The Quality of Student Experiences in Traditionally Scheduled Courses Versus Block Scheduled Courses at Pearl River Community College

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THE QUALITY OF STUDENT EXPERIENCES IN TRADITIONALLY SCHEDULED COURSES VERSUS BLOCK SCHEDULED COURSES AT PEARL RIVER COMMUNITY COLLEGE

by

David Scott Alsobrooks

Abstract of a Dissertation Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

May 2010
ABSTRACT

THE QUALITY OF STUDENT EXPERIENCES IN TRADITIONALLY SCHEDULED COURSES VERSUS BLOCK SCHEDULED COURSES AT PEARL RIVER COMMUNITY COLLEGE

by David Scott Alsobrooks

May 2010

The purpose of this study was to determine if students at Pearl River Community College (PRCC) achieve significantly different self-reported Quality of Effort levels when enrolled in block scheduled programs than students enrolled in traditionally scheduled programs. This study focuses on Career and Technical Education (CTE) programs at PRCC in the spring of 2009. The Community College Student Experiences Questionnaire was completed by 294 (192 traditional and 97 block) students of the 672 (514 traditional and 143 block) total students enrolled in CTE programs during the term. No significant differences were found in the students’ self-reported Quality of Effort levels in (a) college course activities, (b) student to faculty interaction, (c) interaction among fellow students, (d) levels in career and occupational skill preparation, or (e) overall satisfaction with the college environment.
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CHAPTER I
INTRODUCTION TO THE STUDY

The National Center for Higher Education (NCHE) (2008) indicates that United States community colleges are dealing with a host of factors that can cause a student to have a difficult experience while enrolled in post-secondary education. These factors include first generation college student, employment while in school, minority status and many others. Traditional academic calendars and scheduling evolved from an agrarian society (Swenson, 2003). Tagg (2007) identifies the adherence to this scheduling practice as a governing value. Tagg writes that this creates the perception that all courses, and students, are alike and can be molded to fit the traditional 16 week academic calendar. Unfortunately, Tagg notes that the academic calendar, being a governing value, is rarely altered to fit different subjects, or programs of study.

Background and Conceptual Underpinnings

Crises, as termed by Tight (1994, p. 367), are “unusual or traumatic events”; while Webster’s online dictionary defines a crisis as “an unstable or crucial time or state of affairs in which a decisive change is impending” (Merriam-Webster Online Dictionary, 2009). At the time of this writing (2009), many media members, politicians, business professionals, education administrators, faculty and many others would say that the global economy is in a time of crisis. The United States government enacted the American Recovery and Reinvestment Act (ARRA). A key element of this legislation is to make “supplemental appropriations for job preservation and creation” (United States, 2009, p. 1). To preserve and create more jobs, legislators seek to elevate the number of people with post-secondary education credentials. Community colleges are expected to
play a crucial role in providing these post-secondary education credentials. A quick word search of the legislation found the words community college and/or training 213 times. A major goal of the bill is to stimulate the United States labor workforce by providing training and education opportunities (United States, 2009). Yet traditional models of education delivery cater to the needs of faculty, administration and students of a bygone era. Career Technical and Workforce Education, in light of the economic crisis facing the nation, must become more sensitive to the needs of nontraditional learners (see Definition of Key Terms for a definition of the nontraditional learner). The nontraditional learner in today’s higher education institutions makes up approximately 73% of the higher education enrollment; of this percentage, 64% of these nontraditional learners were more likely to choose a 2 year institution over a four year institution (Choy, 2002).

Millron and Santos (2004) point to the community college system as providers of adult learning and economic development and indicates that America’s comprehensive community colleges have “matured into essential engines of educational, economic, and social development” (p. 106). Millron and Santos predicted in this 2004 article that community colleges would become more prominent as the workforce dynamics of the United States evolved. The degree of reference made to the need to retrain America’s workforce in the American Recovery and Reinvestment Act of 2009 is bringing Millron and Santos’ prediction into reality. This legislation moves the American community college system to the forefront of post-secondary education for adults seeking job skills.

The community college role, in preparing a competitive workforce for an ever changing society, is a difficult task (Dowd, 2003) as enrollments across colleges grow. According to United States government economic information (Wolgmuth, 2009), it is
crucial to the economy that large factions of society receive at least some post-secondary education and training.

To determine why the United States government is using community colleges as catalysts of economic growth and sustainability, understanding and defining community colleges is necessary. Community colleges, as defined by Cohen and Brawer (2003, p. 5), are “regionally accredited institutions of education that award the associate of arts, or the associate of science as the highest degrees.” Most community colleges began with the charter of preparing students for pre-baccalaureate transfer or for a terminal associate of science degree (Millron & Santos, 2004).

Community colleges now provide additional services; Cohen and Brawer (2003) provide a thorough history of the community colleges, including the evolution and foray into non-degree education such as basic and remedial skills programs, adult basic education that prepares one for a general education diploma (GED), dislocated worker services, non-credit technical and vocational programs and others. Also, the authors discuss the advent of community colleges offering external certification programs for industry specific occupations such as information technology, allied health, financial services and health/safety occupations.

Cohen and Brawer (2002) describe the breadth of the U.S. community college system. The National Center for Higher Education (2008) statistics help to further describe the student base served. The NCHE data indicate that the community college system is made up of a total of 1,195 community colleges with a myriad of regional campuses and centers with a total enrollment of approximately 11.5 million. The NCHE statistics show that community colleges in the United States:
• Enroll 46% of all undergraduates, of which 41% are full time;

• Have an average student age of approximately 29 years;

• Reach a diverse population with a female population of 60% and a minority population of 35%;
  o Enroll 46% of all U.S. black undergraduates;

• Attendance of first generation students make up 39% of the population

• Reach the technical disciplines in high numbers;
  o Engineering technologies and technicians programs are offered at 894 of the 1,195 community colleges;
  o Construction trades technologies are offered at 431 of the 1,195 community colleges;

• Award 555,000 associate degrees annually as well as 295,000 annual vocational diplomas;

• Earning an associate degree brings the individual approximately $1.6 million in expected lifetime wages, almost a half million dollars more than a high school degree;

• Working students are a part of the community college landscape;
  o Full-time students employed full time makes up 27% of enrollees;
  o Full-time students employed part-time 50%;
  o Part time students employed full-time 50%;
  o Part-time students employed part-time 33%.

Employment is prevalent among community colleges students (National Center for Higher Education, 2008). However, in some instances, employment is not a deterrent
to educational achievement. Bers and Smith (1991) found that the more hours students were employed, the less likely they were to exert the effort required to complete their education. Ironically, non-employed students were even less likely to exert the effort necessary to complete than part-time workers. Astin (1999), and Bers and Smith (1991) found part-time workers tend to endure and move through the educational system at a higher rate than either full-timers, or those that do not work at all.

In order to support the United States economy, community colleges must continue to seek out improvement opportunities (Berns & Erickson, 2001). Much research has been done to determine the role the four year college plays on the student (Astin, 1993; Pace, 1984; Pascarella & Terenzini, 2005; Tinto, 1993). The research on four year colleges is not generalized to the community college as highlighted by Marti (2009).

Utilizing Pascarella’s (1997) data, Marti indicates that only 5% of the studies in the area of education research focused on community colleges. According to Townsend, Donaldson and Wilson (2004), and cited by Marti (2009), the published studies of five major education journals found that only 8% of the scholarly information in these journals, between 1990 and 2003, mentioned community colleges. To determine the effectiveness of the community college programs, and how a change to these programs affects the students’ experience, research is necessary. Knecht (2009) indicates the need for the education sector, as a whole, to look within. He quoted that education “should reorient our efforts, change operational models, lower costs, improve our product, and be more responsive to our changing markets” (2009, p. 128).

One area of research to help determine the quality of community college student experiences is to examine the effort level students commit in different educational
programs. Policy and program changes have an effect on students; an important factor would be to determine if the change(s) creates positive differences in student effort. Any change in the education process is most likely to affect students in some manner (Pascarella, 2006). Astin (1970; 1993; 1999), Tinto (1993) and Pace (1984) have researched the effects that higher education has on students, particularly when examining the effort level exerted by students. In general, their research found that faculty to student, student to student, academic involvement and integration leads to positive outcomes for students.

The community college is dealing with an audience that might not have the resources to attain any post-secondary education. Students from the demographics mentioned in the NCHE data (2008) are some of the first to drop out of college (Tinto, 1987). Understanding student success factors, and the quality of the college experience, that affect community college students can help stakeholders make better decisions in designing college programs.

Statement of the Problem

The problem addressed by this study is the lack of research involving student data in the realm of non-traditional scheduling and programming at Pearl River Community College, which could assist decision makers in the design of programs for nontraditional students. Traditionally, as detailed by Barr and Tagg (1995), higher learning institutions offer 150 minutes of instruction at different intervals and different times throughout the week. Pearl River Community College historically designed career and technical programs around this type of traditional academic scheduling model.
Pearl River Community College converted several career and technical education programs from the traditional scheduling model as described by Barr and Tagg (1995), to an intense scheduling model. Sometimes referred to as a block schedule, courses are delivered in an intense manner over the course of two weeks. The time that students meet in the classroom collectively is unchanged. Instead of offering the class over several 50 minute intervals throughout the semester, the class meets from 8:00 a.m. until 5:00 p.m. for two consecutive weeks. However, data concerning career technical scheduling have not been analyzed. Little is known about what affects student effort, involvement and student’s growth in the community college setting. However, in the four year college setting, linkages between student effort, involvement and student’s growth and development are well documented (Astin, 1970; 1993; 1999; Tinto, 1987; 1993; 1997; Pace, 1979b; 1984; 1992). In keeping with these findings it is reasonable to believe that in education improvement initiatives, student learning, growth and gains should be at the heart of change initiatives. The goal is to determine if course scheduling has an effect on student learning, growth and gains.

