by this study:

1. What is the extent of Gateway Technical College instructors' support for secondary technology education program alignment models?
2. What are the professional opinions of Gateway Technical College instructors concerning the importance of alignment between secondary and postsecondary programs?

3. Are there differences in Gateway Technical College instructors' opinions between secondary and postsecondary college programs based on selected demographic data?

Significance of the Study

The data collected and analysis of this research will provide one college's perspective on the value of secondary and postsecondary program alignment and demonstrate the need for continued professional research in this area. The information gathered may serve as a basis to establish broad recommendations to organize the course pathways and align the programs and services of Gateway Technical College.

The opinions gathered in this survey were analyzed to better determine the role of articulation and curriculum design supporting students transitioning into Gateway Technical College. Data from this study may assist Gateway Technical College in refining articulation agreements with partnering secondary schools.

The problem is of major significance because many colleges and businesses have determined that early exposure and alignment of technology and engineering should start well before the freshman year in college (Sheppard & Tsai, 1992). Business and industry throughout southeast Wisconsin has determined that Gateway Technical College plays a critical role in connecting youth with careers (Kacala, 2010).

Results of this study were disseminated to assist other postsecondary technical colleges in Wisconsin and the United States to refine course outcomes and strengthen articulation opportunities.

Limitations of the Study

The researcher serves as the President at the college in which the participants were selected for this study. A limitation is that the researcher is also influential on the instructors in the study.

Another limitation relates to the ability to generalize from the responses. Opinions expressed by respondents cannot be generalized to all postsecondary instructors across the state of Wisconsin or the United States. Results of this research are confined specifically to that of the manufacturing, engineering and transportation programs although aspects may apply to other programs within the Gateway district.

Due to the nature of this study, participants' risks were minimal. There were no physical, economic, or legal risks associated with this research. Minimal risk is defined by the U.S. Department of Health and Human Services (2011) as, "The probability of magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examination or tests." Participants were kept anonymous to protect individuals and institutions from public exposure.

The psychological risk, while minimal, may result in the possibility of altered self-concept, increased anxiety or loss of confidence in other government systems due to the nature of the subject matter and the interview. The web-based survey was designed to be open-ended and drew upon emotional experience that could not be perceived at the time of the survey. It is possible that past negative experiences "may re-evoked painful memories or emotional conflicts for participants both during and after the interview" (Hadjistavropoulos & Smith, 2001. p. 167). In order to protect the individual against

potential risks, participants were offered ample opportunity to withdraw from the study at any time and for any reason. It is also important to debrief at the conclusion of the interview, sharing with the participants “appropriate reassurance and information about normal reactions” (Eyde, 2000, p.63). Gillespie (1984) declares that ethics emerge from value conflicts. In, research; these conflicts are expressed in many ways: individuals’ rights to privacy versus the undesirability of manipulation, openness and replication versus confidentiality, future welfare versus immediate relief, and others. Researchers must try to minimize risks to participants, colleagues, and society while attempting to maximize the quality of information they produce.

While this study did not have any direct social risk, it is important to recognize that there have been interchanges between the participants and the researcher. For this reason, it was critical to ensure individual confidentiality. The risks were minimized through the development and use of a consent form (See Appendixes B and C) in which participants were made aware of risks and assured that neither their individual identity nor the relationship to the researcher were jeopardized in any way.

Definition of Terms

Accreditation Board for Engineering and Technology: ABET, Inc., the recognized accrediting agency for college and university programs in applied science, computing, engineering, and technology, is a federation of 31 professional and technical societies representing these fields.

Adult Career Pathways: Guidance, remediation, curricula, and other support elements required to enable career-limited adults to enter the workforce (Hull, Hinckley, 2006).

American Federation of Teachers: AFT represents secondary and postsecondary teachers in selected regions of Wisconsin (AFT website, 2011).

Articulation: Process by which a high school student can earn credit from a postsecondary institution (DPI website, 2011).

Career cluster: Pathways from secondary school to two- and four-year colleges, graduate school, and the workplace (Hull, Hinckley, 2007).

Engineering: The systematic application of scientific knowledge in developing an applied technology (Bybee, 2002).

Gateway Technical College: Wisconsin Technical College district including Kenosha, Racine and Walworth counties (Gateway Technical College website, 2011).

Likert scale: Psychometric scale commonly used in questionnaires.

Mixed-method research: Research methodology that focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study (Cresswell, 2003).

School-to-Work Opportunities Act: Federal legislation that allows for the development of School to Work opportunities systems in all states (U.S. Congress, 1994).

Shifting Gears: An initiative that supports state policy efforts that are designed to improve pathways for lower-skilled adults to progress in the education pipeline from adult education and non-credit short-term training to postsecondary, credit-based education.

Tech Prep: Program of study established under the Carl D. Perkins Vocational and Technical Education ACT of 1998 (U.S. Department of Education, Office of Vocational and Adult Education, 1999).

Technology: Knowledge, innovations, scientific discoveries, and tools that people use to expand their abilities and accomplish job functions or tasks (Dugger, 2001).

Technology Education: Field of study including the disciplines of manufacturing, construction, transportation, and communications (Starkman, 2003).

Technologically literate: Able to understand - with increasing sophistication - what technology is, how it is created, how it shapes society, and in turn, how technology is shaped by society. (Gomez, 2002, p. vii).

Qualitative Research: Open-ended information gathered through interviews with participants (Cresswell, 2003).

Quantitative Research: The systematic investigation of quantitative properties and phenomena and their relationships. (Hunter & Leahey, 2008).

Wisconsin Education Association Council: The state teachers' union representing secondary and postsecondary instructors in selected regions of the state (WEAC website, 2011).

Wisconsin Technical College System: WTCS serves as the state governing body for Wisconsin's 16 technical colleges (WTCS website, 2011).

Youth Options: State program that allows public high school juniors and seniors to take postsecondary courses at a UW institution or a Wisconsin technical college (DPI brochure, 2005).

Conclusion

President Obama has set a national priority for increasing the number of college graduates by five million by the year 2020. A key strategy identified by the United States Department of Education, Office of Vocational Education is the expanded role community and technical colleges play in developing transition programs including career pathways between high schools and colleges (B. Dan-Messier, personal communication, February 20, 2011). In 2010, the United States Department of Labor announced a two billion dollar investment in community and technical colleges to develop innovative models addressing workforce training including transition pathways and portable industry credentials.

An identifying and quantifying instructor opinion was critical for the administration at Gateway Technical College to respond in effective ways to the changing needs of students and the regional workforce. The design of this study drew upon current instructor experience and programs that exist within the Gateway District. The findings serve as a guide to the quality improvement processes necessary for organizational success in the alignment between secondary and postsecondary programs within the Gateway District.

Gateway Technical College, in an effort to align programs and services with regional workforce needs, has positioned programs to expand in three critical industry sectors previously identified by regional workforce and economic development organizations. A student-centered system of program alignment is needed to ensure value-added student transition opportunities from high school to Gateway. This mixed-method qualitative and quantitative study was designed to assess the professional

opinions of instructors through an individual survey instrument. The responses and findings were correlated and presented to Gateway Technical College's administration and board of trustees.

Positioning Gateway as a key facilitator for youth transitioning to college has been defined by all three regional workforce development organizations as a community need. If Wisconsin's high schools graduated all of their students ready for college, the state would save approximately \$86.2 million a year in technical college remediation costs and lost earnings (Alliance for Excellence Education, 2006).

This study provided valuable findings on how Gateway Technical College might improve the transition skills and experience from high school to college through the observed opinions of Gateway's instructors.

The results of this study were used to improve the understanding of critical transition strategies including articulation, youth options and credit transfer by Gateway instructors. Gateway administration gained important insight through the expressed opinions of their instructors on the value and need for program alignment in manufacturing, engineering and transportation programs.

Chapter Two

Literature Review

Introduction

The purpose of the study was to analyze professional opinions, uncover guiding principles, and make recommendations for the Gateway Technical College administration regarding the alignment between secondary technology education programs and Gateway Technical College's manufacturing, engineering, and transportation programs.

Quality has become an issue in all areas of education. A collection of student opinions creates an institution's reputation for service quality (Herman & Altman, 1998). Therefore, it is important to understand the professional opinions of postsecondary education professionals as a primary driver for quality in programming. It is important for the administration at Gateway Technical College to understand the opinion and perceptions of the postsecondary education professionals served within the district. A complete understanding of curriculum alignment will ultimately provide higher quality curriculum development and more effective student transfer practices. The literature provides a background and history of alignment of secondary and postsecondary curriculum important to identify current trends and impacts of instructor opinions. Information collected adds to the knowledge base within the disciplines of technology education and engineering education specifically in areas of curriculum, articulation, and program alignment. The study also supports the broader base of knowledge and research related to transition services for youth and adults in the field of career and technical education.

Background

Barriers to the recognition of transfer credits between different types of institutions pose challenges to students and prevent institutions from measuring capacity (Spellings, 2006). The transformation of the world economy increasingly demands a more highly educated workforce with postsecondary skills and credentials (U.S. Department of Labor Monthly Review, 2005).

Not surprisingly, the consequences of substandard preparation and poor alignment between high school and college persist in colleges. It is estimated that nationally 40 percent of all college students are required to take at least one remedial course (Breneman & Costrell, 1998). At Gateway Technical College, 32 percent of all incoming first year students take at least one remedial course, and 31 percent of incoming manufacturing, engineering, and transportation first year students take at least one remedial course (WTCS Annual Report, 2008). Evidence suggests that the amount of remedial preparation required by students prior to entering into manufacturing, engineering, and transportation programs is important in understanding the individual perceptions or judgments of professional curriculum alignment.

Development of Perceptions

Attitude is a way of thinking. Knowledge precedes thoughts. People develop their attitudes from patterns of adapted thoughts, through the acquisition of knowledge judged by their conscience and based on their decisions, whether consciously or unconsciously (Olorunleke, 2010). Attitude can be described as a mental position or feeling with regard to a fact or state, often in relation to something else (Webster, 2011). Studies of social power have for the most part focused on descriptions of power

structures with sociological or psychological correlations of social power at some given point in time. Social power is described as an individual's potential for influencing another person's given direction (Levinger, 1980). Power is a measure of an entity's ability to control their environment, including the behavior of other entities. The use of power need not involve coercion (force or the threat of force). In his book *Understanding Organizations*, Handy makes a distinction between power and influence—the means by which power is used (Handy, 1993). In the corporate environment, power is often expressed as upward or downward. With downward power, a company's superior influence subordinates. When a company exerts upward power, it is the subordinates who influence the decisions of the leader (Greiner & Schein, 1988). Gaining insight to the perceptions of postsecondary instructors on secondary technology education may provide insight to the psychological social power or influence teachers have toward transition services for youth between high school and college.

Measuring perceptions is critical to improved data analysis (Arcaro, 1995). Increased state and federal accountability is required to maintain support for public education. The strategy for the collection and use of data should be to recognize the complexity of higher education and have the capacity to accommodate diverse consumer preferences (Spellings, 2006).

Gateway Technical College is not unlike many two-year community and technical colleges in terms of secondary and university perceptions regarding program quality. Programs and initiatives that blend career and technical education with rigorous academic coursework are providing students with increasingly advanced sets of pre-college

learning experiences. Community colleges must be ready to meet these students' needs and help them attain their educational and career goals. (Dare, 2007)

This study addressed the factors that influence what postsecondary teachers believe they have in secondary technology education program alignment. Success in delivering a transition program will be dependent on the perception of the faculty involved in designing and aligning curriculum.

Total Employee Involvement

Gateway Technical College uses a Policy Governance model of leadership. Policy Governance is an integrated set of concepts and principles that describes the job of any governing board (Carver, 2010). It outlines the manner in which the board can be successful in their servant-leadership role, as well as in their relationship with management. Policy Governance provides for a monitoring and accountability system that will benefit from this study with the results having an impact on all Gateway Technical College employees. Increased knowledge of the factors that influence program alignment has the potential to increase the number of students entering and successfully completing programs in manufacturing, engineering, and transportation. Enrollment is one of the college's success indicators for program accountability. Increasing enrollment provides increased state aid to support college operations and generates positive revenue. The Gateway Board of Trustees has in place a board policy that guarantees the accountability of Gateway Technical College. Policy 4.4 states, "Gateway provides academic programs and services that meet the current and future postsecondary technical education needs of our tri-county community and assists in the preparation and transition of all learners" (Gateway Board Governance Manual, 2010).

The study directly involves a selected subset of Gateway Technical College instructors from the manufacturing, engineering, and transportation programs. The results are specific to instructors in those areas but provide important insight to the culture of other related programs.

Transitions from Secondary to Postsecondary

Founded in 1908, the National Governors Association (NGA) is the collective voice of the nation's governors. In the NGA's 2006 report *Innovation America: A Compact for Postsecondary Education*, accountability is identified as playing a vital role in developing a framework conducive to communicating to all stakeholders and the public at large when the system meets, exceeds, or falls short of its goals. The study provides a comprehensive analysis of the education community most directly impacted by the results. It is imperative that stakeholders are involved in the development of programs and are accountable for the delivery of results. The study is designed to provide insight leading to recommendations toward improving the alignment of manufacturing, engineering, and transportation programs through open communications and common understanding.

The Association for Career and Technical Education (ACTE), on behalf of career and technical education professionals in the United States, advocates for clearly focusing American high schools on the goal of preparing every student for full participation in a spectrum of college opportunities (*Reinventing the American High School*, 2006).

Understanding the transition problems at the national, state and local levels is dependent on the clarity and quality of the curriculum development process (Mills, 2000).

As educators we are involved frequently in designing, implementing, and teaching courses for somebody else's children. In such instances, it may be easier for us to be satisfied with less than the best. Often standards, quality, expectations, and results of alternative programs are not as high as those we'd want for our own children. In fact, most of us still cling to the dream our parents held – a college education for all our children. (Hull, 1992)

In a speech delivered to the Senate Labor and Human Resources Committee on April 24, 1997, Department of Education Vocational and Adult Education Assistant Secretary Patricia McNeil stated: Federal investment has always been an important catalyst for institutional change—from the Land Grant College Act in 1862 to the Smith-Hughes Act of 1917 to the Elementary and Secondary Education Act of 1965. With the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, Congress began to make some changes in vocational education designed to respond to the societal and economic conditions.

During the last thirty years, the workforce has changed dramatically, demanding that all students' complete high school possessing a core set of academic skills needed for postsecondary education and high wage jobs. Ensuring that students' transition from secondary to postsecondary education is successful has therefore become especially important.

Some high schools have embraced new strategies such as career academies and charter schools to address the need to link education and career pathways. While many high schools have demonstrated progress, the national effort has not been enough to change the new economic realities. Over 90 percent of students want to pursue college

after graduation, and 67 percent actually enroll in college (U.S. DoE, 2003). Only one-third of high school students take a high school curriculum that prepares them for college level work. A new approach is necessary that can improve high school academic preparation and draw upon the strengths of community and technical colleges to create high quality career pathways. As technological advances and economic globalization have taken hold in the United States, the necessary elements for regional success will thrive or decline based on how well they cultivate “knowledge workers” – individuals who have postsecondary education credentials, technical savvy, the ability to learn rapidly, and an entrepreneurial approach to employment (Jenkins, 2006). The simple and challenging vision of the Secondary and Technical Education Excellence Program is that every youth will complete high school with the academic knowledge and skills needed to make a successful transition to postsecondary education without remediation (D'Amico, 2003).

Secondary and Postsecondary Articulation

Secondary and postsecondary academic and vocational integration, like any major curricular approach, can be accomplished in a variety of ways and to varying degrees. It promotes learning in a manner that reflects the challenges faced by students when they enter the world outside of school. The way in which problems are presented, the situations students will face, and the skills needed to solve those problems closely model expected behaviors in the adult world. Students are more secure in learning as a result of being able to see the connections between school activities and their non-school lives (Westberry, 1997).

Each year, more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion, the number of traditional jobs shrink, and new jobs demand greater sophistication and preparation (National Commission on Excellence in Education, 1983).

Aligning curriculum between secondary and postsecondary programs provides for enhanced opportunities to articulate credit transfer. Articulated curriculum combines a common core of learning with technical education (Hull, 1992). Articulated secondary and postsecondary programs eliminate duplication, provide college credit for comparable high school courses, and provide a strong foundation for career-based programs of study.

The development of programs of study is essential to the advancement of career and technical education (Bray, 2010). Programs of study are based on the alignment of courses between secondary and postsecondary institutions. A program of study is a sequence of instruction based on recommended standards, knowledge and skills, consisting of coursework, co-curricular activities, work-site learning, service learning, and other learning experiences (Westrich, 2010). Building systems based on programs of study and career pathways that lead to industry-recognized credentials are critical to improving America's workforce (Oates, 2010).

The use of emerging programs of study that focus on transitions from secondary to postsecondary create a unique opportunity for education today. The adoption and implementation of the framework continues to increase across the country and internationally as a tool to organize planning, preparation, and transition (Folkers, 2010).

The study of one example of a program of study, Kenosha Unified School District's LakeView Advanced Manufacturing Technology Academy (Lake View),

demonstrates the strengths of program alignment. LakeView programming is not only aligned with Gateway Technical College programming but it is also delivered by Gateway Technical College instructors. Students enrolled in technical courses at LakeView receive articulated postsecondary transcribed credit. A student completing a complete sequence of LakeView courses will earn eighteen to twenty-six college credits while in high school.

Kenosha Unified School District reported that in 2008-09, LakeView students finished with the highest Wisconsin Knowledge and Concept exam scores for all Kenosha schools. This accelerated proficiency in reading, math, science and social studies, according to Dr. Scott Pierce, retired Kenosha superintendent, is directly related to the program alignment with Gateway's college courses. Gateway's effort to align programs through tech prep articulation is intended to increase the academic success of high school students as well as position secondary career and technical education programs with postsecondary options (S. Sklba, personal communication, May, 5, 2006). On January 21, 2011 Greg Wright, Director of Career and Technical Education for Kenosha Unified School District states, "The challenge we face is replicating this effort in the other high school throughout the Kenosha Unified."

Another example of program alignment between Kenosha Unified and Gateway Technical College is in the field of automotive education. The following curriculum map (Figure 1.0) shows how the alignment between Kenosha Unified and Gateway Technical College leads to advanced education and credit transfer opportunities for students

Block	Freshman – 1 st Qtr	Freshman – 2 nd Qtr	Freshman – 3 rd Qtr	Freshman – 4 th Qtr
1	Communications 9		Math 9 – Options	
2	Science 9 – Options		Elective	
3	Elective		Social Studies	
4	Phy Ed/ Elective	Elective	Elective	Phy Ed/ Elective
Block	Sophomore – 1 st Qtr	Sophomore – 2 nd Qtr	Sophomore – 3 rd Qtr	Sophomore – 4 th Qtr
1	Communications 10		Math 10 – Options	
2	Science 10 – Options		World History	
3	Auto Tech 1 Course #870310		Elective	Consumer Auto and Car Care
4	Physical Education	Health	Health	Physical Education
Block	Junior – 1 st Qtr	Junior – 2 nd Qtr	Junior – 3 rd Qtr	Junior – 4 th Qtr
1	Science 11 – Options		Social Studies - Options	U.S. Government & Politics
2	Phy Ed/ Elective	Elective	Elective	Phy Ed/ Elective
3	Elective		College Technical Math 1A T,Th , 9 weeks, 3 Cr 804-113	College Technical Math 1B 2 Cr 804-114
4	KUSD Auto Tech 2 Course#870410 (Auto Mechanic Fundamentals & Service References) 602-148 3 credits – ARTICULATED OR TRANSCRIPTED		Auto Brakes Course #602-144 M,W,F, 12 weeks Double Block, 4 Cr, 12-3 p.m. Auto HVAC Course #602-150 M,W,F, 6 weeks, Double Block, 2Cr, 12-3pm	
Block	Senior – 1 st Qtr	Senior – 2 nd Qtr	Senior – 3 rd Qtr	Senior – 4 th Qtr
1	Humanities/Electives	Humanities/Electives	Humanities/Electives	Humanities/Electives
2	Science 12 – Options	Science 12 – Options	Social Studies – Options	Technology – Options, Youth Apprenticeship Youth Options, KUSD Offerings
3	Written Communications I T, Th, 9 weeks, 3 Cr 801-195	Technical Reporting T, Th, 9 weeks, 3Cr 801-197	Contemporary American Society / Multicultural 3 Cr 809-197	Intro to Psychology 3 Cr 809-198
4	Auto Steering & Suspension M,W,F, 8 weeks, Double Block, 3 Cr, 12-3pm 602-146	Auto Under Car Simulation M,W,F, 15 weeks, Double Block, 4Cr, 12-3pm 602-154		Auto Engine Performance I M,W,F, 12 weeks, Double Block, 4Cr, 12 -3pm 602-142

Taught at high school
 Taught at high school
 Taught at high school or GTC
 Transportation Academy Courses Taught by GTC

Figure 1.0. Automotive Career Pathway Map between Kenosha Unified School District and Gateway Technical College.

Tech Prep

Technical preparation, commonly referred to as Tech Prep, has a history that dates back to the early 1990's and was founded on the challenge that faced our nation. The challenge was that less than one-third of American youth would receive a baccalaureate degree and that the workforce of the world economy demanded a greater focus on technology and technical skills (Hull, 1992). Rewarding careers are also available for technicians who complete associate degree programs in engineering, business, information technology, health, manufacturing, and human services areas. The education programs that prepare youth for such careers are referred to as Tech Prep/Associate Degree programs, aligning instruction in high school with that offered in two-year colleges.

In the early 1980s, a new vision for vocational education emerged called the Tech Prep Associate Degree (CORD, 1999). Tech Prep programs target the middle quartiles of the typical high school student body in terms of academic talent and interest. Tech Prep draws a focus on occupations requiring some education beyond high school but not necessarily a baccalaureate degree.

"Excellence in education is inevitably linked to the larger issue of human resource development in our country. If we do not know how to seek the best in all our citizens and to fully utilize our human resources, we become a wasteful society regardless of what we do elsewhere" (Parnell, 1986). Curriculum alignment through Tech Prep builds a bridge between educational systems and provides clear expectations for students making the transition from secondary to postsecondary education.

Tech Prep is a significant aspect of career and technical education and was authorized by Congress with the passage of the Carl D. Perkins Vocational Applied Technology Education Act Amendment of 1990, which specified Tech Prep initiatives under Titles II and III of Public Law 101-392. The concept was initially discussed during an American Vocational Association (AVA) workshop symposium in 1983 (Bottom, 1994).

Dale Parnell has been credited for coining the term Tech Prep associate degree in his book, *The Neglected Majority* (1985). The Tech Prep associate degree concept according to Parnell (1985), is essentially a new approach to vocational education and is designed to integrate academic subjects (i.e., mathematics and science) with vocational-technical education subjects (i.e., engineering, applied science and mechanical subjects).

The Tech Prep concept is further described by Bragg (1995) as combining: academic and occupational oriented education, using applied academics or other approaches to curriculum integration. Tech Prep also requires formal articulation between secondary and postsecondary institutions, ensuring that the last two years of high school are connected programmatically to two years of college leading to an associate degree. (p. 91).

Hull (1992) noted that articulation is a process, an attitude, as well as a goal: As a process, articulation is coordination of policies and practices among sectors of the education system to produce a smooth flow of students from one to another. As an attitude, it is willingness of educators in all sectors to work together to transcend the individual and institutional self-interest that impedes maximum development of the

student. As a goal, it is the creation of an educational system without artificial divisions. (p. 18). Other researchers have expressed similar thoughts about the Tech Prep concept, including their beliefs that many students need a vocational education that is integrated with an academic college preparatory curriculum and designed to prepare them to be successful in two-year technical educational programs (Gray, Wang, & Maliza, 1995).

The International Technology and Engineering Education Association (ITEEA) and its *Technology for All Americans* project developed standards for technology literacy that define what students should know and be able to do in order to be technologically literate. Technological literacy enables people to develop knowledge and abilities about human innovation in action (ITEEA, 2000). Technology education as a discipline in our public schools develops content connections with other fields of study in grades K-12. Integrating disciplines of science, technology, engineering, and mathematics (STEM) prepares knowledge workers equipped to participate in the global economy (STEM Education Coalition, 2007).

Tech Prep, while supporting the integrated curriculum approach of technology education and science, technology, engineering, and math (STEM), has a specific focus on aligning disciplines between secondary and postsecondary programs. Some secondary schools are experimenting with integrating engineering into their curriculum. While teachers can present content with computers, material is not taught exclusively through the use of computers. Students need to be given exposure to the creative nature of engineering through design projects, hands-on laboratories and open-ended problem solving (Sherrard & Jenison, 1996). Most community and technical college programs

dedicated to training technicians do not currently teach advanced problem-solving skills because the students they receive are generally deficient in the basic academic skills in math, science, and engineering (Hull, 1992).

Many students find engineering schools intimidating because they enter college not understanding what engineering is and have to enter with their major listed as “engineering undecided” (Hendrick, 2002). The need for courses that stimulate interest in careers in engineering and technology has been apparent since the mid 1980s. The 1995 *Grinter Report* (Grinter, 1995) led to a curriculum swing from practical engineering base to a scientific base with more emphasis on theoretical approaches and less emphasis on the “machinery” of engineering (Sheppard & Jenison, 1996). Colleges and universities soon realized there were better ways of teaching students. The transition between high school and college should be developed into a seamless operation to significantly increase the success of students (Gomez, 2004).

Engineering and technology education make a contribution to the high school curriculum by providing an opportunity for students and teachers to link content together and apply it to solve problems. Many colleges are still not attracting and retaining students in engineering programs. “Too many students become discouraged in the first few terms of an engineering curriculum and because of inadequate exposure to engineering many switch out of engineering” (Sheppard & Jenison, 1996). Working with college students in the ME99 course at Stanford, a mechanical dissection course sponsored by the National Science Foundation, it was realized that early exposure to engineering should start well before the freshman year in college (Sheppard & Tsai,

1992). “For industries, including manufacturing and technology, current and future labor shortages stem from the fact that their workforces are getting older” (Challenger, 2003, p. 3). It is a critical issue with many U.S. companies who fear the country is giving away its tech jobs (Bjorhus, 2002). “In a world economy willingness to work and attitude is no longer a defining element. Having a technically skilled workforce is the new requirement that separates companies in a global economy” (Pinchuk, 2009).

This study demonstrates the need to align secondary technology education programs that integrate mathematics, science, and technology with postsecondary training programs that teach technical workplace competitiveness. This integrated alignment approach is demonstrated at a national level by Project Lead the Way (PLTW). PLTW is a rigorous four-year program of honors level math, science, and engineering, culminating in at least pre-calculus and advanced science classes, along with an intensive hands-on collaborative engineering project. The curriculum is produced by Project Lead the Way, Inc., a fifteen-year-old, Clifton Park, New York, based non-profit organization dedicated to increasing the number of American college students who study and ultimately work in engineering fields.

The program, delivered through technology education at the secondary level, and articulated into postsecondary engineering related programs, has grown to include 3,500 secondary schools and 350,000 students nationwide in 2010. Table 1 represents Gateway Technical College’s PLTW course credit transfer through Tech Prep articulation agreements.

Table 1

Project Lead the Way Articulation

<i>GATEWAY PROGRAM</i>	<i>PROJECT LEAD THE WAY</i>
Biomedical Engineering	6 program credits
Civil Engineering	2 program credits
Electrical Engineering	4 program credits
Electronic Technician	4 program credits
Mechanical Design	4 program credits
Mechatronics	8 program credits

Conclusion

The culture of public education does not fully embrace change as it relates to student and credit transfer. This study identified several barriers to change; the most relevant being the need to establish quality practices that can be embraced to assure personal satisfaction by the classroom teacher. Culture change is the natural outcome of the establishment of quality practices (Brunetti, 1993).