Purpose of the Study

The purpose of this study is to determine if students at Pearl River Community College achieve significantly different self-reported levels when enrolled in block scheduled programs than students enrolled in traditionally scheduled courses. This study focuses on Career and Technical Education programs at PRCC in the spring of 2009. Converting a program to block scheduling provides an opportunity to compare students in traditionally scheduled programs to the effort level of the students in the block scheduled programs. The programmatic change at Pearl River Community College provides an
opportunity to analyze (a) the affects of student quality of effort levels in college course activities, (b) quality of effort levels in student to faculty interaction, (c) quality of effort levels among fellow students, (d) quality of effort levels in career and occupational skill preparation, and (e) overall satisfaction with the college environment. The objectives of this research study are to determine the extent of differences in the “quality of effort” of students enrolled in career and technical education in the spring of 2009 by examining the following research questions:

1. Are quality of effort levels in college course activities, in interactions between students and faculty, in interactions among students, and in career and occupational skill preparation statistically significantly different based on whether the participant is enrolled in a block or traditionally scheduled program?

2. Are there statistically significant differences in students’ overall satisfaction level with the college environment based on whether the participant is enrolled in a block or traditionally scheduled program?

Limitations

While the programmatic change at Pearl River Community College has provided an opportunity to examine the affects of student quality of effort levels of career and technical education students in the spring semester of 2009, this study is not without limitations.

Another factor that limits this study is a lack of randomness. Students cannot be randomly placed into programs. Students self-select colleges and programs based on their own decision process. Both of these self-selections qualify the sample as a non-
probability sample (Huck, 2004). Huck ascribes that inferential statistics can be used with non-probability samples. As a result of the lack of randomness in this study, the researcher must practice caution when making implications, or predictions, to a larger group.

The fact that this study relies on students’ self-reported measures of gains in a single survey limits this work as well. No student was required to participate. Pre-entry surveys are not carried out due to time constraints of the research; studies utilizing pre- and post-experiment measurements result in greater internal validity (Pascarella, 2006). A preferred alternative would have been a longitudinal study; but this type of study is cost and time prohibitive.

Another possible limiter that is considered for this research is the “Hawthorne Effect” (Chiesa & Hobbs, 2008). Chiesa and Hobbs indicate that this generally means a subject might react differently when part of any new measure implemented and might cause different reactions. The placebo effect is used, especially in pharmaceutical and medical studies, to counteract this effect. Even though the block scheduled programs are institutionalized, students might still react differently to surveying practices which is a potential limitation to this study.

Delimitations

This research investigates students from one area at one institution at one historical period in time. The data analyzed for this study culminated from an institutional self study. Data are not gathered from multiple environments, thus results of this research pertain only to this institution. The researcher selected career and technical education students enrolled at Pearl River Community College in the spring of 2009 as
the initial selection criteria. The delimiting factor is that the results can only be extrapolated to the Career and Technical Education (CTE) department of this college. Since data are not gathered from the academic transfer division of the college, inferences should not be made to this group of PRCC students.

While the following programs were randomly selected during the spring 2009 semester, only CTE students from the following programs were sampled: Heating, Ventilation and Air Conditioning (Hattiesburg and Poplarville), Automation and Controls, Automotive Mechanics, Banking and Finance, Computer Networking, Web Development, Drafting and Design, Electronics (Hattiesburg and Poplarville), Electricity (Hattiesburg and Poplarville), Industrial Electricity, Instrumentation, Business Marketing, Medical Office, Medical Billing and Coding, and Construction Management.

Assumptions

Student honesty is an assumption made for this research. It is hoped by this researcher that students provided honest answers. Also, it is assumed in the few cases that the researcher was not present to distribute and monitor the surveying process that the faculty communicated the standardized information properly. If the students were not surveyed in a standard manner, students could have responded differently.

Definition of Key Terms

Terms used throughout this study that might have different meanings to some include the following:

1. Active learning – Instructional methods that engages students in the learning process while in the classroom. Often contrasted to the lecture method of teaching (Prince, 2004).

3. Block scheduled class - Davies (2006) describes intensive teaching models as “accelerated, time shortened, block format, compressed, or intensive modes of delivery” (p. 2). The author makes the definition of classes taught in the “block mode: very large chunks of teaching time, for example whole day sessions, offered in week-long mode, two or three week long mode and weekend mode” (p. 3).

4. Cluster Sampling – A process of grouping natural orders available for sampling such as households, classrooms, schools, etc. The researcher then selects from these orders, or units, randomly and samples every participant in that unit (Huck, 2004).

5. Collaborative learning – “Instructional methods where students work together in small groups on projects with a common goal” (Prince, 2004, p. 1).

6. Cooperative and collaborative learning – Students work together to accomplish shared learning goals. This type of learning contrasts directly with individualistic learning. This can occur for one class period, or for several weeks covering the entire class mission (Johnson, Johnson, & Smith, 1998b).

7. Learning communities – “co-registration or block scheduling that enables students to take courses together, rather than apart” (Tinto, 2001, p. 4) and/or “groups of people engaged in intellectual interaction for the purpose of learning” (Cross, 1998, p. 4)
8. Nontraditional learner – One who displays any of the following characteristics:
   a. Delays enrollment (does not enter postsecondary education in the same calendar year that he or she finished high school;)
   b. Age 25 years or older;
   c. Attends part time for at least part of the academic year;
   d. Works full time (35 hours or more per week) while enrolled;
   e. Is considered financially independent for purposes of determining eligibility for financial aid;
   f. Has dependents other than a spouse (usually children, but sometimes others);
   g. Is a single parent (either not married or married but separated and has dependents); or
   h. Does not have a high school diploma (completed high school with a GED or other high school completion certificate or did not finish high school). (Choy, 2002)

9. Pedagogy – “the art, science, or profession of teaching” (Merriam Webster Online Dictionary, 2009).

10. Purposeful sampling – A large group of potential subjects are screened down to meet certain criteria established by the researcher (Huck, 2004).

11. Silo effect – “a term frequently used to characterize or describe the separation of responsibilities among resource-management agencies as well as their
inability or unwillingness to consider their mandate relative to those of other organizations” (Mitchell, 2005).

12. quality of effort - a quality dimension by which students exert time to learning at the college level (Pace, 1982).

13. Workforce education – “that form of pedagogy that is provided at the pre-baccalaureate level by educational institutions, by private business and industry, or by government-sponsored, community-based organizations where the objective is to increase individual opportunity in the labor market or to solve human performance problems in the workplace”. (Gray & Herr, 1998, p. 4)

Summary

The community colleges of the United States are tasked with invigorating the United States labor market with skilled workers prepared for the fast changing job market of the 21st century. Today, considering the current economic downturn, reshaping the U.S. workforce is of paramount importance. The United States government recently enacted an unheralded piece of legislation designed to stimulate the labor market and decrease unemployment nationwide. Community colleges are implicated widely throughout this legislation as a catalyst for this economic effort.

Changing practices in bureaucracies such as community colleges can be painful. Pearl River Community College has made programmatic changes in an effort to improve the quality of education offered in the career and technical area of the college. While the view of the changes has been good, no empirical evidence has been substantiated to
corroborate this notion; an institutional study was initiated and will be reported in this dissertation.

The affects of college, in terms of quality of student effort, is lamented by researchers such as Astin (1970; 1993; 1999), Tinto (1987; 1993; 1997) and Pace (1979b; 1982; 1984; 1992). This study examines the affects of a programmatic change as it relates to their theories, especially the work of Pace. The programmatic change at Pearl River Community College provides an opportunity to examine the affects of change on student quality of effort levels.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

Introduction

The literature review investigates several facets of higher education with a special emphasis on community colleges. This chapter provides the reader with an evolution of workforce, career and technical education. The economic implications associated with higher education and the United States are examined. A brief explanation of the research into the reasons that lead to changes within business and industry is provided. The literature related to measuring student learning and growth and the instruments utilized for community college research are investigated. This is followed by an investigation of the research relative to different groups of college students, including traditional and non-traditional students with an emphasis on what has been learned at the community college level. Finally, a brief inquiry into the literature of the successful pedagogical practices found within this review is provided.

An important note concerning the literature review on student learning and growth, is that the research conducted herein is guided by research factors that influence student success. These factors include those such as student to faculty interaction, student to student interaction and activities that occur in the classroom that encourage and promote student learning.

The purpose of this study is to determine if students at Pearl River Community College achieve significantly different self-reported quality of effort levels when enrolled in block scheduled programs than students enrolled in traditionally scheduled courses.
This study focuses on Career and Technical Education programs at PRCC in the spring of 2009.