As the general public becomes more knowledgeable of the systems embedded in public education, expectations become greater and more complex (B. Grover, in a speech to the Wisconsin Technical College Presidents, Fall 1998). Conceptual thinking about quality is a shift in paradigm of educational attainment. The quality of public education is measured in many ways; e.g., by student achievement, graduation rates, academic test scores, and standardized tests, which often define success in our schools (Benson, 2000).

Quality-driven organizations continue to engage in a life of perpetual change. By evaluating the professional opinions of postsecondary instructors, information can be gathered, analyzed and shared and may lead to improvements in alignment and direct enrollments in key industry sectors throughout southeast Wisconsin.

As stated in its mission and vision, Gateway Technical College embraces a culture of quality improvement and community support. Gateway's *Vision 2012* was established in 2006 at the time the community was assessing the college's expanding role in economic and workforce development. *Vision 2012* states, "We will find those areas in which we can create that critical degree of success that will change the state of Gateway Technical College." It goes on to state that Gateway Technical College will "Lead our community in education, training and economic development." Embracing a quality improvement philosophy adds to the importance of this study. Historically, education reform efforts such as tech prep have had varying degrees of success and acceptance by teachers. Results of this study add to the professional base of knowledge within the field of career and technical education. Recommendations provided are evidence-based and enhance the systemic reform efforts to improve student transition between secondary and postsecondary programming in the fields of engineering, manufacturing, and transportation within the Gateway Technical College service area.

Chapter Three

Methodology

Introduction

In this chapter, the methodology used to conduct the study will be explained, and the survey and focus group instruments will be detailed. The strategy for selecting a mixed method single study approach and the statistical methods used for this study will be defined.

The purpose of this research is to describe the opinions of Gateway Technical College instructors regarding secondary and postsecondary program alignment. Due to the ethical nature describing public opinion, a mixed method research design was used. Mixed method is an approach that combines the collection and analysis of quantitative and qualitative data. While it is important to use ethical judgment in selecting and categorizing the survey clients, this study had little ethical impact on the participants.

Mixed Method Study Design

Mixed methods research provides strengths that offset the weaknesses of both quantitative and qualitative research (Jick, 1979). Mixed methods research is “practical” in the sense that all methods are available to the researcher. It is also “practical” because it combines numbers and words thus supporting both an electronic survey and focus group data collection methodology.

Mixed methods research is designed with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and

quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell, 2003).

The intent of the research was to better understand the status and make recommendations as to the future direction of aligning secondary and postsecondary programming within the Gateway Technical College District.

Quantitative and Qualitative Research

A mixed method combining quantitative and qualitative data collection was well suited for this study because of the social science nature of the data collected. In many ways, social sciences quantitative research relates to empirical methods, originating in both philosophical positivism and statistical analysis (Hunter & Leahey, 2008).

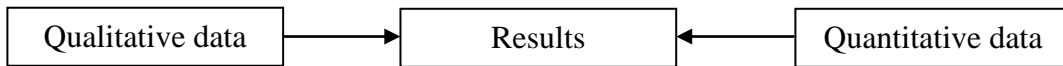
Quantitative research starts with the collection of data that is based on a hypothesis before the data recording takes place (Muijs, 2004). Quantitative opinion surveys are often reflected in the media through open-ended opinion surveys such as election polls. In opinion surveys, respondents are asked a set of structured questions and their responses are tabulated, and conclusions are drawn from the data in relationship to the hypothesis. Quantitative research is, “Explaining phenomena by collecting numerical data that are analyzed using mathematically based methods, in particular statistics” (Aliaga & Gunderson, 2002).

Qualitative research includes analysis of data that is closed-ended information found on attitude, behavior or performance instruments (Neill, 2007). Qualitative research consists of an investigation that seeks to answer questions. Qualitative research is especially effective in obtaining culturally specific information about the values, opinions, behaviors, and social contexts of particular populations. Qualitative methods are also effective in identifying intangible factors, such as social norms, socioeconomic status, gender roles, ethnicity, and religion.

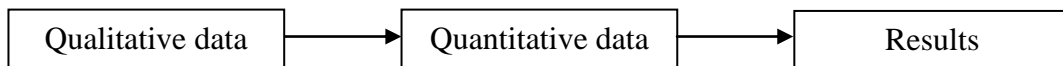
When used with a quantitative method, qualitative research can help to interpret the complex reality of a given situation, and the implications of quantitative data (Bernard, 1995). The open- versus closed-ended nature of the data differentiates between the two types better than the source of data.

The mixing of data is a unique aspect of mixed method research. By mixing the datasets, the research provides a more comprehensive understanding of the problem than if either method were used independently. There are three ways in which mixing data occurs: merging datasets by bringing them together, connecting the two datasets by having one build on the other, or embedding one dataset within the other so that one type of data provides a supportive role for the other dataset (Cresswell, 2003). Figure 2.0 visually depicts the different mixed method approaches. This study merged survey data with focus group data.

Merge the data:



Connect the data:



Embed the data:

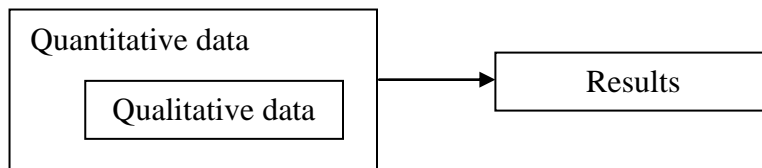
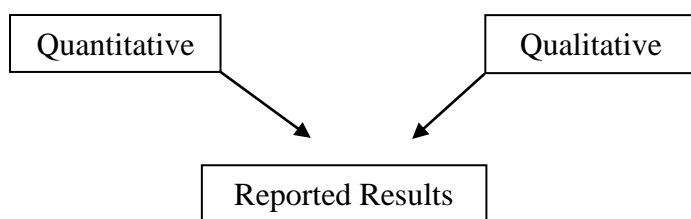


Figure 2.0. Three ways of mixing quantitative and qualitative data (Cresswell, 2003).

Mixed methods may also involve collecting and analyzing qualitative and quantitative data within a single study or within a multiple study. The difference between a single study and multiple studies is depicted in Figure 3.0. A single study methodology was used to extract the results of this research.

Single Study:



Multiple Studies:

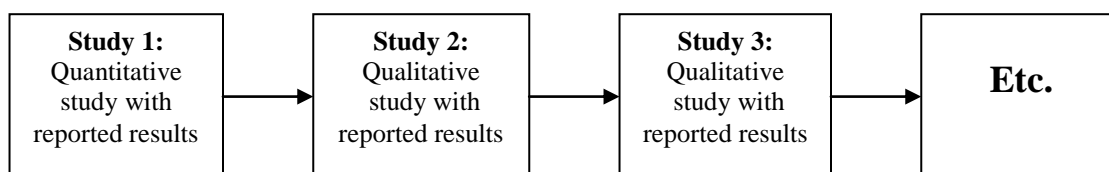


Figure 3.0. Single and Multiple Study Mixed Methods Research Models (Cresswell, 2003)

Research that collects data using a quantitative survey instrument which is followed with interviews of a few individuals who participated in the survey to learn more about their survey responses has a higher correlation of fact (Creswell, 2003). The data collection design consisted of a ten question electronic survey of Gateway Technical College instructors' opinions on alignment of secondary and postsecondary programming.

A five point Likert scale was used to assess value to the participants' responses. Survey questions designed using Likert scales comprised of purposefully vague quantifiers to generate relative frequencies that incorporated evaluative information from

the participants (Schaeffer & Presser, 2003). Therefore conclusions about group differences may vary depending on the examination of relative frequencies (Schaeffer, 1999). All points on the Likert scale questions were given labels, as this produces more reliable measurements (Alwin & Krosnick, 1991). When responding to a Likert questionnaire item, the respondents specify their level of agreement to a statement. A Likert response scale of strongly agree, agree, undecided, disagree and strongly disagree was used. Psychophysical studies have advised to use five to nine categories (Miller, 1956). Alwin & Krosnick (1991) found that reliability of individual rating scales increased as the additional categories were added, except that the reliability was greater with two than with three categories. The survey also included five demographic questions for comparison data.

Demographic data was important to quantify the results according to the categories of age, gender, highest level of education attainment, related industry work experience and occupational certification. This analysis added contextual information that allowed for additional comparisons of the opinions of Gateway instructors based on instructor profiles.

A focus group session was held to further investigate the opinions expressed in the electronic survey. A theoretical model was used to describe the correlation of participants' responses.

Complete confidentiality was built into the design as well as a process to identify, select, and conduct the survey necessary to complete this study. The design establishes a

high level of quality in ensuring the University of Minnesota Institutional Review Board (IRB) requirements.

While this study had minimal risk to human participants, risks have been identified that may influence a participant's professional experience. These risks were offset by benefits that will be shared at both the beginning and the end of the survey and focus group process with each participant. Following the research, a published document reflecting the results of the study and the opinions expressed in the research was available to the public with the intent to provide insight for educators and administrators on the importance of postsecondary instructors' opinions on secondary and postsecondary program alignment.

The information gathered served as a base to establish broad recommendations to organize the profession and align services of Gateway Technical College to support the needs of postsecondary education professionals.

Survey Approach

Survey-based research provides investigators a way to obtain and validate knowledge. This strategy takes information from a selected group of participants and utilizes the data to authenticate or disprove theories. Newstead et. al (1996) proposed a succinct outline that defines how surveys are used to form the concepts that are the constructs of interest to researchers: observed responses become data on single questions; these questions are then aggregated into scales; the appropriate numerical formulas are applied to these numbers; and the results of these formulas lead to conceptual representations of what has been measured. According to Schaeffer and

Presser (2003), a survey is a distinct genre of interaction with unique rules that share many features with ordinary interaction because, “Social and conversational norms as well as processes of comprehension, memory, and the like are imported into the interview from the situations in which they were learned and practiced.”

The survey approach was selected for this study because surveys allow the researcher to determine the values and relations of variables and constructs provide responses that can be generalized to other members of the population studied and to other similar populations, and permit theoretical propositions to be tested in an objective fashion (Newstead, Huff, & Munro, 1998). A survey based approach allowed for all Gateway Technical College manufacturing, energy and transportation instructors to serve as part of the of the study group allowing input as to their opinions on secondary and postsecondary program alignment.

The survey included ten study questions designed to measure the survey participants’ opinions on the alignments between secondary and postsecondary programming. A five point Likert scale was used to measure and quantify each response. There were also five demographic questions that identify the age, gender, educational attainment, related work experience and occupational certifications. These questions provide the only demographics used in the analysis to determine if there were any correlations between them and the perceptions identified with the rest of the statements in the instrument.

The ten items of the instrument were disseminated in a random order. By placing the statements in random order, respondents were not able to read similar dimension

statements sequentially, but were required to read each statement as a unique statement. Each of the ten questions also included a comment section allowing the participant to express their opinions in written format if they were inclined to do so. Opinion statements for all respondents were recorded (See Appendix F). Opinion statements were factored into the development of the focus group questions and provided insight to underlining issues and concerns that supported the decision to utilize a mixed method approach of qualitative and quantitative data collection.

Survey Instrument Design

Survey questions are usually structured around questions about events or behaviors and questions that ask for evaluations or attitudes (Schaeffer & Presser, 2003). There are other types of questions on surveys such as demographics or knowledge, however most survey questions are structured around the aforementioned types. Questions for this research were developed over a period of twenty-four months and involved professional stakeholders and related research. The survey questions were also used to define the focus group questions. Focus groups and other developmental interviews can identify the vocabulary respondents' use, that is, they can help investigators map analytic constructs onto native constructs (Schaeffer & Dykema, 2003).

Survey Questions

Ten specific questions were presented in an electronic survey using Survey Monkey. The original questions (other than open-ended comment questions) used for the study were:

1. To what extent should secondary technology education be aligned with technical college programming?
2. To what extent do you support secondary technology education being taught in an 11-14 grade sequence?
3. To what extent should secondary technology education be competency-based for students transitioning to Gateway?
4. To what extent does secondary technology education provide career pathway direction?
5. To what extent do you believe you understand the opportunities for postsecondary articulation with secondary technology education?
6. To what extent do postsecondary credits enhance secondary technology education programming?
7. To what extent are 'Youth Options' courses viable secondary technology education courses?
8. To what extent does secondary technology education align with postsecondary manufacturing, engineering, and transportation program clusters?
9. To what extent do articulated courses increase the recognition of secondary technology education?
10. To what extent is teacher certification a factor in secondary and postsecondary alignment?

Demographic Survey Information

Five demographic questions were used for this study. They were:

Age:

22-36

37-50

51-62

Over 62

Gender:

Male

Female

Educational attainment:

Bachelor's degree

Master's degree

Master's plus credits

Education specialist degree

Doctoral degree

Related industry work experience:

Certified work experience

Voluntary work experience

No industry work experience

Occupational certification:

Hold an industry certification

Hold alternative certificate or license

No additional certification experience

Table 2
Correlation Between Research Questions and Survey Questions

	Research Questions		
	What is the extent of Gateway Technical College instructors' support for secondary technology education program alignment models?	What are the professional opinions of Gateway Technical College instructors concerning the importance of alignment between secondary and postsecondary programs?	Are there differences in Gateway Technical college instructors' opinions between secondary and postsecondary college programs based on selected demographic data?
Survey Questions			
1. Secondary technology education should be aligned with technical college programming.		●	
2. Secondary technology education should be aligned with 11-14 grade pathways.	●		
3. Secondary technology education should be competency-based education.	●		
4. Secondary technology education provides career pathway direction.	●		
5. I understand the opportunities for postsecondary articulation with secondary technology education.	●		
6. Postsecondary credits enhance secondary technology education programming.		●	
7. 'Youth Options' courses are viable secondary technology education courses.		●	
8. Secondary technology education aligns with postsecondary manufacturing, engineering and transportation program clusters.		●	
9. Articulated courses increase the recognition of secondary technology education.	●		
10. Teacher certification is a factor in secondary and postsecondary alignment.			●

Table 2 describes the alignment between the ten survey questions and the three research questions.