History of Workforce Development

Educators and policymakers have long argued and debated educational models, policies and methods. Gray and Herr (1998) present a very detailed view of workforce education as well as many different models utilized in business and industry. The authors define workforce education as follows:

…that form of pedagogy that is provided at the pre-baccalaureate level by educational institutions, by private business and industry, or by government-sponsored, community-based organizations where the objective is to increase individual opportunity in the labor market or to solve human performance problems in the workplace. (Gray & Herr, 1998, p. 4)

Therefore, the authors declare that workforce education is any such education that prepares individuals for occupations that do not require a bachelors, masters or doctoral degree. By their definition, career technical education is therefore included in this broad definition of workforce education provided by community colleges.

Gray and Herr (1998, p. 111) describe the sociological implications of worker preparation in that “workforce education must be a dynamic process….the reality that workforce educators in their planning and implementation of instruction must be willing to respond to a world economic structure in significant flux.” As the authors prescribe, the community colleges of the 21st century are being asked to respond to new challenges to reinvigorate the economy.
The current demands placed on education are not without precedence. Career and technical public education began in the U.S. with the passage of the Smith-Hughes Act of 1917 (Rojewski, 2002). The purpose of this legislation was to educate and train workers in agriculture. This act created separate and distinct systems of education that included separate boards at the state level for governance.

The Smith-Hughes Act emphasized job specific skills and excluded traditional academics. This was to the disdain of John Dewey who declared that “education that prepared students for narrow jobs as ill fated” (Gray & Herr, 1998, p. 21) which was contrary to the view of Charles Prosser, who favored job specific education. Prosser’s view gained favor, and those views were followed until the 1960’s (Rojewski, 2002). The Vocational Education Act of 1963 changed this focus toward the view of Dewey. A social component was added to career and technical education in the Carl D. Perkins Vocational Education Act of 1984 (Rojewski, 2002). In 1990, the Perkins act included a third focus, academic education. Rojewski cites many education researchers in putting together the history of career and technical education, along with documentation of the federal legislation. In the end, like Gray and Herr (1998), Rojewski concludes that the two competing voices that shaped vocational education were those of Dewey and Prosser. Prosser’s goal was to align vocational education with the economic needs of industry, while Dewey’s was to meet individual needs required to be a good democratic citizen. Rojewski identifies several researchers’ conceptual frameworks for career technical education (Copa & Plihal, 1996; Grubb, 1997; Lynch, 2000; Pratzner, 1985). Based on this research Rojewski recommends a conceptual framework for career and technical education that includes some of the following:
• Connections between school and work
• Occupation specific programs at the post-secondary level
• Performance based competency assessment complemented with standardized testing
• Curriculum delivery that is indistinct between school and work

Along with this framework, researchers (Alssid, Gruber, Jenkins, Mazzeo, Roberts, & Stanback-Stroud, 2002) have made the case for building a career pathways system within U.S. community colleges. Alssid et al. (2002) describes operational barriers within funding streams that inhibit this at the community college level. Barriers to student entry into career, technical and workforce education are also documented. Workforce Education and Career Technical Education are segregated and departmentalized. Many programs, due to funding formulas, accreditation requirements and other reasons operate as standalone entities. Thus, boundaries are built between the departments and lead to poor communication between departments. This often curbs the participation of industry partnerships, which had been an important element of the Smith Hughes Act.

Education has strayed from its initial charter as prescribed by early legislation. In a typical United States community college, the workforce education division serves as the industry outreach arm of an institution (Alssid, Gruber, Jenkins, Mazzeo, Roberts, & Stanback-Stroud, 2002), while the remainder of the institution is isolated from industry. Industry relationships are built with contract instructors hired to work for the Workforce department, but the full time Career Technical faculties are not part of the network. The funding silos and poor industry relationships often prohibit the reshaping or improvement
needed for a robust program. The authors report that institutional bureaucratic barriers prohibit students from transferring courses from non-credit to credit, even though course content might be identical; sweeping change within the typical structure of community colleges is recommended.

Tagg (2008) postulates that the typical bureaucratically-structured college and university fails to change due to internal departmental barriers. Tagg recommends that institutions should build pedagogical inventories to represent what students learn. Tagg indicates that the transcript is the vehicle used to communicate what a student has learned at institutions. However, Tagg (2008) describes the transcript as nothing more than an “opaque”, and a “barrier to evidenced-based learning” (p. 21). The author goes on to indicate that there is no rubric for transforming grades into what useful knowledge the student has. Tagg indicates a need for institutions to utilize better institutional effectiveness methods other than transcripts and retention data. The utilization of surveys to learn what types of pedagogical practices are engaging students is very important. Seat time inventory and enrollment numbers are trivial, in regards to what the students are learning. Student learning should have some correlation to the needs of industry and economy. Colleges should have some mechanism to translate what has been learned into something comprehensible by industry.

Community colleges and other education entities often utilize standardized tests to determine student achievement (Hargreaves, 2008). Hargreaves indicates that these tests have reached their statistical scoring plateau and these gains have offered little in the way of needs of business and industry. McClelland (1973) highlights another strike against the use of standardized testing by academia stating that “intelligence tests are not valid
for predicting real competence” (p. 6). McClelland indicates that testing agencies invalidly conclude that standardized tests measure competency.

Gray and Herr (1998) and Rojewski (2002) present a well documented historical path that career, technical and workforce education has taken to this point in history. Rojewski (2002) writes that many of the original practices legislated in the early 20th century have faded, but appear to be transitioning back as the United States economy falters in the 21st century. The United States government, by passing the ARRA legislation, is asking community colleges to provide learning opportunities and skills to members of society, much like earlier legislation such as the Smith Hughes Act (Rojewski, 2002). The idea is that education can provide students with the tools needed to work in this modern era (Carnevale & Desrochers, 2004). However, McClelland (1973), Tagg (2008), Alssid et al., (2002) indicate that education will have to transform by developing new policies and practices in order to meet this need.

Economic Implications

Educational decision makers, researchers, and others have understood that education has significant economic implications (Carnevale & Desrochers, 2004; Hanushek, 2005). Understanding successful models such as those in Porter’s (1990) research can provide proven examples of the successful economies. A key element of Porter’s work is the linkage between education and industry. Horizontal, vertical, geographical, or knowledge based industry clusters benefit from partnerships with education systems to maintain a pipeline of workers. Porter (1990) writes that “education and training constitute perhaps the single greatest long-term leverage point available to all levels of government in upgrading industry” (p. 628). Porter indicates that students
should receive education with some practical orientation. He wrote that some students will find a place within the arts, but most will not. Porter goes on to indicate that some countries (i.e. Germany and Korea) value technical education more so than a university education. The programs within these technical institutions concentrate on technologies and training that are important to local clusters. Porter has found a distinct tie between successful economic regions and partnerships between education and industry.

Florida’s (2002, 2005) research, like Porter (1990), finds a central linkage in successful economies and the educational entities fixated near the local industry base. Florida’s central theory that innovation and creativity led economic development occurs in geographical areas with high concentrations of the 3 T’s, technology, talent and tolerance. The metropolitan geographical areas that Florida describes are rich in creative talent, such as the workforce of the San Francisco, Austin, TX and Boston, MA areas. Florida’s second T, talent, finds that the workforce is connected to university education, successful research, development and patent generation. Florida et al., (2006), through the use of several measures involving numbers of university graduates and patent formation, royalties etc., finds that regions that can create and retain human capital have a significant economic advantage over communities that do not. Through his research, Florida has found advantageous relationships between successful communities and education.

Along the same line of thought as Porter (1990) and Florida (2002, 2005), Friedman (2005) indicates a tie to education and economic success. While his theory is very different from Florida’s (2005), Friedman did recognize that poor areas of the globe are improving social conditions (i.e. China and India) with large investments in
education. The education described by Friedman involves a central focus on science, technology, engineering and math (STEM). Expanding regions such as India and China are connecting globally by providing STEM jobs to the rest of the world. Friedman declares that the world is becoming a level playing ground for success. Florida indicates that successful economic regions are decimating others by pulling their talented into major economic hubs. While both authors document economic success of regions differently, both find a positive relationship between areas that have high concentrations of people with STEM credentials and productive economies.

The research on STEM education is far reaching and much could be reported. It is of interest to note that a report conducted through The Urban Institute (Lowell & Salzman, 2007) found the supply of workers in STEM occupations meets current demand within the United States economy. The authors also point out that the use of foreign labor pools for STEM jobs is primarily not a worker supply issue, but an economic issue, because the cost of this labor is less.

The aforementioned information provided a broad, macro explanation of the benefits of relationships between education and industry. For the student, the micro interpretation of the personal economics is more applicable. Grubb (2001), studying national data sets, found that a 23 year old high school graduate with an associate’s degree could expect to earn approximately 12% more than the non-degree holder. That percentage increases to a 29% premium by the age of 29. The micro economic value of the degree credential escalates with the age of the degree holder. This indicates that the benefits of further education, be it a terminal degree leading to a job or transferrable education, are important to members of society.
Carnevale and Desrochers (2004) comment on the societal and economic implications of education and work:

…the inescapable reality is that ours is a society based on work. Those who are not equipped with the knowledge and skills necessary to get, and keep, good jobs are denied full social inclusion and tend to drop out of the mainstream culture, polity and economy. In the worst cases they are drawn into alternative cultures, political movements and economic activities that are a threat to mainstream American life. Hence, if post-secondary educators cannot fulfill their economic mission to help youths and adults become successful workers, they also will fail in their cultural and political mission to create good neighbors and good citizens. (p. 39)

The authors indicate that earners in the U.S. economy with an associate’s degree earn less than those with a bachelor’s degree, but 83% have earnings that are similar to bachelor degree holders. The underlying message is that achieving post-secondary education is beneficial to both the individual, industry, and the economy as a whole.

The underlying fact made prevalent by Florida, Friedman and Porter is that regions that have strong educational systems linked with local economies have maintained, or created, strong economic growth. Hanushek (2005) indicates that “the knowledge and skills of the population have a very powerful impact on national growth rates. (p. 3)” He goes on to point out that economic growth ultimately determines the overall standard of living for that society. Through his research, he has found that school attainment across different societies is highly correlated to economic growth. Like Carnevale and Desrochers (2004), Hanushek (2005) indicates a need for the citizenry to
earn a life-sustaining income; benefits are garnered by both the individual and the economy.

Industry Changes, Why Not Education?

While the stakes are high for education to change, the competitive landscape within education is quite different from that of industry. Industry, due to competition, technological change, and a plethora of other reasons has been forced to embrace change or perish. Utterback (1994) documents case studies of industries that became dominant players in certain market segments but ultimately failed by not reacting to market changes. A model for the phases of product and process development is clearly described using Utterback’s case studies. Interestingly, many large successful companies are completely eliminated by innovative companies, dubbed disruptors by Christensen (1997). Existing companies described by Utterback become so specialized throughout business systems, that change becomes very difficult. For one element to change, other business units must change concurrently. Thus, change becomes slow and sometimes costly. Christensen, Horn, & Johnson (2008) indicate that educational entities suffer from the slow change stigma. In this work, the authors are attempting to transfer research from what has been learned in the economic cycles of industries to education. Christensen et al., portend that students learn in many different ways and are motivated by different factors. Unfortunately, schools are matching what is taught to standardized achievement tests. These tests are thought to measure success. Tagg (2008) and Christensen et al., have written that industry desires competent workers. These authors recommend that schools move away from standardized testing and monolithic instruction typical of the mass production systems of the industrialist age and toward a modular
approach. Education administrators and policymakers should listen to their customers, both industry and students. Listening to the customer can drive innovation in education. Christensen presses members of academia to utilize the lessons learned in the economic cycles of various industries to identify processes for improving education.

Chesbrough (2003) presents case studies that can benefit the education community, especially those seeking to innovate. These stories are of companies that have prospered by opening their innovation process up to outsiders. The success stories highlighted by Chesbrough are contrasted with companies that sustained a closed culture and did not share their processes with outsiders and eventually disappeared from the economy. The companies that were open to new innovations and learned from outsiders have maintained market success by changing product and/or process design. Accepting and adopting change allowed companies to transform and continue to compete when the market changes. Christensen et al., (2008) are encouraging the education community to do the same; that is, look outside the local institution, even outside education altogether, for innovative ways to find new prosperity.

Pascarella (2006) noted that most social institutions, especially education, have not been the object of many research theses concerning internal scrutiny as recommended by Christensen et al., (2008). Pascarella notes that the policies, procedures, programs and practices that makeup the U.S. educational landscape, have been exempt from such scrutiny. Policy decisions have been made up of perceived rationalization with very little evidence to support the strength of the notion. Pascarella indicates that the resultant is a belief that a program is of high quality with little scientific evidence. Education has not
been challenged competitively like industry. Thus innovation and change within education has been minimal.

As a possible result of this lack of internal scrutiny, researchers such as Knowles have described the U.S. educational system as “progressively regressive” (1973, p. 41). He described the system as one of achievement. The measures of achievement include tests and college admission. Knowles indicated that measures throughout grades 2 through 12, and into college, are not about learning and competence at all. He postulated that adults need to experience what is learned in an application-based environment. The lecture-based model utilized by many educators does not convey learning.

Students are consumers with more educational choices today than in the past (Brown & Harnish, 2001). Brown and Harnish surveyed community and technical colleges in the U.S.A. for new models and innovation. The authors found that learners now demand relevancy, convenience, and greater choice. Demand for convenience includes altering program delivery and scheduling; converting instruction from a course to a module that will allow more flexibility for individuals. Thus, the learners can build their education on modules gained from various places. The authors of this study noted that in some instances certificates gained in professional development or other workforce type offerings are worthy of college credit along with other life learning events. To further support the need for innovation and change in community colleges, Gordon (2000) indicates that education in the U.S.A. is not performing to worldwide standards. Many countries are doing more to mold learning opportunities to the need of industry. Germany has a system that allows students to learn career specific material, and to actually work or intern with a company while learning.
Operating in this traditional monolithic manner has been identified as a weakness by other researchers. Jacobs (2002) encourages integration when considering workforce and career technical programs. He recommends abandoning the silo effect often created by various departments. Jacobs indicates that the silo effect causes distinction and separation; but there are no real clear and distinct boundaries in workforce, career, human resource development and adult education. Learners view these fields as avenues to increase quality of life. These fields serve as an opportunity for a worker, or potential worker, to develop skills.

Contrary to the wants and needs of the education consumer described by Jacobs (2002) and Tagg (2008), Cross (1998) indicates that most schools meet the demands of a workplace from a different era. He finds that schools are designed to integrate students into a highly standardized, tightly managed work environment. This environment is cumbersome, often difficult to change. Whereas, the research of Christensen (1997) and Chesbrough (2003) indicates that the modern workplace requires students that can work in a faster-paced environment. Cross describes product cycles that are much quicker to change than in the industrial age; therefore workers need to operate in teams, independent from supervision. He writes that education operated in a learning community environment better prepares workers for the pace of the current economy.

If the education community does not embrace change as recommend by Jacobs (2002), Tagg (2008) and Cross (1998), a changing landscape will eventually prevail. Christensen et al. (2008) posits that disruptive change will grip education and cause considerable improvements. This work cites recent neuroscience research that shows that people learn in different manners. Typical classroom instruction, with a lecturer
providing the action with passive students sitting and listening, is shown to be a poor way to learn. Christensen urges researchers to codify successful teaching and learning strategies, such as those used in successful charter schools, and matching this information to the type of student in these schools. This code can then be replicated to match the different types of cognitive learners, so that matches can be made to best meet different learning styles and classroom delivery models.

Jacobs and Hundley (2005) offer a similar prognosis to education administrators. The demographics of colleges and universities have changed. The problem lies in the fact that institutional change has not kept pace. The authors suggest that students that are more involved in their own learning become more engaged with the institution. The demand for more engagement with the learning process will force teachers to revise pedagogical processes. The use of activities such as developing intensive teaching formats, as well as accelerated scheduling and mechanisms to provide credit for prior learning, will become institutional realities in the years to come.

Designing education to the needs of the learner and matching industry to program funding might lead to a higher student success. Engstrom and Tinto (2008) report findings from the National Center for Education Statistics. This data reveals that 56% of high income students that begin college will complete but only 26% of low income students complete college. Grubb (2001) reports that low income community college students could benefit from innovation, including flexible scheduling, links between school and work, and using institutional policy to strengthen teaching methods. He goes on to indicate that community colleges that seek to be impactful in workforce and economic development should divorce the rigid academic calendar. This could positively
impact those from lower income households. The work of these researchers and others such as Gordon (2000), Pascarella (2006), and Brown & Harnish (2001) seems to imply that education has not kept up with the pace of change happening in other parts of industry and society. Their counsel suggests that education must investigate new innovations and processes in order to support the United States economy, and its citizenry, to the level needed.

Programmatic Change in Higher Education

Researchers such as Gordon (2000), Alssid et al., (2002), Brown and Harnish (2001), Tagg (2008), Cross (1998) Christensen et al., (2008), Jacobs (2002), and Pratzner (1985) have made the call for education to discover and implement improvement strategies. These researchers have deemed education as non-responsive to the needs of the 21st century workforce. Some educational institutions have initiated new pedagogical strategies aimed at those in the education market that might not fit into traditional educational environments. These strategies usually cater to the adult learner (i.e. non-traditional student) and are often criticized by mainstream education (Washburn, 2005). Research in the area of intense course scheduling area has been conducted by Wlodkowski (2003), Wlodkowski et al., (2000), Wlodkowski and Westover (1999), Daniel (2000), and Davies (2006). In any strategy and improvement initiative, student learning and gains should be at the heart of the initiative. No research was discovered that examined program and course scheduling in community college career and technical education. The available literature does not provide any evidence concerning student effort levels in different scheduling environments.
To understand the student affects of migrating from a traditional practice such as transitioning from traditional academic course scheduling to intensive scheduling, research within other areas of higher education might provide information. Davies (2006) describes intensive teaching models as “accelerated, time shortened, block format, compressed, or intensive modes of delivery” (p. 2). The author makes the definition of classes taught in the “block mode: very large chunks of teaching time, for example whole day sessions, offered in week-long mode, two or three week long mode and weekend mode” (p. 3).