Focus Group Instrument

Focus group data collection is a social, semi-public methodology that shapes the data and the purposes that it serves. In a focus group session, conversation among participants results in data. In this way, focus groups elicit information that paints a picture of combined local perspectives (Duncan and Marotz-Baden, 1999). Focus group methods strive for a relaxed, open-ended conversation on a given topic. The moderator uses strategies including reflection, open ended and general to specific questioning. A well-designed focus group assists group members to relax, open up, think deeply, and consider alternatives (Morgan and Krueger, 1997). Table 3 outlines the elements of each of the three focus groups.

Table 3

Elements of Focus Groups

Element	Focus groups
Format	Group session
Size	6-9 per session
Length	1.5 hours
Participants	Selected by invitation
Forms of data	Conversation, silences, body language
Data collection	Audiotape, transcribe
Moderator	Trained facilitator
Format for reporting	Analysis of repeated themes

Focus groups were used to test assumptions derived from responses of the electronic survey.

Design Elements

The study followed the elements required by the University of Minnesota Institutional Review Board. Specific concentration was given to participant confidentiality, recruitment and selection, informed consent, surveying, focus group techniques, and debriefing.

Institutional Review Board Requirements

This study was submitted to the University of Minnesota Institutional Review Board (IRB) for approval on March 31, 2011. Approval was granted on April 15, 2011. The Assurance of Compliance number was FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003). The IRB review included critical scrutiny of the survey document, method of collecting data, study design and methods, focus group procedures, confidentiality assurances and the participation of human subjects (see Appendixes C and D) and issued approval of federal criteria compliance at 45CFR46.111.

Recruitment and Selection of Participants

The researcher, through personal and professional networks, recruited study participants. The selection process took into consideration diversity, age, gender, and education level. The intent was to select as broad of a client base as possible in order to reduce generational and cultural bias. The researcher, in cooperation with the Gateway Technical College human resources department, identified all certified instructors within the manufacturing, engineering and transportation programs at Gateway Technical College, which includes Racine, Kenosha, and Walworth counties.

Informed Consent

According to their website, SurveyMonkey is the “leading survey tool on the web (ranked by Alexa), with over 80 percent of the Fortune 100 companies currently using SurveyMonkey” (SurveyMonkey, 2010). Electronic web-based surveys have distinct advantages including greater response rates, lower cost to administer, faster transmission time and a database of responses can easily be created for complex analysis (Colorado State University, 2010). An electronic survey lasting approximately fifteen minutes was used. Due to the nature of the study, it was imperative to gather data that reflects the opinions of southeast Wisconsin. Candidates were selected from the Gateway Technical College human resources database. It was cross-referenced with the Wisconsin Technical College certification requirements within the program areas designated for the study. The collected data was stored electronically to ensure accurate records. Since the nature of this study is highly dependent on personal feelings and opinions, open and honest communication was essential. The consent statement included the study background, procedures used to collect the data, risks and benefits of the study, and a confidentiality statement. All participants were required to check the consent box in order to advance to the survey. The electronic survey included a pre-developed set of questions to maintain consistency in the data collected. The researcher did not deviate from the questions as part of the analysis. The researcher documented all emailed questions regarding the survey. The record of the survey and survey results were kept secure and on file using only a pre-assigned interview case study number. For confidentiality, all written materials following the interview that contained any identifying information or that

contained direct responses back from the participant were kept confidential. Each participant was provided a written copy of the final report when it was completed. Informed consent approval was submitted to the IRB and approved on March 31, 2011.

Debriefing

A voluntary debriefing session was made available for all participants following the conclusion of the interview/focus group session. The researcher asked the participants if they had any additional issues or questions related to the study, wanted to share any personal experiences, and reflect on the important value of the study to the profession. The researcher again reviewed the confidentiality nature of the written materials collected as part of the interview. This approach was designed to build rapport and continue to build confidence with the participant. It is a researcher's responsibility to reassure the participants of the benefits of participation, check for accuracy and correct any misperceptions and manage possible harm that may have resulted as part of the interview (Eyde, 2000).

The survey was designed based on the research objectives illustrated in Appendix E.

Selection of Subjects

This study was designed to assess the opinions of postsecondary manufacturing, engineering and transportation instructors at Gateway Technical College.

All subjects were Wisconsin Technical College System certified postsecondary instructors currently employed at Gateway Technical College. The qualified candidates included 54 licensed postsecondary manufacturing, engineering and transportation

instructors. Of the 54 surveys issued, 49 were returned. One survey was used as a test and was not included in the results.

Subjects for the focus group sessions were selected to establish a balanced representation by professional certification and demographic characteristics. An invitation letter was sent to 9 subjects representing 3 from each of the three disciplines of manufacturing, transportation and engineering. All subjects were selected by Anne Whynott, Associate Vice President, to ensure consistency with the research objectives.

Procedures

The instrument was designed to measure the opinions of postsecondary manufacturing, engineering, and transportation instructors. Participants' confidentiality was preserved through a formal survey method that had no identifying characteristics on the survey instrument. Since the survey was conducted electronically, additional precautions were taken to secure responses as they were received. All survey responses were sent directly to Anne Whynott, associate vice president for institutional effectiveness at Gateway Technical College through a secure password-protected collection site.

The survey instrument was designed to be web-based so that data could be collected accurately and with a limited time commitment from participants. Upon verification of the survey by Anne Whynott, a test was conducted to verify that the computer systems in the department could easily access the survey collector website.

A total of 54 surveys were sent via electronic mail. A cover letter was attached that described the directions, purpose, confidentiality, security, and survey limitations

(see Appendix B). Participants were given two weeks from May 3, 2011 through May 17, 2011 to respond to the survey. It was important to keep the survey time period short (two week maximum) to ensure that employees focused on the need to complete the survey. After one week a reminder was sent out to encourage those who forgot to complete the survey to do so if they wished. The survey was hosted on the collector website through SurveyMonkey so that a reliable resource could reduce the need for technical support. Results of the data collected went through a statistical analysis using Statistical Program for the Social Sciences version 18 (SPSS). Data for this study was collected, cut, and verified by Anne Whynott.

The survey questions were examined for their distributional qualities to ensure normality. Distributions that are normal produce a skew at or around zero. The existence of positively or negatively skewed distributions tends to reduce reliability of the question and instrument as a whole (Brown, 1997). A descriptive analysis was completed using percentage of respondents in each category.

On May 24, 2011, one week following the electronic survey, a focus group was conducted. Instructors from each of the three disciplines designed within the study were included in the focus group. Participants were selected through an invitation process and included two representatives from each of the three discipline groups for a total of six participants. A trained moderator and assistant managed the focus group session. The focus group session was scheduled for one hour in length. The focus group meeting took place in a comfortable and convenient location on the campus of the instructors. Group dialog was tape recorded along with notes collected by the moderator. The moderator

used predetermined open-ended questions (see Appendix G). A total of four questions were used. Table 4 describes the correlation between the four focus group questions with the three research questions of the study. Focus group discussion was recorded and stored in a secure location. All notes and audio-recorded tapes are considered confidential and will be destroyed following the completion of the study.

Refreshments were available at all group sessions. Each participant also received a ten-dollar gift card as an incentive for his or her participation. Following the group session, letters of appreciation were sent to all participants (see Appendix I).

Table 4

Correlation of Focus Group Questions with Research Questions

	Research Questions		
	What is the extent of Gateway Technical College instructors' support for secondary technology education program alignment models?	What are the professional opinions of Gateway Technical College instructors concerning the importance of alignment between secondary and postsecondary programs?	Are there differences in Gateway Technical College instructors' opinions between secondary and postsecondary college programs based on selected demographic data?
Focus Group Questions			
1. What has been your experience working with high schools within the Gateway district?			●
2. What do you believe are the barriers, if any, between secondary technology education program articulations with Gateway Technical College?		●	
3. What has been your experience with students entering into your courses or program with Gateway Technical college credits earned while in high school?		●	
4. What role do you see Gateway instructors playing in the transition process for high school student attending Gateway Technical College?	●		

Conclusion

Quantitative research explains phenomena by collecting numerical data that are analyzed using mathematical-based methods (Muijs, 2002). Qualitative research is used to gain insight into people's "attitudes, behaviors, value systems, concerns, motivations, aspirations, culture or lifestyles (Ereaut, 2007)." Combining the strengths of each of

these methodologies in a mixed method study provided for a rich collection of data and enhanced the analysis. This study was designed to ask the opinions of Gateway Technical College instructors on key elements of secondary and postsecondary program alignment. Analysis of the responses allowed the researcher to assess what factors influence the likelihood of postsecondary instructors' support for program alignment and make valid recommendations to the administration at Gateway Technical College to improve the quality of students' transition services. Participants were selected from disciplines that complement the researchers' previous study on secondary school teachers' perceptions on alignment and the workforce needs of southeast Wisconsin.

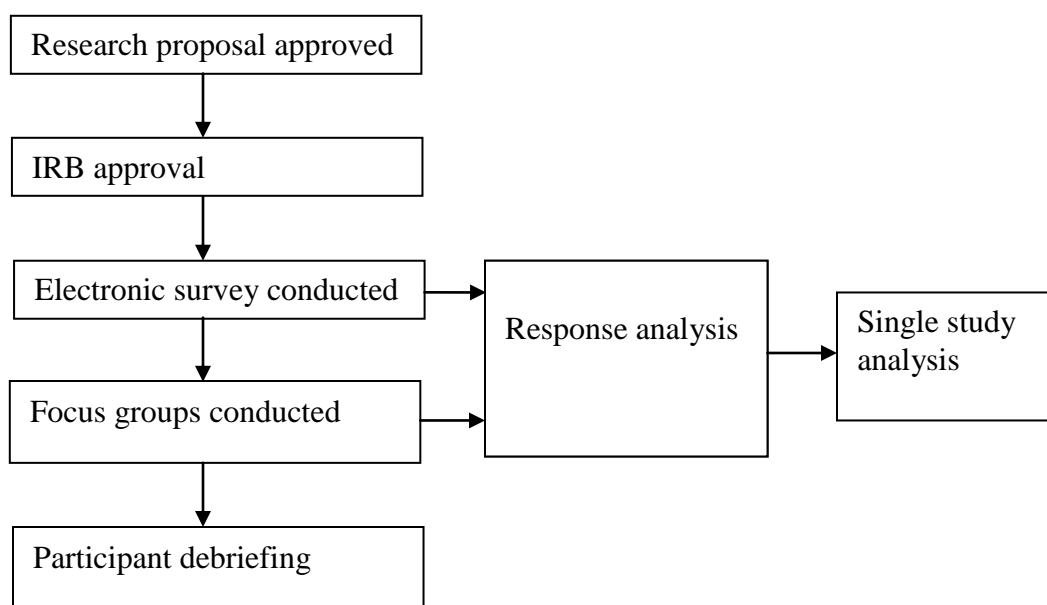


Figure 4.0. Research method procedure flow chart

Chapter Four

Results and Discussion

Introduction

Chapter four documents major findings of the study and presents a broad statistical analysis of the results for each question contained in the survey. Also included in this chapter is an analysis of the focus group results. Both data collection methodologies were used in a single study approach to obtain a perspective of the factors that influence Gateway instructors' opinions on secondary and postsecondary program alignment that was as realistic as possible. A survey was sent electronically to 54 Gateway instructors in the manufacturing, engineering and transportation division. This represented 100 percent of the certified instructors within the division.

Frequency data sets were measured for each of the ten survey questions and five demographic questions. Frequency measures allowed the researcher to assess the impact or strength of the participants as a collective group (see Appendix K). Additionally, cross tabulations were cut for all ten survey questions. Quantitative data was the only data analyzed from the survey. It is important to note that the qualitative comments from participants helped to frame the explanations of their responses and many were included throughout this study. These qualitative components were critically important to the study; however their analysis was outside the scope of this research. The five-point Likert scale was converted into the categories of *strongly disagree*, *disagree*, *undecided*, *agree*, and *strongly agree*. Ajilia and Wu (2007) state that when responses to several

Likert items are summed, they may be treated as interval data measuring a latent variable.

The five-point responses are represented in table format for each question.

Survey Returns

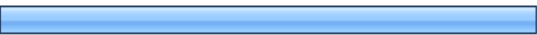
On May 3, 2011, 54 survey instruments were sent by email to all Gateway manufacturing, engineering and transportation instructors. Of the 54 surveys sent, 41 were returned by the closing date for a 76 percent return rate.

The remainder of this chapter section describes the data results for each of the 26 questions included in the survey. Each survey question contained an open-ended follow-up question to allow participants to add comments regarding their personal experience related to the content of the question. All comments were recorded and are available for review in Appendix F.

Survey question #1 was a statement confirming the participants' consent to participating in the confidential survey. All 41 participants consented to complete the survey.

Table 5





Participant voluntary consent

		Response Percent	Response Count
<p>1. Your participation in this research study will remain confidential and be kept secure by the researcher and protected by the University of Minnesota Institutional Review Board requirements. By checking the consent box below, you are voluntarily agreeing to serve as a research subject.</p>			
I consent to participating in this confidential survey.		100.0%	41
		answered question	41
		skipped question	0

Survey question #2 asked to what extent secondary technology education should be aligned with technical college programming. Table 6 shows that 37 or 90.2 percent of the participants agree or strongly agree with the statement that secondary technology education should be aligned with technical college programming. Of the remaining four participants, three disagreed with the statement and one was undecided.

Table 6

Extent that secondary technology education should be aligned with technical college programming

2. Secondary technology education should be aligned with technical college programming.			
		Response Percent	Response Count
Strongly Disagree		0.0%	0
Disagree		7.3%	3
Undecided		2.4%	1
Agree		43.9%	18
Strongly Agree		46.3%	19
answered question			41
skipped question			0





Survey question #3 was left open-ended for comments regarding question #2.

The comments are included in Appendix F.

Survey question #4 asked to what degree secondary technology education should be aligned with 11-14 grade pathways. Table 7 shows that 37, or 90.2 percent, of participants agree or strongly agree that secondary technology education should be aligned with 11-14 grade pathways. Of the remaining four participants, two disagreed and two were undecided.