Daniel (2000) performed an exhaustive review of literature on time shortened courses, with most data coming from the four year setting. In conclusion she found that:

….contrary to conventional wisdom that intensive courses sacrifice rigor and academic quality for convenience, the literature strongly indicates that time-shortened formats, whether during summer session, intersession, weekend, or regular semester, can produce favorable outcomes as measured by test scores. The research also suggests that most courses, regardless of discipline, can effectively utilize time-shortened courses without sacrificing learning. Overall advantages of intensive courses include convenience, superior test scores, stimulate discussion, and result in creative teaching techniques. Disadvantages involve fatigue, stress, and lack of time to prepare and study. (p. 206)

The faculty implications included the fact that these courses were labor intensive. In delivery, faculty that implemented these courses utilized extensive active learning and group discussion techniques. In effect, altering the delivery to an intensive format
incurred no loss of rigor and actually improved student affects such as test scores and student to student interaction. The drawback being that intensive courses are somewhat exhausting to the student.

As compared to four year colleges, very little research has been done to examine students and topics such as intensive course scheduling in the community college environment (Marti, 2009). Swenson (2003) argues that student learning should be the determining metric in any class or programs analysis. The author notes that the semester and quarter systems were inventions for a different era. Swenson (2003) states that “academic calendars designed for an agrarian society are anachronisms in the digital age, where more than half of all students work full time, year-round, and instruction can take place regardless of time and place” (p. 84). Swenson indicates that all learning is individual and independent of teaching. Education is steeped in tradition and conventional wisdom. The author goes on to argue that the system is almost designed to protect normal practices; teachers should shift their paradigm from conveyors of knowledge to managers of learning. Any program that is created or changed should undergo measurement and analysis to determine if students are learning. Changing from traditional scheduling to intensive course scheduling, if student learning is improved is a practice with which community colleges should experiment (Daniel, 2000).

While community colleges are often cited as being impactful due to their flexibility (Millron & Santos, 2004), this is not always the case. Community colleges, like many companies and/or businesses, can become bureaucratic and slow to change and avoid experimentation (Gordon, 2000). Gordon predicts potential worker shortages due to the inadequacies of the United States education system and the lack of change therein.
Gordon points out that education is lacking, particularly modern workforce preparation, and proposes alternative methods, such as the system utilized by Germany to educate and train workers. Gordon describes many major reforms in business and industry over the course of the 20th century. Unfortunately, community college educational systems have not kept up with the pace of change and experimented with, or researched, intensive course scheduling practices such as those described by Davies (2006) and Daniel (2000).

Some segments of higher education keep up with the pace of change by offering classes in a format that allows students to study one subject at a time. A qualitative study performed by Patricia A. Scott (1994) found students synthesized the subject matter better when studying one subject. The study probed students (N=67) enrolled in two matched sets of English and marketing classes. Each set was taught by the same instructor using the same material. The only difference was that each subject was taught in either an intense format or the normal concurrent scheduling formats. The study utilized focused observation, interviews and videotaped class sessions. This study found that students experience the two different class types differently. Students described intensive courses as a more memorable experience than classes taken in a concurrent schedule. Students liked active learning, group discussion and interaction. Students appreciated depth over breadth of material covered. Students became more involved and connected with faculty in the intensive format.

The practice of offering short, intensive courses has been practiced widely in summer terms in higher education. A study carried out at Westchester Community College of students enrolled in the summer term found that 80.3% of students preferred short, intense scheduled courses in the summer (Lee, 1996). Other research has found
that students generally favor intense, time shortened courses and find these courses

Matching a learning approach to the student is becoming more prevalent, as noted
by Davies (2006). How courses are delivered today is important to educational
institutions. Students have more choices than ever before and have the opportunity to
match courses and programs to their learning needs (Brown & Harnish, 2001). Proper
teaching and learning are not abandoned by altering the delivery of classes (Daniel,
2000).

Wlodkowski (2003) cites two studies (Wlodkowski, Itturralde-Albert, & Mauldin,
2000; Wlodkowski & Westover, 1999) that compared learning attributes of young
students enrolled in traditional 16-week courses versus adults enrolled in intensive
courses. These two studies revealed no significant differences in the amount of material
learned by the two groups in the different formats.

Wlodkowski’s (2003) work reviewed the literature of student success in
accelerated (i.e. intensive) versus traditionally scheduled courses and programs. The
author notes that intensive courses have proliferated from private and for profit
institutions primarily in the past 25 years. Institutions such as the University of Phoenix
and others have successfully modeled programs to benefit adults. These programs
typically utilize some sort of intensive scheduled courses. A lack of research into these
areas is noted by Wlodkowski. Most work to date has been doctoral research, especially
research involving adults; little research involving young adults age 25 or younger has
been performed. Research relative to student success and satisfaction with these different
pedagogical approaches is needed.
No specific research was discovered that analyzed community college program and course scheduling in career and technical education and how student effort levels differ in these environments. However, the works of Wlodkowski (2003), Scott (2003), Davies (2006), and others, have found that delineating from the traditional college scheduling environment could be a promising direction and an acceptable practice for policymakers to try.

Measuring College Student Quality of Effort

Authors such as Gordon (2000), Pascarella (2006), Brown & Harnish (2001), Christensen et al., (2008), Jacobs (2002) and Cross (1998) have indicated that education has not kept up with the pace of change that other segments of the United States economy have experienced. Wlodkowski (2003), Scott (2003), Davies (2006), and others, have found that deviating from the traditional college environment is a common practice in the for profit four year colleges. Swenson (2003) even argues that the academic calendar itself was founded on an entirely different cultural mainstay than that of the current United States economy. However, as highlighted by Swenson, if higher education is to change operational modes, the student affects should be measured and analyzed.

With any change initiative, within industry or education, management must have access to metrics. Instruments and measurement methods provide a scorecard to determine the value of the improvements. *Best Practices for Assessing Performance in Community Colleges: The Emerging Culture of Inquiry* (Dowd, 2005) catalogues and reviews several higher education performance review instruments. This report helps college investigators determine means for investigating both internal and external college performance. Dowd reports that most accountability systems at colleges lack process
benchmarking analysis that isolate characteristics of effective teaching and learning systems. The author indicates that the federal government is pushing for experimental designs to be used in federally funded evaluation of education programs. The Community College Student Experiences Questionnaire (CCSEQ), the Community College Survey of Student Engagement (CCSSE), the Cooperative Institutional Research Program (CIRP), the Faces of the Future survey, the Student Opinion Survey and the Noel Levitz Student Satisfaction Inventory are included in that inventory. Dowd reports that only the CCSEQ, CCSSE and CIRP are based on educational research and theory.

Similar to Dowd’s (2005) work, Delaney (2008) documents and catalogues surveys commonly used for building a knowledge base on students; however this work is not community college specific. Delaney describes the CIRP as a national longitudinal survey that is administered to entering freshman (Delaney, 2008). This survey furnishes information about entering freshman on many topics such as their abilities, goals, career plans and college expectations. Another survey of freshman noted by Delaney (2008) is the Your First College Year (YFCY) survey. The YFCY survey is also designed to better understand aspects of students’ first year experience at college and is administered at the end of the freshman year. This survey is linked to the CIRP for analysis. Delaney identifies other surveys such as the Higher Education Data Sharing (HEDS) Consortium Senior Survey and The College Senior Survey (CSS) that are utilized for college seniors.

The Community College Survey of Student Engagement (CCSSE) is based on research that reflects high levels of student learning and persistence (McClenney, 2007). McClenney indicates that this survey is built on the works of Pace (1984), Astin (1999), Checkering and Gamson (1987) and Kuh et al. (1997). The author notes that this survey
has been in use since 2001 and the results find that quality of effort matters. The author implies from the empirical effort, that those that put in the most substantial, or higher quality effort, have higher success rates. McClenney also specifies that achieving a high quality of effort is not an accident. The higher quality outcomes are manifested through intentional application in course design. The CCSSE requires a paid college membership in order to participate.

The Community College Student Experiences Questionnaire

The CCSEQ (Friedlander, Pace, & Lehman, 1990) survey instrument is a self-report tool. Friedlander, Murrell and MacDougall (1993, p. 13) states that the CCSEQ evaluates and measures factors relative to:

- the student’s level of involvement in desired in-class and out-of-class activities.
- the degree of progress students feel they have made in achieving desired educational outcomes.
- and the amount, breadth, and quality of effort students put into taking advantage of the resources and opportunities available in the college setting. (p. 13)

These factors are looked at across course related activities, the library, contact with faculty members, counselors and other students. The questionnaire investigates the quality of interactions with faculty, counselors, and other students.

The CCSEQ is grounded in Pace’s theory that a student’s growth and development, as well as what they learn, is determined by the “quality of effort” placed forth by a student (Pace C., 1979b). Pace argues that the institution’s goals, and the environment created by such, guides student perceptions. This in effect determines the basis for the student’s effort. Pace developed the predecessor to the CCSEQ, the College
Student Experiences Questionnaire in 1979 (Pace, 1984). The CCSEQ questionnaire was revised in 1983. Pace’s (1984) analysis of the questionnaire responses across many samples found that students most satisfied with college “put the most effort in and get the most value out” (p. 56).

Pace asserts that what a student does in academic and classroom activities will predict the success of the student. Lehman (1991) argues that Pace’s theory is not dependent on the type of education experience or collegial experience that an institution affords its students. Quality of effort, as described by Pace, is applicable to all students at all institutions. The factors contained within this theory look only at the time and effort that are required for the learning and development of students. Based on this, Lehman concluded that Pace’s theory was more applicable to the community college student than Astin’s theory of student involvement. Pace’s theory does not include success factors that are typical of the four year institution and not the community college.

Lehman (1991) performed the first study of the psychometric properties of the CCSEQ, and found the CCSEQ to be a sound instrument. The scales for reliability ranges were high from .84 to .94. Lehman found that the construct based on Pace’s (1984) theory, quality of effort, could be measured. Comparisons to the predecessor instrument, the CSEQ, were used to demonstrate external validity. A basic premise of this work was to determine if the quality of effort Scales apply equally to the community college students as used similarly in the College Student Experiences Questionnaire (CSEQ) (Pace, 1979a). The author tried to determine if the scales could be linked to the actual educational goals of students. Lehman found that the relationship between the Estimate of Gains and quality of effort scales is consistent with Pace’s (1979b) idea. This
research found “that the construct, quality of effort, can be found and measured in community colleges” (Lehman, 1991, p. 214).

Ethington and Horn (2007) tested Pace’s model. The study used CCSEQ data from samples obtained from 40 community colleges (n=1,241) from across the United States. The authors based this study on the assertion made by Pace (1979b) that simply participating in collegial activities does not translate into success; it is the quality of effort that makes the difference. The model was estimated “with direct effects represented by ordinary least squares regression coefficients, and indirect effects as sums of the products of the direct effects through intervening variables (α<.01)” (Ethington & Horn, 2007, p. 189). The model used the personal and social development questions (5 items) within the CCSEQ as the dependent variables. Of the independent variables, direct influences are from quality of effort and the perceptions of the environment. The authors found that the data strongly support Pace’s (1979b) postulation that student effort is paramount in predicting student development.

The CCSEQ has been used in several different manners. Ethington and Polizzi (1998) used cumulated data from 2,528 college students across several colleges to examine comparative differences in four vocational program areas. The vocational program areas studied were health, business, technical and communications, and vocational trades. The goal was to determine students’ perceptions of career preparation gains. The second goal was to determine if the quality of effort expended by students from differing programs influenced career preparation gains. The study indicated that students from the four groups differ substantially. Health students appeared to be more unique, in that they were predominantly female, spent more time studying and exerted a
greater effort in all of the involvement measures. These health students reported the greatest perceived gains in career preparation. The study found that the quality of effort exerted in gaining and perfecting vocational skills affected career preparation gains the most in all four groups. This work further substantiated utilizing the CCSEQ as it solidified the fact that quality of effort in perfecting vocational skills affected the career preparation gains more than other factors. The authors stated that this would be expected because vocational programs tend to emphasize job specific knowledge and skills. The CCSEQ’s reflection of the association between these two variables in all four vocational groups validates the use of the CCSEQ in the study of vocational students, as denoted by the authors. This research recognized the importance of providing opportunities for students to concentrate on activities that relate to greater career preparation gains.

Douzenis (1996) utilized the CCSEQ to determine if community college student engagement increases a student’s estimate of knowledge gained. Astin (1993) and others found this relationship to exist in the four year college setting, as reported by Douzenis. Data analyzed from three community colleges in Tennessee (n=478) were utilized for this effort. The sample generally consisted of transfer (pre-baccalaureate) students or students seeking a two year terminal degree in preparation for the workforce. The data revealed that students who put a large degree of effort into classroom-related activities tend to have high levels of involvement with faculty. Of the quality of effort scales in the CCSEQ, writing, faculty, and library activities showed the strongest correlation to the estimate of gains, while student acquaintances were the lowest.

A dissertation study conducted at a small community college in Tennessee (Finney, 2005) utilized the CCSEQ to measure female students’ (n=116) perceived levels
of math anxiety and their perceived gains in mathematics, problem solving skills and ability to use technology. Significant relationships were found between students’ quality of effort in science and student acquaintances and perceived gains in math; also, the greater the quality of effort with faculty, the greater the students’ perceived abilities to use technology.

Another dissertation utilizing the CCSEQ at a small community college in rural West Virginia (Layman, 2005) analyzed commuter and residential student experiences. This study investigated resident and commuter students’ reported levels of involvement in activities, achievement of educational goals, and satisfaction with the educational experience. The *t*-test for independent means was used to compare the two groups. Significant differences were found on five of the eight quality of effort Scales of the CCSEQ. The same tests found significant differences on four of the five college activities areas. Resident students reported higher levels of campus involvement than commuter students. In the Estimate of Gains section, commuter students reported a significantly higher level of gains in career preparation. Further analysis found that a high level of commuter students were enrolled in health related fields.

The works of Pace (1984), Friedlander, Pace, & Lehman (1990), Lehman (1991), Ethington and Horn (2007), Pace (1984), Ethington and Polizzi (1996; 1998), Finney (2005), Layman (2005), Douzenis (1996) have found the CCSEQ to be a valid and useful instrument for the investigation of students at the community college level.

Research Relative to Student Experiences and Success

Many objective measures such as standardized test scores, exam grades, participation grades, and project grades are utilized by most institutions as metrics to
determine student achievement. Pascarella and Terenzini’s (2005) second edition of How College Affects Students provides a review of literature concerning higher education and the students involved therein. Pascarella and Terenzini provide theories, models and research topics that show that effective teaching and learning takes place with students actively involved with other students and faculty. The authors find through this exhaustive work that learning should not be a passive activity. Teachers should not rely solely on the paradigm that knowledge should be passed to the learner. Students should be involved in building their knowledge base and classroom activities should be learning centric. Some of the work included in Pascarella and Terzini’s second edition include the works of Pace (1979b, 1984, 1992), Astin (1970, 1993, 1999) and Tinto (1987, 1993, 1997).

Pace (1984) described education as both a product and process. To measure the outcome of delivering the product and process, Pace developed the construct “quality of effort.” Pace identified this construct (quality of effort) as highly relevant to factors associated with student involvement in college academic activities. To actually measure this construct Pace looked at the student and the institution. Pace indicated that the student was accountable for the time and effort invested in the learning process. The college is accountable for the learning environment that makes attending college possible. The environment described includes the college facilities, faculty, libraries, organizations and other academic and social opportunities. To measure quality of effort, Pace focused on how students use the resources provided by educational institutions for growth and development. To determine how the student experiences college, Pace then developed a series of questions and a scale, whereas the student could then provide information to
determine the quality of effort exerted. Combining factors concerning the student’s effort, and the effort of the institution, Pace developed a measurement instrument. The College Student Experiences Questionnaire, and the resultant Community College Student Experiences Questionnaire, have been used by researchers to measure students’ “quality of effort” at many institutions (Friedlander, Pace, & Lehman, 1990). The questions within the instrument are sectionalized to match the elements that Pace identified as important factors in the determination of effort. These factors (i.e. variables) include items such as college course activities, faculty interaction, student to student interaction, career and occupational skill preparation, and overall satisfaction with the college environment. Pace’s research and the development of the CCSEQ measurement tool (questionnaire) makes it possible to analyze these factors in community college research.

Astin’s (1999) theory is one of student involvement in the academic and social environ. His construct, level of involvement, represents a student that “devotes considerable energy to studying, spends time on campus, participates actively in student organizations, and interacts frequently with faculty and other students” (1999, p. 518). Astin looked closely in the involvement of students in fraternities and sororities, athletics, campus living/life, and other social aspects often inherent to the four year college or university. His research indicated a link between involvement and student success.

Astin (1999) finds that a student’s time is a finite resource. How much time a student devotes to the collegial activities will predict the student’s success. Some of the strong predictors found by Astin included residency on campus and membership in a social club (i.e. fraternity or sorority). Other predictors of persistence included
membership in ROTC, participating in intramural or collegial sports, and being involved in a professor’s research. Ironically, holding a part-time job on campus was a strong predictor of persistence. Often, the mindset is that if an undergraduate must work, then studies might be neglected. Astin indicated that attending a two year college was a predictor of failure. Astin proclaimed that due to the fact that community college students typically commute, work and spend little time on campus, then this student has a high likelihood of leaving the education institution. Another caveat of Astin’s theory was the idea of a student becoming more involved in academically by enrolling in an institution that reflects the student’s own culture and home environment. Small town people succeeded more at small colleges. Blacks prospered more at traditionally black colleges. Astin found that faculty to student interaction is more strongly related to student satisfaction with college than any other factor. Astin encouraged college policy makers to find ways to maximize faculty to student (and vice versa) interaction. Astin’s theory seems to indicate that the quantity of involvement activities is the underlying success factor for an institution. Astin concluded that researchers should study the effects of particular areas of student involvement. This could lead to more emphasis (higher quality) of the more successful factors. Astin urged policymakers to measure the degree to which factors increase or decrease student involvement, be it in the classroom or extracurricular activities. Like Astin, Delaney (2008) found a significant relationship between faculty to student interaction and students’ “perceived growth in knowledge, academic adjustment, and satisfaction with courses” (p. 61).