Table 7

Extent secondary technology education should be aligned with 11-14 grade pathways



4. Secondary technology education should be aligned with 11-14 grade pathways.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		4.9%	2
Undecided		4.9%	2
Agree		46.3%	19
Strongly agree		43.9%	18
answered question			41
skipped question			0

Survey question #5 was left open-ended for comments regarding question #4. The comments are included in Appendix F.

Survey question #6 asked to what degree secondary technology education should be competency-based education. Table 8 shows that 41 or 100 percent of participants agree or strongly agree that secondary technology education should be competency-based.

Table 8

Extent secondary technology education should be competency-based education

6. Secondary technology education should be competency-based education.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		0.0%	0
Undecided		0.0%	0
Agree		41.5%	17
Strongly agree		58.5%	24
answered question			41
skipped question			0





Survey question #7 was left open-ended for comments regarding question #6.

The comments are included in Appendix F.

Survey question #8 asked to what extent secondary technology education provides career pathway direction. Table 9 shows that 32, or 78 percent, of participants agree or strongly agree that secondary technology education provides career pathway direction. Of the remaining nine participants, three disagreed and six were undecided.

Table 9

Extent secondary technology education provides career pathway direction

8. Secondary technology education provides career pathway direction.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		7.3%	3
Undecided		14.6%	6
Agree		31.7%	13
Strongly agree		46.3%	19
answered question			41
skipped question			0





Survey question #9 was left open-ended for comments regarding question #8.

The comments are included in Appendix F.

Survey question #10 asked to what extent the participant understood the opportunities for postsecondary articulation with secondary technology education. Table 10 shows that 37, or 90.2 percent, agree or strongly agree with having an understanding of opportunities for postsecondary articulation with secondary technology education. Of the remaining four participants, two disagreed and two were undecided.

Table 10

Extent to which participants have an understanding of the opportunities for postsecondary articulation with secondary technology education





10. I understand the opportunities for postsecondary articulation with secondary technology education.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		4.9%	2
Undecided		4.9%	2
Agree		46.3%	19
Strongly agree		43.9%	18
answered question			41
skipped question			0

Survey question #11 was left open-ended for comments regarding question #10. The comments are included in Appendix F.

Survey question #12 asked to what extent postsecondary credits enhance secondary technology education programming. Table 11 shows that 34, or 85 percent, of participants agree or strongly agree that postsecondary credits enhance secondary technology education programming. Of the remaining six participants, two disagree and four were undecided. One participant did not respond to this question.

Table 11

Extent to which participants believe postsecondary credits enhance secondary technology education programming





12. Postsecondary credits enhance secondary technology education programming.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		5.0%	2
Undecided		10.0%	4
Agree		45.0%	18
Strongly agree		40.0%	16
answered question			40
skipped question			1

Survey question #13 was left open-ended for comments regarding question #12. The comments are included in Appendix F.

Survey question #14 asked to what extent youth options courses are viable secondary technology education courses. Table 12 shows that 36, or 87.8 percent, of participants agree or strongly agree that youth options courses are viable secondary technology education courses. Of the remaining five participants, three disagree and two were undecided.

Table 12

Extent to which participants believe youth options courses are viable secondary technology education courses

14. 'Youth Options' courses are viable secondary technology education courses.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		7.3%	3
Undecided		4.9%	2
Agree		39.0%	16
Strongly agree		48.8%	20
answered question			41
skipped question			0





Survey question #15 was left open-ended for comments regarding question #14.

The comments are included in Appendix F.

Survey question 16 asked to what extent secondary technology education aligns with postsecondary manufacturing, engineering and transportation program clusters. Table 13 shows that 28, or 70 percent, of participants agree or strongly agree that secondary technology aligns with postsecondary manufacturing, engineering and transportation program clusters. Of the remaining twelve participants, one disagreed and eleven were undecided. One participant did not respond to this question.

Table 13

Extent to which secondary technology education aligns with postsecondary manufacturing, engineering and transportation program clusters

16. Secondary technology education aligns with postsecondary manufacturing, engineering and transportation program clusters.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		2.5%	1
Undecided		27.5%	11
Agree		37.5%	15
Strongly agree		32.5%	13
		answered question	40
		skipped question	1





Survey question #17 was left open-ended for comments regarding question #16.

The comments are included in Appendix F.

Survey question #18 asked to what extent articulated courses increase the recognition of secondary technology education. Table 14 shows that 39, or 95.1 percent, of participants agree or strongly agree that articulated courses increase the recognition of secondary technology education. Of the remaining two participants, one disagreed and one was undecided.

Table 14

Extent to which articulated courses increase the recognition of secondary technology education





18. Articulated courses increase the recognition of secondary technology education.			
		Response Percent	Response Count
Strongly disagree		0.0%	0
Disagree		2.4%	1
Undecided		2.4%	1
Agree		58.5%	24
Strongly agree		36.6%	15
answered question			41
skipped question			0

Survey question #19 was left open-ended for comments regarding question #18. The comments are included in Appendix F.

Survey question #20 asked to what extent teacher certification is a factor in secondary and postsecondary alignment. Table 15 shows that 35, or 85.3 percent, of participants agree or strongly agree that teacher certification is a factor in secondary and postsecondary alignment. Of the remaining six participants, one strongly disagreed and five were undecided.

Table 15

Extent to which teacher certification is a factor in secondary and postsecondary alignment





20. Teacher certification is a factor in secondary and postsecondary alignment.			
		Response Percent	Response Count
Strongly disagree		2.4%	1
Disagree		0.0%	0
Undecided		12.2%	5
Agree		46.3%	19
Strongly agree		39.0%	16
answered question			41
skipped question			0

Survey question #21 was left open-ended for comments regarding question #20. The comments are included in Appendix F.

Survey question #22 asked the participants' age. Table 16 shows 31 of the 41 instructors surveyed fall into two age demographic categories. One participant did not respond to this question.

Table 16



Participants' age demographics

22. What is your age?			
		Response Percent	Response Count
22-36		17.5%	7
37-50		40.0%	16
51-62		37.5%	15
Over 62		5.0%	2
answered question			40
skipped question			1

Survey question #23 asked the participant's gender. Table 17 shows that 35, or 94.6 percent of participants are male; two, or 5.4 percent, are female. Four participants did not respond to this question.

Table 17





Participants' gender demographics

23. What is your gender?			
		Response Percent	Response Count
Male		94.6%	35
Female		5.4%	2
answered question			37
skipped question			4

Survey question #24 asked for the participant's highest level of educational attainment. Table 18 shows that 21, or 53.8 percent, of participants have a bachelor's degree; nine, or 23.1 percent, have a master's degree; seven, or 17.9 percent have a masters degree plus additional credits; and two or 5.1 percent reported having an Educational Specialist Degree. None of the participants reported having a doctoral degree.

Table 18

Participants' highest level of educational attainment

24. What is your highest level of educational attainment?			
		Response Percent	Response Count
Bachelor's degree		53.8%	21
Master's degree		23.1%	9
Master's degree plus additional credits		17.9%	7
Education Specialist degree		5.1%	2
Doctoral degree		0.0%	0
answered question			39
skipped question			2

Survey question #25 asked participants if they had industry-related work experience. Table 19 shows that 39 of the 41 participants reported they had certified industry-related work experience. Two participants did not respond to this question.

Table 19

Participants' related industry work experience

25. Do you have related industry work experience?			
		Response Percent	Response Count
Yes, certified work experience		100.0%	39
Yes, voluntary work experience		0.0%	0
No		0.0%	0
answered question			39
skipped question			2

Survey question #26 asked participants if they held an occupational certification.

Table 20 shows that 32, or 84.2 percent, of participants hold an industry certification; two participants, or 5.3 percent, hold an alternative certificate or license; and four participants, or 10.5 percent, have no additional certification experience. Three participants did not respond to this question.

Table 20

Participants' holding occupational certification

26. Do you currently hold an occupational certification?			
		Response Percent	Response Count
I hold an industry certification		84.2%	32
I hold an alternative certificate or license		5.3%	2
I have no additional certification experience		10.5%	4
answered question			38
skipped question			3

Focus Group Analysis

A subgroup made up of six Gateway instructors were selected at random by Anne Whynott, associate vice president for institutional effectiveness at Gateway Technical College to participate in a focus group. Each of the instructors selected were also participants in completing the electronic survey. Focus group protocol described in Appendix G served as the guide for the facilitator during the focus group session. All participants were asked questions pertaining to their opinions regarding secondary and postsecondary program alignment. Participants were specifically asked about their experience working with high schools, the barriers existing between secondary and postsecondary articulation, personal experience with students entering Gateway, and the role Gateway instructors play in the transition process for high school students.

While many of the discussion guide questions generated mixed responses, there were points of agreement and themes that arose during the focus group.

- There was agreement that personal interaction with high school teachers is extremely important.
- High school students and teachers benefit from college visits.
- *Project Lead the Way* transfer courses are a proven model.
- High school teacher support is dependent on establishing a relationship with college instructors.
- Not all students benefit from transcript credit.
- Special events like career days are helpful.

A complete list of the participants' responses can be found in Appendix H. Focus group responses combined with the survey responses were used in a mixed method analysis resulting in comprehensive recommendations for Gateways' administration to improve secondary and postsecondary program alignment.

Conclusion

This chapter describes the results of the survey and focus group responses. The data collection methodology used was a mixed method including an electronic survey through Survey Monkey and focus group interaction facilitated by Anne Whynott. Mixed case study methodologies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. Robert K. Yin defines the mixed case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 1984, p. 23).

The protocol established for the focus group methodology is described in Appendix G. Data from both collection methods served to provide the researcher insightful evidence. Each set of conclusions contributed to the whole study. The key strength of a mixed method is the multiple sources and techniques used in the data collection gathering process (Hamel, 1993).

The results of the mixed method data collection and analysis are further described in Chapter 5.

Chapter Five

Summary of Results

Introduction

The purpose of this research was to establish professional opinions of Gateway Technical College instructors specifically in the manufacturing, engineering and transportation clusters on program alignment with secondary technology education programs. Upon completion of a review of the literature, a mixed method of study was selected. The methodology included an electronic survey along with a focus group. A mixed method was selected because of the nature of the study and the importance of collecting personal experiential stories from the participants. Once reviewed by the researchers' dissertation committee, a survey was sent to 54 postsecondary instructors at Gateway Technical College.

The purpose of the survey was to acquire information, evaluate opinions, and measure current perceptions and expectations of postsecondary instructors, and to determine differences in individual perceptions based on experience and demographics. It is important for Gateway administration to understand the perceptions of instructors in order to provide appropriate services and professional development for instructors, and ultimately to assist students transitioning from secondary to postsecondary educational programs.

Service quality is one of the measures used to apply customer satisfaction theory (Parasuraman, Berry & Zeithand, 1985). Gateway is currently vested in the Noel Levitz customer service orientation and training. Quality service can be defined as a judgment

about overall excellence of service that contributes to an outcome or development of an attitude.

Faculty perceptions are cognitively based, formed by mental comparisons of gaps on performance or service (Leach & Liu, 2001). Personality factors of perception allow different individuals to respond differently to stimuli based on knowledge patterns, interests, needs, and values (Schiff, 1980). Opinions are difficult to quantify because they are based on individual perceptions and judgments. Evidence suggests that overall professional experience is important and significant when evaluating quality in education (Falkner, 2005).

Professional opinions of postsecondary instructors toward the alignment of secondary technology education programs were discovered by examining factors that impact participants' beliefs and practices. Returned surveys were documented and data were collected and analyzed using SurveyMonkey software. A report of frequency counts and percentages for each question was generated. Information collected was analyzed to determine if there was statistical significance of the perceptions of the participants.

Once the survey results were collected, a focus group was conducted made up of a subgroup of the survey participants. A focus group method was used to draw out in-depth personal experiences of instructors related to the alignment of secondary and postsecondary programming as well as the success or barriers of students involved in the transition process. The focus group participants were selected by Anne Whynott to ensure a cross section of disciplines as well as a diverse range of experienced instructors.

Focus group questions were drawn from an analysis of responses obtained through the electronic survey. A total of four focus group questions were used and can be found in Appendix G.

Results from both the electronic survey and the focus group were correlated to create a single study analysis for each of the three research questions for this study.

While the participant study group is limited in size, and represents a select group of instructors within the Gateway Technical College district, there were limitations within the study.

The researcher serves as the President at the college in which the participants were selected for this study. A limitation is that the researcher is also influential on the instructors in the study.

Another limitation relates to the generalization of responses: opinions expressed by respondents cannot be generalized to all postsecondary instructors across the state of Wisconsin or the United States. Results of this research are confined specifically to that of the Gateway Technical College District.

Due to the nature of this study, participants' risks were minimal. There were no physical, economic, or legal risks associated with this research. Minimal risk is defined by the U.S. Department of Health and Human Services (2011) as, "The probability of magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examination or tests." Participants were kept anonymous to protect individuals and institutions from public exposure.

The psychological risk, while minimal, may result in the possibility of altered self-concept, increased anxiety or loss of confidence in other or government systems due to the nature of the subject matter and the interview. The web-based survey was designed to be open-ended and drew upon emotional experience that could not be perceived at the time of the survey. It is possible that past negative experiences “may re- evoke painful memories or emotional conflicts for participants both during and after the interview” (Hadjistavropoulos & Smith, 2001. p.167). In order to protect the individual against potential risks, participants were offered ample opportunity to withdraw from the study at any time and for any reason (Sieber, 1998). It is also important to debrief at the conclusion of the interview, sharing with the participants “appropriate reassurance and information about normal reactions” (Eyde, 2000, p.63). Rosenblatt (1999) declares that there is nothing more important to protecting the participants’ psychological risks than a sensitive researcher who looks for cues of discomfort and is willing to change the direction or even end the interview if too much harm seems to be taking place.

While this study did not have any direct social risk, it is important to recognize that there have been interchanges between the participants and the researcher. For this reason, it was critical to ensure individual confidentiality. The risks were minimized through the development and use of a consent form (See Appendixes B and C) in which participants were made aware of risks and assured that neither their individual identity nor the relationship to the researcher were jeopardized in any way.