Tinto’s (1993) theory of integration delves into the academic and social aspects of students. This theory emphasizes student integration into the social and academic
environments provided by educational institutions. The research finds positive results from integration into these environments and student persistence to graduation. The academic factors that stand out as positive indicators of persistence include, faculty and student interaction as well as student to student interaction. Tinto found that high student classroom participation levels lead to student learning which subsequently leads to achieving personal goals. Tinto advises researchers to collect data that examines “the quality of that participation as it is understood by students” (1993, p. 215). He also urged researchers to look at the quality of the student effort regarding effort in the course related areas, interaction with faculty and student and progress toward personal goals. Tinto attributes the key to effective retention for higher education institutions is a strong commitment to educational quality. Tinto identifies many variables that are predictors of academic and social integration factors, such as prior qualifications, individual characteristics and cultural background. Others are tied to the specific institution, such as teaching, learning support, facilities, and other elements provided by the collegiate institution. Tinto indicates that when these two groups of variables are combined, students’ sense of both academic and social integration are assured; when either group is compromised, students are more likely to drop out. Like Pace (1979b), Tinto finds that the evidence of student inclusion in campus educational and social engagements is important, particularly in the classroom. Tinto identifies that establishing a social network and academic involvement are two major predictors of retention. Likewise, Friedlander’s (1980) dissertation analysis of the CSEQ, found that the amount of effort the student put forth in the classroom was the most important determinant in students’ perception of competency development (p. 65).
In, *Rethinking the First Year of College* (Tinto, 2001), the author indicates that most retention efforts within higher education take place at the student affairs’ divisions of the institution. The weakness herein is that faculty is not leading this effort in the classroom. While worthy, the efforts of the student affairs staff have not altered students’ academic experience. To rectify the situation within higher education, Tinto recommends the following course of action:

Faculty should become more actively involved in retention efforts; and retention programs should include initiatives that change the everyday academic experience of students, especially during the critical first year. This is especially urgent for commuter students since classrooms and laboratories are often the only places where commuters actively engage with faculty and other students. After more than a decade of research in this field, I am persuaded that the roots of successful student retention lie in better education during the first year. (2001, p. 3)

Tinto’s earlier work, (1997) strengthens the argument that changing the academic experience can lead to improved outcomes for students. Tinto studied a program conducted by Seattle Central Community College (SCCC). The Coordinated Studies Program (CSP) created small groups of interconnected students. These students shared curriculum and classes together in specially scheduled classes. The groups shared in the learning experience by participating in interdependent teams. This mixed-methods study was designed to see if the CSP program made a difference, and so, how the program impacted students (Tinto, 1997). Survey data were compiled and case studies conducted. For the survey, students from the CSP and students from regular classes were polled. The results indicated that students in the Coordinated Studies Program persisted from the
spring to fall semester at a significantly higher rate than students from regular classes (66.7% versus 52.0%). The qualitative results of Tinto’s work found that involvement mattered to the students. Involvement with faculty, as well as their peers, in the classroom influenced students’ overall perception of the community college experience. In this qualitative analysis, Tinto discovered three underlying themes that were relevant to the development of the learning community. These themes were:

1. Building supportive peer groups – students developed a peer group to support each other, which were a valued part of the experience

2. Shared learning bridged the academic and social divide – students made friends in the classroom while attending the block scheduled classes that otherwise would not have developed. Typically, social engagements would compete with academics, but this form of engagement complemented learning.

3. Gaining a voice in the construction of knowledge – students were active participants in learning. The passive model of the instructor speaking and students listening was avoided. Students took a personal sense of involvement in this type of learning. (Tinto, 1997)

Tinto (2006) encourages researchers to investigate models that can reduce attrition. Institutional actions should provide policy makers with action plans that can be deployed to enhance persistence. The model(s) should connect programs and practices into firm actions.

Tinto (2001) reports that as students learn, retention increases, and that students learn more in interactive communities. Tinto describes a learning community as “a kind
of co-registration or block scheduling that enables students to take courses together ..... forming sort of a study team” (2001, p. 5). Retention and learning are numerical variables that can be tested with quantitative methods.

Engstrom and Tinto (2008) performed a study of the effects on learning communities. This multi institutional, longitudinal study of learning communities that also utilized collaborative pedagogical practices. The sample consisted of low income students at 13 community colleges and 6 upper level colleges. This study utilized comparison groups to analyze the student affects of learning community environment. Low income students that were enrolled in regular classes were compared to low income students enrolled in learning community classes. The Community College Survey of Student Engagement (CCSSE) along with National Student Clearinghouse data were used for this analysis. The data revealed that students in learning community classes were significantly more engaged with faculty and classmates. These students persisted from year to year in college at a higher rate.

Tinto (1999) identifies several guidelines for academic institutions to ensure student success. Tinto’s guidelines are:

- Expect and hold students to high expectations
- Support programs such as tutoring, and supplemental instruction
- Frequent feedback, especially feedback in the classroom
- Involvement in the classroom and extracurricular activities
- Relevant learning where students are immersed in interactive learning environments with peers.
In summarizing the wealth of information concerning student retention and success, Tinto (2006) indicates that the key to effectiveness lies in the classroom. This is the area that is controlled by college faculty. Interestingly, Tinto (2006) indicates that “college faculty are the only group in kindergarten through graduate school that are not required to receive formal training for teaching preparation” (p. 7). He goes on to say that his research has found that the key to retaining students lies in successfully educating students. Students that are engaged in the educational processes exert a greater effort and succeed.

Checkering and Gamson, in the Seven Principles for Good Practice in Undergraduate Education (1987), recommend positive principles supported by the American Association of Higher Education, the Education Commission of the States, and the Johnson Foundation. Student to faculty contact, student cooperation and teamwork, greater emphasis to time on task, active learning, prompt feedback, high expectations and respect for diversity are the principles. Kuh, Pace and Vesper (1997) used three of these principles, faculty-student interaction, cooperation among students and active learning and the College Student Experience Questionnaire (CSEQ) (Pace, 1979a) for study. The CSEQ is the predecessor to the CCSEQ and is used for the study of four year colleges. Several researchers were invited to determine which questions from the CSEQ could be used to model the good principles from Checkering and Gamson (1987). Faculty-student contact, cooperation among students and active learning were found suitable (Kuh, Pace, & Vesper, 1997). For the sample, (n=2733) 971 students were surveyed from each of three institutions; baccalaureate, master’s and doctoral granting institutions. Active learning was the strongest indicator of influence on academic gains. Cooperation with
other students had the second greatest gains. Faculty to student interaction was only
significant for males at master’s granting institutions.

Two national data sets were used by Umbach and Wawrzynski (2005) to study the
relationship between faculty and student engagement. This study of four year colleges
and universities used data from the National Survey of Student Engagement (NSSE).
Senior (N=20,226) and freshman (N=22,033) students were surveyed at institutions that
utilized the NSSE. These same institutions’ faculties were surveyed using an instrument
designed to measure faculty expectations of student engagement. Hierarchical linear
modeling was used in a two stage analysis. The authors found that institutions using
proven effective pedagogical practices (Checkering & Gamson, 1987) had a “dramatic
effect on student learning and engagement” (Umbach & Wawrzynski, 2005).

Kuh (2003) recommends that an immediate step colleges can take is to try and
determine groups that are disengaged and try to get them involved academically, as
engagement improves learning. Pike and Kuh (2005) have researched a collegial
classification system to be used independent from the Carnegie system. This study
analyzed data from surveys used to capture students’ educational experiences. For this
analysis the NSSE data from 2001 were utilized (n=177,103). The study results revealed
that a classification system of this sort is possible.

Using tests scores from RAND, GRE and NSSE survey data (Carini, Kuh, &
Klein, 2006), academically desirable outcomes were credited to student engagement.
Students were paid to take either the RAND or GRE test. These same students completed
the NSSE survey. Statistically significant positive correlations were found between
student engagement and test scores, both before and after controls were added for several
student characteristics. Zhao and Kuh (2004) indicate that student engagement and learning (effect on general education, p<.001) increases in smaller group settings, especially for first year students.

The comparison of interactive learning and lecture-based courses has shown considerable differences in what is learned. Hake (1998) found a significant gain in scores of two standard deviations above that of traditional lecture course for a sample (n=6542) of high schools, colleges and universities administering one of two common physics tests. In interpretation of this study, the authors of Pedagogies of Engagement: Classroom-Based Practices (Smith, Sheppard, Johnson, & Johnson, 2005) “indicate that student to student interaction during class time is associated with a greater gain on the FCI (test)” (p. 14).

Several years of study and data utilizing the Community College Survey of Student Engagement (CCSSE) was conducted by McClenney (2007). A key finding of this study is that engagement matters. Active and collaborative learning were especially high predictors of success including higher grades, course completion rates, semester to semester retention, and degree completion. This study found that the most significant engagement practices were deliberate, and designed into classroom activities. Like Tinto (1993), CCSSE data revealed that students are most likely to become disengaged during the first year of college. The recommendation to community college policy makers and faculty is to build engagement into the classroom, especially freshman level classes.

Strauss and Volkwein (2004) examined predictors of institutional commitment of first year students at 28 two-year and 23 four-year public colleges. For this study, the student’s commitment to the institution was defined as “a student’s overall satisfaction,
sense of belonging, impression of educational quality, and willingness to attend the institution again.” (Strauss & Volkwein, 2004, pp. 203-204). A variable used in the study, classroom experience, was one of the strongest variables in predicting commitment. This variable was stronger for two-year than four-year colleges. The slope of the classroom variable at two-year institutions was .02 higher than the slope of the four-year line. The average slope for faculty interaction at both two-year and four-year institutions was a strong predictor of commitment. The authors, in conclusion, recommended that campus managers seek ways to improve the classroom experience, especially at two-year institutions. In doing this, the student to faculty interaction should be an area of focus. This could be done by utilizing active learning pedagogical approaches.