There were three research questions address by this study. Each of the research questions has been restated and conclusions made for each. While not every finding

resulted in a specific recommendation, the study provided a comprehensive review of the philosophical relationships between postsecondary programs and secondary technology education programs.

Results Summary for Research Question 1.

Question 1 asked, “What is the extent of Gateway Technical College instructors’ support for secondary technology education program alignment models?”

The study provided insight to the extent to which Gateway instructors support secondary technology education program alignment through questions #4, #6, #8, #10 and #18. Responses to these questions demonstrate that Gateway instructors value the importance of alignment between secondary and postsecondary programming. While the response rate was high in support of articulation the individual comments demonstrated a lack of confidence in the way secondary technology education is delivered. Specifically, 5 of the 8 comments submitted expressed concern in the way secondary technology education addresses occupational preparation thus potentially limiting the opportunity for close alignment with postsecondary programming. This finding was confirmed during the focus group discussion with one participant stating, “Competency-based for their level of development in this educational process, yes. However, their level is exploratory, so that needs to be accounted for in the competency-based application.”

Survey question #4 reinforced the notion that alignment is important, with 90.2 percent of respondents again agreeing or strongly agreeing with 11-14 grade pathways. The comments provided for this question were clear, stating that alignment was important and that “we need alignment starting at the high schools.” Supporting the importance of

alignment was the 100 percent support for competency-based education. All responding participants agreed that secondary technology education should be competency based.

Survey results show postsecondary instructors are supportive of the need for alignment while less optimistic about secondary technology education providing career pathway direction. Question #8 indicates only 78 percent of participants agree or strongly agree that secondary technology education provides career pathways direction. It was also noted that 14.6 percent of participants were undecided and 7.3 percent disagree that secondary technology education provides career pathway direction. Participants' comments expressed different opinions on what career pathways are and how they might support program alignment.

Responses to question #10 described the understanding of postsecondary instructors regarding articulation between secondary and postsecondary education. Reinforcing the 90.2 percent positive response were comments stating, "I understand some, but some I do not understand. Too many people seem to want to get credit for things ahead of developing that ability. Taking a class in exposure doesn't imply knowledge nor ability. Knowing the how doesn't imply knowing the why. So for cases where the opportunities make sense, absolutely."

Additionally, comments acquired during the focus group interview verified the important role that Gateway instructors play throughout the transition process for high school students choosing to attend Gateway Technical College. One interviewee stated, "High school students visiting Gateway and seeing new labs will make students want to be part of the Gateway experience and help them realize these are high-tech trades."

Another stated, “Recruitment efforts included participating in high school freshmen orientation events. Technical college faculty talked to parents and discussed PLTW courses that should be taken during freshmen and sophomore years in high school, moving Youth Options courses in junior and senior years, and entering the technical college with some postsecondary credits already completed.”

Results Summary for Research Question 2.

Question 2 asked, “What are the professional opinions of Gateway Technical College instructors concerning the importance of alignment between secondary and postsecondary programs?”

Valuing the importance of program alignment was described in questions #2, #12, #14, and #16. Of the 54 participants participating in the survey 90.2 percent indicated that they agree or strongly agree that secondary technology education should be aligned with technical colleges. Supporting the importance of program alignment is the fact that 85 percent of participants agree or strongly agree that postsecondary credits enhance secondary technology education programming. When asked to what extent “youth options” courses are viable secondary technology education courses. The responses varied but still demonstrated a strong agreement, with 87.8 percent agreeing or strongly agreeing that youth options courses add value to secondary technology education programming. One participant wrote “Youth options provide students the opportunity to take classes at the next level, taught at that level, and with the expectations associated with that level. If the youth options class educational level is brought down below the level expected in order to showcase enrollment, then they are not viable and do not help

the educational process.” It was noted that 7.3 percent of participants disagreed while another 4.9 percent were undecided.

Responses to question #16 clarified the importance of this study, with 70 percent of participants agreeing or strongly agreeing that secondary technology education aligns with postsecondary manufacturing, engineering and transportation programs. The results of this question also reflected a greater than average number of participants, 27 percent indicating undecided and 2.5 percent indicating they disagree with the current secondary and postsecondary alignment. The following statement provided by one participant best describes the need for further study in this area. “It is important to showcase the program clusters as opportunities during the exploration aspect of secondary education. From that standpoint I totally agree. However to pigeon hole the student at a secondary school into a cluster is not the best way to help promote exploration.”

Focus group discussions reinforced the alignment process and value of sustaining relationships between the institutions. A comment recorded by a participant states “when transfer agreements are signed, technical college faculty stay connected and maintain an ongoing relationship that includes classroom visits and advisory committees.” Another stated, “Relationships are almost always successful when they are teacher-to-teacher rather than top down.”

Results Summary for Research Question 3.

Question 3 asked, “Are there differences in Gateway Technical College instructors’ opinions between secondary and postsecondary college programs based on selected demographic data?”

The third research question was best described through the results discovered through question #20. Both in the written comments and throughout the focus group the researcher noticed a strong emotional feeling about individual qualifications and the desire to change instructor certification requirements. While this is not part of this study it is important to note that personal opinions may influence the desires of the broader group (Perry & Hamm, 1969).

Analysis of the data indicates that there is a distinct correlation between age, degree achieved, and occupational certification, but not a significant degree of variance in gender or related work experience.

Only two of the survey respondents were female. Therefore, there was not enough data to draw conclusions based on gender. Question #25 asked about related work experience. Data corresponding to question #25 indicated that 100 percent of respondents had related work experience, while question # 26 revealed that just 34 respondents had occupational certification. The research question was more closely aligned with occupational certification.

Further cross tabulation analysis indicates that age demographic may play a role in the expressed opinions of postsecondary instructors as it relates to secondary technology education providing career pathways, postsecondary credit alignment and teacher certification. The survey demographic age category of 37-50 years old in all three of these cases shows slightly larger response diversity by the participants. While the actual numbers are not large enough to draw conclusions, this mirrors the findings of an earlier study of secondary teachers conducted by the researcher.

Teacher certification and highest level of education attained by the participant also indicates that instructors with post-graduate degrees, especially those with a master's degree and above, had a consistent response in support of teacher certification being a factor in secondary and postsecondary alignment. Five of the twenty-one participants with bachelor's degrees were undecided or disagreed with the statement that teacher certification was a factor in secondary and postsecondary alignment.

As indicated earlier, the gender demographic did not display any distinct variations in the participants' responses. This may be due to the fact that there were only two females participating in this study. Limited female participation can be correlated back to the selected objective of this study to survey a finite group of instructors in three occupational training programs at one selected technical college.

Cross tabulation on participants holding occupational certification and related work experience did not differentiate any new findings independently different from the general survey data. This response may indicate that there may have been an issue with the clarity of the question as presented.

One striking response was given during the focus group interviews related to demographic data analysis. One participant responded, stating that, "sometimes there is resistance from high school faculty."

Discussion

This section is an interpretation of the findings in an attempt to bring meaning and potential implications for Gateway Technical College and the students it serves. It should be noted that the study is a "snapshot" of the participants from a single division within

one technical college, and that the results collected and studied represent opinions and beliefs, but not behaviors. The research does not examine the results of behavior/actions in terms of their effectiveness.

The following is a descriptive list of three recommendations that have been drawn from the study results. All three recommendations have sub-recommendations that support the success of the overall recommendations. It is the opinion of the researcher that Gateway Technical College has a strong base of interest and programming to fully implement the recommendations. Research in cognitive psychology has suggested that decision-making characteristics can be examined across contexts. Kahneman, Slovic, and Tversky (1982) present an array of decision-making contexts including the training of jet pilots, biopsy diagnostics, stock portfolio investments and flood control programs. These contexts are used in marketing decision-making including managerial and consumer decision-making. In light of the written comments and observations made during the focus group session, the researcher notes that the personality types of the participants were diverse and are not necessarily heterogeneous. Personality traits through observation indicate that participants in this study were highly motivated and competitive. Dr. Frank Farley concluded in his work on personality trait theory that there are important educational implications on personality traits and responsive behavior (Farley, 1989). Observations in this section are offered only as opinions of the researcher.

Recommendations for Gateway Technical College's Administration.

1. Establish professional development opportunities for all secondary and postsecondary instructors to support and value relationships and common understanding of program alignment.
 - a. Include program alignment models and opportunities in new instructor orientation activities.
 - b. Provide support for postsecondary instructors to visit secondary schools for the purpose of establishing professional relationships and common understanding language between of each other's programs.
2. Develop a system of reporting back postsecondary student achievement to local high school districts.
 - a. Establish uniform high school graduate reporting data.
 - b. Include data reporting in Gateway's annual dashboard report to the community.
3. Develop a district-wide policy on transcribed credit transfer for secondary articulation.
 - a. Provide secondary and postsecondary professional development on the articulation process.
 - b. Develop strategies and methods to inform students and parents of articulation opportunities at Gateway Technical College.

Contributions

This study was conducted at a very important time in our country's history. During the study period, Congress made a far-reaching move to eliminate the federal Tech Prep funding included in the Carl D. Perkins Act. The Perkins Act and funding priority described in Chapter Two served as a primary mechanism for secondary and postsecondary institutions to articulate programs, courses and expose students to career pathways. A second major legislative change also took place during the study period. Wisconsin Governor Scott Walker proposed, and the Wisconsin legislature adopted, a change in the state budget that changed requirements under Wisconsin's collective bargaining law. Prior to the completion of the study, local secondary and postsecondary institutions were required to secure approval from their respective unions to advance articulation agreements. These two legislative changes have made the significance of this study even more important for future alignment efforts by Gateway and other Wisconsin Technical Colleges.

The scientific contributions of this study are related to the findings and methodology employed. The results showed that postsecondary instructors have strong opinions on the need and value of secondary and postsecondary program alignment. Results also showed that there is concern about the process and ability for secondary technology programs to deliver college-level competency coursework. Methodologically, the study can contribute to the field as it improves upon other more general articulation studies in order to describe manufacturing, engineering and

transportation instructors' opinions on program alignment and articulation. Using a mixed methodology allowed for verification of personal responses.

The practical implications of this study are that it can assist in the redesign or enhancement of policy and practices within Gateway Technical College. Gateway instructors can make use of the knowledge acquired from this study to better prepare themselves and their students, providing a more effective transition process and leveling the playing field between secondary and postsecondary instructors. Additionally, the technology education profession can utilize the information in this study to examine opinions of postsecondary instructors to improve pre-service and continued professional development of teachers and administrators at both the secondary and postsecondary levels.

Future Research

The results of this study lay the groundwork for future research. First, Gateway represents one college; adding additional colleges with similar demographics would add to the knowledge base, offer validation, and enhance the findings of the study. Second, future studies should collect and analyze additional information from a variety of disciplines. This additional information will add evidence across disciplines. Finally, additional research should examine the results of behavior and actions in terms of their effectiveness. This study provided several important findings related to secondary and postsecondary program alignment. Equally valuable are the questions yet to be discovered.

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APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF MINNESOTA

Twin Cities Campus

*Human Research Protection Program
Office of the Vice President for Research*

*D528 Mayo Memorial Building
420 Delaware Street S.E.
MMC 820
Minneapolis, MN 55435
Office: 612-626-5654
Fax: 612-626-6061
E-mail: irb@umn.edu or ibc@umn.edu
Website: <http://research.umn.edu/subjects/>*

05/03/2011

Bryan Albrecht
5941 Deerfield Road
Racine, WI 53406-6801

RE: "An analysis of Gateway Technical College instructors' opinions on secondary and postsecondary program alignment"
IRB Code Number: **1104P97872**

Dear Dr. Albrecht:

The Institutional Review Board (IRB) received your response to its stipulations. Since this information satisfies the federal criteria for approval at 45CFR46.111 and the requirements set by the IRB, final approval for the project is noted in our files. Upon receipt of this letter, you may begin your research.

IRB approval of this study includes the consent form received March 31, 2011 and the participant letter received April 21, 2011.

The IRB would like to stress that subjects who go through the consent process are considered enrolled participants and are counted toward the total number of subjects, even if they have no further participation in the study. Please keep this in mind when calculating the number of subjects you request. This study is currently approved for 54 subjects. If you desire an increase in the number of approved subjects, you will need to make a formal request to the IRB.

For your records and for grant certification purposes, the approval date for the referenced project is April 15, 2011 and the Assurance of Compliance number is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003). Research projects are subject to continuing review and renewal; approval will expire one year from that date. You will receive a report form two months before the expiration date. If you would like us to send certification of approval to a funding agency, please tell us the name and address of your contact person at the agency.

As Principal Investigator of this project, you are required by federal regulations to inform the IRB of any proposed changes in your research that will affect human subjects. Changes should not be initiated until written IRB approval is received. Unanticipated problems or serious unexpected adverse events should be reported to the IRB as they occur.

The IRB wishes you success with this research. If you have questions, please call the IRB office at 612-626-5654.

Sincerely,



Christina Dobrovolny, CIP
Research Compliance Supervisor
CD/ks

CC: James Brown

APPENDIX B PARTICIPATION LETTER

RE: Survey Title: An Analysis of Gateway Technical College Instructors' Opinions on Secondary and Postsecondary Program alignment

My name is Bryan Albrecht. I am a doctoral candidate in the higher education administration program at the University of Minnesota, College of Education and Human Development.

You are being invited to participate in an on-line survey created for the purpose of studying your opinions on secondary and postsecondary program alignment. This survey is part of my doctoral research study aimed at better understanding how instructors at Gateway Technical College feel about student transition opportunities within the Gateway District. You have been selected because of your certification and teaching responsibilities with the specific disciplines being researched within the scope of this study. Your name and e-mail contact information was obtained from Gateway Technical Colleges' certification database. Your completion of the survey will serve as your consent to participate in this study.

This study has been approved by the University of Minnesota Institutional Review Board. Participation in this study is voluntary; refusal to take part involves no penalty or loss of benefits to which participants are otherwise entitled. Furthermore, participants may withdraw from the study at any time without penalty or loss of benefits to which they are otherwise entitled.

Completion of the on-line survey typically takes 15 minutes and is strictly anonymous. There are ten questions designed to assess your opinion on technology education, secondary and postsecondary program alignment and student transition options. A choice of five answers is provided on a likert scale of which you will choose one response. The remaining five questions are specifically address demographic information.

As this is an anonymous survey, in no case will responses from individual participants be identified. All data collected will be pooled and published in aggregate form only. Anne Whynott administers the on-line survey through their secure survey web tool, Survey Monkey System.

You can access the survey by clicking on the following link or by typing the following link into your web browser: http://www.surveymonkey.com/s/tech_ed_survey

Again, completion of this survey serves as your consent. If participants have further questions about this study or their rights, or if they wish to lodge a complaint or concern, they may contact the principal investigator, Bryan Albrecht at albrechtb@gtc.edu or the

faculty advisor, Dr. James Brown at brown014@umn.edu.

Thank you in advance for your participation.

Sincerely,

Bryan D. Albrecht
Doctoral Candidate
University of Minnesota
Minneapolis, MN

APPENDIX C
CONSENT FORM

An analysis of Gateway Technical College instructors' opinions on
secondary and postsecondary program alignment

You are invited to be in a research study of Gateway Technical College instructors' opinions on secondary and postsecondary program alignment. You were selected as a possible participant because you are an instructor in one of the following Gateway Technical College occupational pathways; transportation, manufacturing or engineering. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Bryan D. Albrecht, graduate student in the College of Education and Human Development, Department of Organizational Leadership, Policy, and Development at the University of Minnesota.

Background Information

The purpose of this study is: The purpose of this study is to examine Gateway Technical College instructors' opinions on program alignment between secondary technology education and postsecondary occupational programs.

Procedures:

If you agree to be in this study, we would ask you to do the following things:

You will be asked to complete 1 survey regarding your opinions on secondary and postsecondary program alignment.

Your participation will last approximately 15 minutes in total.

Risks and Benefits of being in the Study

The study has several risks: First, answering questions that might cause discomfort; Second, participants may have emotional conflicts due to the position of the researcher.

While the risk is minimal to ensure confidentiality the research will be facilitated by Anne Whynott, associate vice president of Institutional Effectiveness for Gateway Technical College.

The process of completing surveys or questionnaires (15 minutes for this survey) is time consuming. Participants reserve the right to end any portion of the research at any time.

The benefits to participation are: You are not expected to benefit directly from participating in this study. Your participation in this research study may benefit other people or organizations in the future by helping us learn more about the opinions of instructors related to secondary and postsecondary program alignment.

Compensation:

This is a voluntary survey. You will not receive payment or any other compensation for your participation.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. By checking the consent box to initiate the survey you are agreeing to serve as a research subject.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or Gateway Technical College. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researchers conducting this study are: Bryan D. Albrecht with support from Dr. James Brown. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at the following addresses:

Bryan D. Albrecht
3520-30th Ave.
Kenosha, WI 53144
albrechtb@gtc.edu
262.496.4592

Dr. James Brown
330 Wulling Hall
86 Pleasant Street S.E.
Minneapolis, MN 55455-0221
Brown014@umn.edu
612.616.8524

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

APPENDIX D CONSENT FORM

An analysis of Gateway Technical College instructors' opinions on
secondary and postsecondary program alignment

You are invited to be in a research study of Gateway Technical College instructors' opinions on secondary and postsecondary program alignment. You were selected as a possible participant because you are an instructor in one of the following Gateway Technical College occupational pathways; transportation, manufacturing or engineering. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Bryan D. Albrecht, graduate student in the College of Education and Human Development, Department of Organizational Leadership, Policy, and Development at the University of Minnesota.

Background Information

The purpose of this study is: The purpose of this study is to examine Gateway Technical College instructors' opinions on program alignment between secondary technology education and postsecondary occupational programs.

Procedures:

If you agree to be in this study, we would ask you to do the following things:

You will be asked to participate in a focus group to further investigate the survey you completed regarding your opinions on secondary and postsecondary program alignment.

Your participation will last approximately 60 minutes in total.

Risks and Benefits of being in the Study

The study has several risks: First, answering questions that might cause discomfort; Second, participants may have emotional conflicts due to the position of the researcher.

While the risk is minimal to ensure confidentiality the research will be facilitated by Anne Whynott, associate vice president of Institutional Effectiveness for Gateway Technical College.

The process of facilitated focus group (60-90 minute focus group) is time consuming. Participants reserve the right to end any portion of the research at any time.

The benefits to participation are: You are not expected to benefit directly from participating in this study. Your participation in this research study may benefit other people or organizations in the future by helping us learn more about the opinions of instructors related to secondary and postsecondary program alignment.

Compensation:

This is a voluntary focus group discussion. You will receive refreshments during the focus group meeting and a ten dollar gift card for your participation.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records and audio tapes will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or Gateway Technical College. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researchers conducting this study are: Bryan D. Albrecht with support from Dr. James Brown. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at the following addresses:

Bryan D. Albrecht
3520-30th Ave.
Kenosha, WI 53144
albrechtb@gtc.edu
262.496.4592

Dr. James Brown

330 Wulling Hall
86 Pleasant Street S.E.
Minneapolis, MN 55455-0221
Brown014@umn.edu
612.616.8524

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of Investigator: _____ Date: _____

APPENDIX E SURVEY INSTRUMENT

The purpose of this study is to analyze Gateway Technical College instructors' opinions of secondary and postsecondary program alignment. Your responses to this survey are anonymous. Thank you for your time and input.

Secondary technology education is a program of study encompassing high school courses in construction, manufacturing, engineering and communications pathways.

*** 1. Your participation in this research study will remain confidential and be kept secure by the researcher and protected by the University of Minnesota Institutional Review Board requirements. By checking the consent box below, you are voluntarily agreeing to serve as a research subject.**

I consent to participating in this confidential survey.

Please indicate your level of agreement with each of the following statements.

2. Secondary technology education should be aligned with technical college programming.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

3. Comments:

4. Secondary technology education should be aligned with 11-14 grade pathways.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

5. Comments:**6. Secondary technology education should be competency-based education.**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

7. Comments:**8. Secondary technology education provides career pathway direction.**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

9. Comments:

10. I understand the opportunities for postsecondary articulation with secondary technology education.

- Strongly Disagree
- Disagree
- Undecided
- Agree

11. Strongly Agree

12. Postsecondary credits enhance secondary technology education programming.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

13. Comments:

14. 'Youth Options' courses are viable secondary technology education courses.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

15. Comments:

16. Secondary technology education aligns with postsecondary manufacturing, engineering and transportation program clusters.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

17. Comments:

18. Articulated courses increase the recognition of secondary technology education.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

19. Comments:

20. Teacher certification is a factor in secondary and postsecondary alignment.

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

21. Comments:

22. What is your age?

- 22-36
- 37-50
- 51-62
- Over 62

23. What is your gender?

- Male
- Female

24. What is your highest level of educational attainment?

- Bachelor's degree
- Master's degree
- Education Specialist
- Doctoral degree

25. Do you have related industry work experience?

- Yes, certified work experience
- Yes, voluntary work experience
- No

26. Do you currently hold an occupational certification?

- I hold an industry certification.
- I hold an alternative certificate or license.
- I have no additional certification experience.

APPENDIX F SURVEY QUESTION COMMENTS

Page 2, Q3. Comments:	
1	I feel this limits the domain of the high school program and narrows its focus at a time that it should look at technology in a more broad view.
2	Sec. teched should be more general, tech college would then build on that foundation. Concerned that if aligned, sec ed would become too specific and students would be left short if a change in program
3	I believe many secondary schools made a mistake by converting to an all computer based technology education platform. I think we should go back to the hands-on approach.
4	Makes natural sense
5	In some cases I agree, however the focus of technical education is different than that of a secondary education. In simplistic language, the focus of the tech college is to teach the "how", whereas the secondary ed (K-12) teaches a broader exploratory level to show the students different options available for career opportunities. At the K-12 level it's important to have multiple areas to explore. The 13-14 level focuses on one option and teaches the "how". In terms of alignment, yes from the standpoint of topic areas and symbiotic support. In terms of duplication of classes at both levels, no. Very little of that should be occurring outside of classes at the (13-14) level intended to help reinforce/build what was expected at the K-12 level. It's good to be somewhat aligned, but not to the extent that it overloads the K-12 level exploratory intent. K-12: Classes covering many topics. 13-14: One topic with many associated classes.
6	This is a win-win for all parties
7	Secondary education should investigate jobs/careers and prepare you for some jobs. Technical education prepares you for the actual job/career.
8	This would provide a smooth transition between grades 12 and 13.

Page 3, Q5. Comments:

1	For the same reason given above.
2	The level of secondary technology education should prepare students for the intellectual classroom setting of 11-14.
3	I would prefer this question stated as such: grade 11-14 pathways should be aligned with secondary technology education. It's the dog wagging the tail versus the tail wagging the dog thing.
4	I assumed secondary education was K-12. 13-14 was tech college. Pathways are important to showcase the process and opportunities, so yes. Sec. tech education showcasing the exploration should be aligned with the tech college level showcasing the "how".
5	We need alignment starting at the High Schools
6	This should appear as a seamless path to the students.

Page 4, Q7. Comments:

1	Students need to meet the objectives of the fundamental programs in order to progress to higher levels of these technologies.
2	Theory integrated with practicing skills is a must.
3	This is 100% correct. It is the last step before actually entering a career where each person is expected to perform at a certain level. Some of our softer science technologies are no different than say expecting a master artist like Rembrandt to teach a whole group of individuals to paint masterpieces after a couple of semesters in class. Successful employment results from mastery of a task.
4	Competency-based for their level of development in this educational process, yes. However, their level is exploratory, so that needs to be accounted for in the competency-based application.
5	Hands-on skills with expected competencies are the best way to access technical learning
6	The alignment of competencies is far easier than course to course alignment. In addition, it provides a sound method for evaluating whether or not the students have mastered a concept.

Page 5, Q9. Comments:

- | | |
|---|--|
| 1 | It did until the computer age came in full force. (approximately 1991) |
| 2 | Every step in the educational process needs to be associated with career development...and the associated values for each level of educational development explained. Like in football, there are multiple positions on a team. Tech college trains up the offensive linemen, tight end, etc. The 4-yr trains the running backs, wideouts, etc. The masters levels train the quarterbacks. All positions are equally important because a quarterback can not win without a good line, and a good line is useless without a good quarterback. The place to effectively explain this progression of education is the secondary tech level. |
| 3 | I believe the PLTW courses do it very well, by design. |

Page 6, Q11. Comments:

- | | |
|---|--|
| 1 | I clearly understand the opportunities, but again those opportunities should not be confused with secondary technologies purpose or interfere with it by dictating its course. |
| 2 | I understand some, but some I do not understand. Too many people seem to want to get credit for things ahead of developing that ability. Taking a class in exposure doesn't imply knowledge nor ability. Knowing the how doesn't imply knowing the why. So for cases where the opportunities make sense, absolutely. |
| 3 | If done properly, all of the secondary technology courses should align with and transfer into postsecondary technology courses. |

Page 7, Q13. Comments:

- | | |
|---|---|
| 1 | This varies from city to city. |
| 2 | They are most often two different worlds and we have to be careful here not to let post secondary credits take importance over the real deal. |
| 3 | Understanding the pathway is important. The credit...that is questionable. Trying to get credit for the next level by taking a class not focused on that level could be a problem. Also, by jumping in over one's head does not provide a service to the student. I took calc in high school but did not articulate that into my undergrad, even though the entrance counselor was pressing me to. My dorm roommate did transfer in and started at Calc II instead of my level of Calc I. Because he was competing against students who had already had an extra semester of calc at the 4-yr institution ... his grades were lower than my grades in calc, even though we were about equal in our abilities. He jumped in over his head and had to fight harder all three semesters and still obtained lower grades whereas I started ahead of the curve and it was easier to stay ahead of the curve and I got better grades. Those five credits that he saved via the transfer were not worth the price that he had to pay and the results he obtained by starting further ahead. I know a lot of students and some secondary tech teachers want to showcase and say they are teaching post secondary level ... its both a question of financial and pride. However, there is immense value at each respective level for the development of the student, and its important that each area/level isn't compromised in order to showcase the popular glitz of credit transfer over the basis of educational development. Where there is duplication, abosultely I agree that those credits would enhance the programing... but then the question should be asked why does the duplication exist. So beyond an entry level transition class between the two levels, no. |
| 4 | I could not agree more with this statement. Transcribed credit should be a part of the articulation between secondary and postsecondary technology courses. |

Page 8, Q15. Comments:

1	If the high school student is interested in a specific area then they can 'test drive' the program. this allows them to see if they like the program and career path. If not then all they lost was time and effort.
2	In my area Youth Options students have been allowed to run around the requirements for our program and therefore may not meet the objectives of our program because of cost.
3	Not only in an education since, but also in a maturity since.
4	Youth options is a fantastic incubator and a positive link and the place where it all starts. Many of the hands on technology courses have been abandoned in our high schools. Abandoned in favor of more general education and computer courses. We still need to train trades peoples to build our buildings to house all of the other stuff.
5	Youth options provide students the opportunity to take classes at the next level, taught at that level, and with the expectations associated with that level. If the youth option class educational level is brought down below the level expected in order to showcase enrollment, then they are not viable and do not help the educational process.
6	They work, we have examples!
7	The level of instruction is too low, but it does encourage students to seek out post secondary education options.
8	They provide an opportunity for the high school students to have access to courses not otherwise offered at their high school. In addition, they give the student the opportunity to earn college credit while still in high school.

Page 9, Q17. Comments:

1	the advisory committee assures this is always up to date.
2	Some secondary teachers say they do but when you take a close look at what they do in the class room on a daily basis they do not.
3	This varies from school to school.
4	It does!
5	I am aware of this at Badger HS unsure about others
6	To a point. Its important to showcase the program clusters as oppotunities during the explorational aspect of secondary education. From that standpoint I totally agree. However to pigeon the student at a secondary school into a cluster is not the best way to help promote exploration.
7	I believe this is true in the districts where the two group talk. (It is true in our district.) Otherwise this might not be the case.

Page 10, Q19. Comments:

1	I believe this to be very true with classes articulated at the high school level.
2	Yes it does increase the recognition, especially for that entry level transition class. However, beyond that the recognition would be moreso out of a lack of understanding regarding the development at each level (See question 13), and could call into question the value of the education at the institution taking excessive articulated credits.
3	They show we are all in it together
4	The articulation process validates the courses in the eyes of the high school students and their parents.

Page 11, Q21. Comments:

1	There is a large difference in certified instructors and qualified instructors. I have personally seen where an instructor was certified in many courses and had NO clue of the competencies. The process of certificatin allowed this to happen. This situation causes many issues. The instructor is not confident, the students have no confidence in the instructor and what he is attempting to teach. The program is hurt in both reputation to prospective employers and student enrollments. Most students are NOT here to get a piece of paper. They are to learn the tools of the trade and get a better paying job. If the instructor doesn't know what they are doing then how will they be able to teach the student.
2	it is important to consider program content and how the certification effects the delivery of the information
3	This is true, but, I have seen certified teachers in both secondary and postsecondary who do not know the subject they are attempting to teach.
4	I don't think that it is as important as it is often made out to be, and perhaps often a license to steal. Real world experience is the teachers best tool in alignment factor.
5	Its important to have teachers that know what they are teaching. Yes.
6	The teachers need to be "Qualified" for the classes they teach. If not this could backfire badly.
7	If it is transcribed credit, then it becomes more important.

APPENDIX G FOCUS GROUP PROTOCOL

Protocol for Focus Group Sessions

The interview/focus group was used to supplement the electronic survey. The objective of the interview/focus group was to gather information that will help interpret the survey responses.

Introduction script

Welcome and thank you all for coming today. My research study is designed to provide insight to how Gateway Technical College might improve program alignment between secondary and postsecondary programs by evaluating the opinions of technical college instructors. Each of you participated in the electronic survey. To better interpret the survey results I am conducting a focus group consisting of 4 questions. The results of the focus group will be correlated with the results of the electronic survey to ensure consistency in making broad interpretations of the results.

Anne Whynott, Associate Vice President for Institutional Effectiveness will conduct the focus group discussion. I will assist with recording your comments. The focus group discussion will be audio taped to ensure accuracy in the comment. All comments will be kept anonymous and erased upon completion of the record keeping. When you have something to say, please repeat your name each time for accuracy.

Does anyone have any questions before we begin?

Focus Group Questions

1. What has been your experience working with high schools within the Gateway district?
2. What do you believe are the barriers, if any, between secondary technology education program articulations with Gateway Technical College?
3. What has been your experience with students entering into your courses or program with Gateway Technical College credits earned while in high school?
4. What role do you see Gateway instructors playing in the transition process for high school students attending Gateway Technical College?

Conclusion

Thank you very much for your time. We promise to use the information provided to improve education opportunities and program alignment between our secondary school partners. Thank you!

APPENDIX H FOCUS GROUP MINUTES

Focus Group
May 4, 2011 – 3 p.m.
Gateway Technical College
Center for Advanced Technology & Innovation
Sturtevant, Wisconsin

Faculty present: Robert Braun, Larry Hobbs, Pat Hoppe, Bob Kaebisch, Dennis Sherwood, Steve Whitmoyer

Facilitator: Anne Whynott

Recorder: Julie Whyte

Researcher: Bryan Albrecht

Bryan Albrecht welcomed the group and facilitated introductions, noting that the discussion will also be recorded electronically. Consent forms were distributed, signed and returned to the researcher.

The title of Bryan Albrecht's his dissertation is "An analysis of Gateway Technical College instructors' opinions on secondary and postsecondary program alignment." The title of Bryan Albrecht's research for his Education Doctorate degree is "An analysis of Gateway Technical College Instructors' Opinions on Secondary and Postsecondary Program Alignment"

- 1) What has been your experience working with high schools within the Gateway District?
 - a) participated for two years in Career Day at Badger High School in Lake Geneva, Wisconsin;
 - b) has been a one-by-one process, connecting with high school teachers, cultivating relationships to begin partnerships with their respective high schools;
 - c) participation in each school district varies depending on relationship with high school teachers;
 - d) when high school teachers could see benefit to them and the value added for their classes, they became involved with the technical college;
 - e) sometimes felt that high school teachers had preconceived negative notion toward the technical college;

- f) when relationships with high schools were mandated from administration, they didn't happen;
 - g) it's the faculty-to-faculty relationships that make partnerships happen;
 - h) high school teachers saw the benefits of sharing curriculum, exams, lab activities, and guest speakers;
 - i) have worked with Project Lead The Way (PLTW) schools in terms of sharing equipment; K-12 district administrator help to facilitate that initiative;
 - j) recruitment efforts included participating in high school freshmen orientation events-- technical college faculty talked to parents and discussed PLTW courses that should be taken during freshman and sophomore years in high school, moving to Youth Options courses in junior and senior years, and entering the technical college with some postsecondary credits already completed;
 - k) Wilmot High School faculty approached Gateway faculty for assistance in establishing an advisory committee and participation in Career Day— another example of one-on-one relationship;
 - l) cold call to high schools usually doesn't work; there has to be a need;
 - m) sometimes there is resistance from high school faculty;
 - n) PLTW schools are very responsive;
 - o) since funding for PLTW may be ending soon, there may be an opportunity to continue partnerships with high schools through SkillsUSA initiative;
 - p) high school teachers are trained in PLTW and we need to be ready to step in when PTLW ends to help them do more;
 - q) Civil Engineering was not taught at the high school level until PLTW initiative.
- 2) What do you believe are the barriers, if any, between secondary technology education program articulations with Gateway Technical College?
- a) articulated courses are working very well;
 - b) for Civil Engineering, only PLTW courses will transfer;
 - c) even though numbers are small, we are encouraged by those coming to Gateway;
 - d) strong proponent of transcribed credit, which is the result of meeting with student/parents to register for classes;
 - e) transcribed courses are higher level courses and exposes students to what life is like in a college setting;
 - f) high school teachers who teach transcribed credit tout that to students and parents because it lends creditability to their courses;
 - g) transcribed credit helps with students being prepared for the college courses;
 - h) issue is that students want to take the technical courses, but the general education courses;

- i) when transfer agreements are signed, technical college faculty stay connected and maintain an ongoing relationship that includes classroom visits and advisory committees.
- 3) What has been your experience with students entering into your courses or program with Gateway Technical College credits earned while in high school?
- a) two students are excellent; their experience in high school with their teachers being connected to Gateway was very beneficial;
 - b) a couple who are struggling;
 - c) important to build student retention before they enroll at Gateway by visiting students in their high school classrooms and inviting them to visit Gateway classes;
 - d) Sumo Bot competition is a project that students work on with Gateway faculty during middle and high school, culminating in a competitive event at Gateway; robot building begins in January, with students focused on what Gateway is asking them to do; Gateway faculty, high school teachers, and high school students and parents participate in an ongoing dialog via email for four months; Gateway faculty also visit high school classes during this time; this is a very positive Gateway experience for the students;
 - e) following this experience, students feel comfortable coming to Gateway;
 - f) we have high school teachers that are adjunct faculty at Gateway;
 - g) Gateway faculty have indicated that there is no difference in 3rd-4th semester students who have participated in transcribed credit at the high schools and those who have taken the same classes at Gateway;
 - h) relationships are almost always successful when they are teacher-to-teacher rather than top down;
 - i) high school counselors can be an issue with their focus on four year colleges rather than two-year.
- 4) What role do you see Gateway instructors playing in the transition process for high school students attending Gateway Technical College?
- a) need to spend more time in each county;
 - b) high school students visiting Gateway and seeing new labs will make the students want to be part of the Gateway experience and help them realize these are high tech trades;
 - c) uniforms at the Horizon Center makes students feel they are part of a family;
 - d) students age range for the most part is 25-30 and 45-55;
 - e) when high school teachers see value of the Gateway programs, they will sell the program to their students;
 - f) we have some champions for Gateway in the high schools;
 - g) Gateway teachers are resources for high school teachers;

- h) direct correlation between high school teachers who attend Summer Institute at the Horizon Center and their students coming to Gateway;
- i) students see Gateway faculty at SkillsUSA and see them as helpful and as experts in their field;
- j) at career days events, it is critical to make connections with high school teachers who attend;
- k) Lakeview students are very well prepared.

Focus group ended at 4 p.m.

APPENDIX I
FOCUS GROUP APPRECIATION LETTER

RE: Focus Group: An Analysis of Gateway Technical College Instructors' Opinions on Secondary and Postsecondary Program Alignment

Dear Participant,

Thank you for your time and open conversation during the focus group designed to support my thesis study titled: An analysis of Gateway Technical College Instructors' Opinions on Secondary and Postsecondary Program Alignment. As explained to you prior to the focus group meeting this study has been approved by the University of Minnesota and is in compliance with all Institutional Review Board requirements. The results will remain confidential and under the supervision of Anne Whynott, associate vice president for institutional effectiveness at Gateway Technical College.

Your participation in the focus group added a valuable perspective to the analysis of my mixed method study approach. I appreciate your willingness to assist me with my research and hope that you found the experience to be professional beneficial as well.

Sincerely,

Bryan Albrecht
Doctoral Candidate
University of Minnesota
Minneapolis, MN

APPENDIX J GATEWAY TECHNICAL COLLEGE DESCRIPTION

Gateway Technical College provides quality technical education to the residents of its District, which is comprised of the southeastern Wisconsin counties of Kenosha, Racine, and Walworth.

Gateway is one of sixteen technical college districts which comprise the Wisconsin Technical College System. Gateway is a taxpayer-supported institution of postsecondary education, offering more than 60 degree and diploma programs, as well as nearly 50 certificate programs. Gateway provides you with almost limitless alternatives for your educational and employment future.

Associate of Applied Science Degrees and Technical Diplomas are awarded upon successful completion of individual program requirements.

In addition, a wide variety of Adult Continuing Education (ACE) noncredit classes, workshops, and seminars are offered to assist Gateway District residents in expanding and augmenting occupational skills, or to assist in improvement of their chosen lifestyles.

OUR STRATEGIC DIRECTION

The Gateway Technical College District Board of Trustees sets our strategic direction.

Gateway Technical College is a key *academic enterprise* that serves Southeastern Wisconsin. By engaging in *innovative* higher education and technical training programs,

as well as a variety of *community* partnerships, the tri-county community will utilize Gateway as a premiere resource for *workforce education*.

1. ***Gateway provides*** academic programs and services that meet the current and future postsecondary technical education needs of our tri-county community and assists in the preparation and transition of all learners.
2. ***Gateway provides*** innovative and entrepreneurial programs and services that align with the educational, economic, and tri-county community needs for students' regional and global competitiveness.
3. ***Gateway provides*** leadership in tri-county community and workforce development through collaborative partnerships with business, industry, labor, and community organizations to support economic development, keeping in mind the desire not to duplicate services for an efficient use of taxpayer dollars.
4. ***Gateway models*** integrity, social responsibility, and continuous improvement in its internal and external processes and relationships.
5. ***Gateway provides*** a positive return on taxpayer and community investment by leveraging its core capabilities in a financially and socially responsible manner.

MISSION STATEMENT

We collaborate to ensure economic growth and viability by providing education, training, leadership, and technological resources to meet the changing needs of students, employers, and communities.

OUR VISION

We are the community technical college of choice for academic achievement, occupational advancement, and personal development.

VALUES

At Gateway Technical College, we value:

- diversity of individuals and perspectives.
- a positive climate for working and learning.
- innovation and risk-taking.
- honest and ethical behavior.
- quality and excellence in education.

EDUCATIONAL PHILOSOPHY

We believe students need general education skills in order to succeed in career and life. Recognizing this fundamental importance, the College requires general studies coursework in all programs of forty-five (45) credits or more. General education gives students effective communication, mathematics, scientific thinking, and global social skills.

HISTORY – A Century of Learning

Original state legislation establishing adult and vocational education was enacted in 1911. The first technical school in Wisconsin, the nation's first publicly supported technical institution, began that same year in downtown Racine as the name predecessor to Gateway Technical College. A state-sanctioned technical school opened in Kenosha in 1912. Kenosha County established the first Vocational, Technical and Adult Education

District under state law in 1965, which allowed district formation beyond city limits on July 1, 1966.

Walworth County joined the Kenosha District in 1967 to form District 6, and the City of Racine expanded services on July 1, 1967 to include Racine County. On July 1, 1971, the Vocational, Technical and Adult Education District 6 was formed, comprised of Kenosha, Racine, and Walworth counties. In 1994, the state technical college system became the Wisconsin Technical College System.

The name “Gateway” was adopted October 19, 1972, by the District Board for the Gateway District, replacing reference to District 6, with campuses at Elkhorn, Kenosha, and Racine. As was the case in 1911, Gateway today continues to meet the need for skilled workers in technical-oriented fields.



The purpose of this study was to determine what opinions Gateway Technical College instructors had toward secondary and postsecondary program alignment. Student transition is critical to supporting the mission and vision of Gateway Technical College. For years this effort was managed by a technical process of articulation agreements, local and state policies that best meet the needs of the institution. In this case the researcher chose to stretch the vision for Gateway Technical College and examine the expressed opinions of selected instructors for the purpose of improving the model of students entering Gateway through improved transition programs and services.

The impetus for this study was twofold. First, the quality improvement processes established at Gateway Technical College were not alone meeting the need to increase direct enrollment from area high schools; and second, the researcher has extensive professional experience in the implementation of tech prep and school-to-career programs and believes alternative approaches to youth transition services are needed for many students.

The results of the study showed that Gateway instructors have a strong opinion on the value and need for program alignment between secondary and postsecondary programming but they are not as strong in their support for credit transfer between the systems. It was also evidenced through survey comments and focus group responses that credit should not be the reason for program alignment. Competency development and defined career pathways are highly valued by instructors in measuring students' ability to transition into postsecondary programs and make Gateway a college of "First Choice."