Strauss and Volkwein (2002) found that positive classroom experiences impact student grade point average (GPA) in a positive manner. The authors state that college GPA may vary widely by discipline and instructor and should not be used as a single measure of college success. This same study found that positive classroom experiences resulted in greater student effort.

Successful Pedagogies

The review of literature, in a general sense, finds that engaging students in the learning process leads to a higher quality of effort by the student. Many pedagogical practices are mentioned but not backed up substantially. This section investigates the successful classroom practices to assist the reader with the understanding of these practices.
Prince (2004) reviewed the literature pertaining to active learning. This review examined the effectiveness of such pedagogies. The author, based on review of associated literature, describes active learning as “student activity and engagement in the learning process” (Prince, 2004, p. 223) while in the classroom. For example, Prince highlighted the results from a clinical medical study (Vernon & Blake, 1993) that found that clinical performance was enhanced by the use of active learning, but results on standardized tests declined slightly. Prince deciphers that “engaging students in the learning process is the defining feature of active learning” (2004, p. 227). The author goes on to cite many of the same researchers in this study, which corroborate the importance of student engagement, and the positive affects thereof.

Collaborative learning contrasts directly to the commonly used method of individualistic learning (Johnson, Johnson, & Smith, 1998b). In this environment, students work together cooperatively to achieve shared learning goals. These authors performed a 90-year meta-study in a book titled Active Learning: Cooperation in the College Classroom (1998b). This study found powerful effects associated with utilizing cooperative learning as compared to individual, competitive learning. Their amalgamation of 167 studies performed between 1924 and 1997 demonstrates these effects. Compared to competitive approaches of learning, cooperative learners gained greater individual success (effect size = 0.49). Compared to individual learning approaches, cooperative learners achieved even greater individual success (effect size = 0.53). The meta analysis also found that cooperative learning promotes better student to student interaction than competing (effect size = 0.68) or individualizing (effect size = 0.55). Their work showed cooperative learning generated greater quality relationships
with instructors than competitive practices (effect size = 0.60) or individual practices (effect size = 0.51).

A learning community is “groups of people engaged in intellectual interaction for the purpose of learning” (Cross, 1998, p. 4). Cross posits that “the structure of traditional schools met the demands of the old workplace” (1998, p. 10). She argues that improvement efforts in education have been poorly planned and implemented. Education does not need higher standards or a tougher academic environment with standardized testing. Cross indicates that students need a different type of education. Different pedagogical practices, like the different work practices utilized by 21st century industries, is what education needs to be successful.

In the Coordinated Studies Program (Tinto, 1997) mentioned earlier, the author identifies the classroom as a community. This might be the only place where students and faculty interact, especially at community colleges. Tinto indicates that faculty should design interaction into the classroom. Using active and collaborative learning will enhance student learning in the community environment. In the CSP study, classroom practices were redesigned into a series of block classes that students were co-registered into. In other words, groups of students were kept together through a series of specially designed courses. Tinto found that, through qualitative research, students had a positive stance on the involvement designed into the program. The more students were involved in group learning that links them with their peers, the more these students were engaged. Tinto (1997) stated that academic and social involvement in the classroom “lead to enhanced quality of effort” (p. 8). Engstrom and Tinto (2008) indicate that “learning communities is not just a practice of co-registering students in existing classes” (p. 50).
Faculty and staff must restructure the way learning occurs utilizing active and collaborative strategies. This study found that learning communities for developmental education had positive ramifications in the qualitative interviews conducted of these students.

It would be impractical to think that any pedagogical practice, or college innovation, could fill the void of unprepared students. Fike and Fike (2008) studied students that were the first member of their family to attend college. This study took place at a community college. The strongest predictor of freshman persistence (first semester to second semester) was reading comprehension. This was gauged either by scores from standardized tests, or from satisfactory completion of a developmental reading course. Completion of developmental math courses correlated strongly to persistence. Higbee, Arendale and Lundell (2005) urge faculty to identify students that can benefit from developmental education. Getting these students into the proper development courses will lead to greater student success. McCabe and Day (1998) add that successful developmental education programs should be context-specific and utilize a variety of instructional methods.

Summary

This literature review delved into several areas related to this study. A brief history of the evolution of workforce, career and technical education and the economic implications associated with education and the United States economy are examined. A brief explanation in regards to the successful to the economic development implications of having strong educational and industry relations is provided. The literature related to measuring student learning and growth and the instruments utilized for community
college research is investigated. This is followed by an investigation of the research relative to different groups of college students, including traditional and non-traditional students with an emphasis on what has been learned at the community college level. Finally, a brief inquiry into the literature of the successful pedagogical practices found within this review is provided.

Chapter III will provide the reader with the methodology behind this study. This study seeks to determine if students achieve significantly different self-reported levels of success when enrolled in block scheduled programs and are engaged differently in the academic setting than students enrolled in traditionally scheduled courses. This study will examine students at Pearl River Community College enrolled in Career and Technical Education Programs in the spring of 2009.
CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Introduction

Chapter three describes the research design for this study. This study was initiated as an institutional study aimed at learning the effects of block scheduling on the students’ course activities, student to student interactions, student to faculty interactions, students’ occupation skill preparation and the students’ overall college experience at Pearl River Community College. The population and resulting sampling procedures used to gain this data are described. Also outlined are the validity and reliability information for the instrument. The data collection process is described and finally the data analysis methods are included for this study.

Research Design

The research design chosen here is quasi-experimental, survey research (Shadish, Cook and Campbell, 2002). Specifically, the design is a non equivalent control group using internal controls. Shadish et al. indicates that controlling internally does not guarantee similarity. However, to eliminate selection biases, the sample of traditionally scheduled students was randomly cluster sampled, while the block scheduled students were purposefully sampled to gather as many responses as possible. Demographic data were used to analyze the equivalence of the two groups. The demographics are tested utilizing chi square tests with the Bonferroni technique for correction and calculated at an alpha level of .05/12, equating to the .004 significance level; the alpha level divided by the number of tests.
Since the focus of the research is to study the effects that program scheduling has on the students’ experiences, Pace’s “quality of effort” scales, as described in the *Community College Student Experiences Questionnaire: Test Manual and Comparative Data* (Ethington, Guthrie, & Lehman, 2001), are the measuring criteria for the two groups. The CCSEQ has been utilized for the study of more than 20,000 community college students. This type of inquiry allows for the collection of data that can be analyzed statistically.

Alternate surveys were examined such as the Community College Survey of Student Engagement (CCSSE) and the Cooperative Institutional Research Program (CIRP); neither is used to measure the community college students’ quality of effort. Dowd (2005) indicates that the CCSSE requires an institutional membership while the CIRP is used for longitudinal studies; factors that diffused further investigation for this study.

**Population**

The data used for this research study were drawn from Pearl River Community College; a multi location institution with a campus and three centers, serving a six county district in south Mississippi. The original campus located in Poplarville, Mississippi, and the Forrest County Center located in Hattiesburg, Mississippi offer Career and Technical Education. The Poplarville campus and the Forrest County Center schedule programs utilizing the traditional system; while only the Poplarville campus offers programs adhering to the block scheduling.

During the spring semester of the 2008-2009 school year 672 students were enrolled in Career and Technical Education Programs at PRCC; 514 students at the
Poplarville Campus and 158 students at the Forrest County Center. Of the 514 students enrolled at the Poplarville Campus, 143 students were enrolled in programs that adhere to the block scheduling system. Enrollment data contained herein were made available by the PRCC Office of Information Technology.

Sample

Sample size calculations indicated that for a 95% confidence level, and a 5% confidence interval, 245 of the 672 students should be surveyed; assuming that an 80% success rate could be achieved, 306 surveys were needed. The researcher chose to administer 340 surveys as a precautionary measure.

For this research, purposeful, convenience and cluster sampling methods were utilized. The entire population of block scheduled students was purposefully sampled. Huck (2004) indicates that purposeful sampling is only appropriate when subjects meet a prescribed criterion; and in this case the criterion was whether a student was taking block scheduled courses or traditionally scheduled courses. Of the 143 students enrolled in block scheduled programs, 46 had completed their block course and were no longer available. This left 97 (68%) enrolled students; 93 (96%) of these students were available to the researcher during the data collection phase and therefore were in the convenience sampling.

The traditionally scheduled programs were cluster sampled by program. The traditionally scheduled students were selected by generating a random list of the 32 Career and Technical Education programs. Each program was assigned a unique number and then randomized utilizing Microsoft Excel. Programs were then selected from this random list until the number of students enrolled exceeded the 243 samples needed. In
this case, and as prescribed by Huck (2004), data from clusters, when selected randomly, will provide a probability sample. Huck indicates the importance of each subject having an equal probability of being sampled before inferences can be made about the population the sample is drawn.

Instrument

The purpose of this study was to determine if students report significantly different self-reported “quality of effort” levels when enrolled in block scheduled programs as compared to traditionally scheduled programs. The selected instrument, the Community College Student Experiences Questionnaire (CCSEQ) is used for measuring a student’s quality of effort. This is an instrument developed as an outgrowth of the College Student Experiences Questionnaire (CSEQ), developed by C. Robert Pace (1979a). The CCSEQ is based on Pace’s construct, “quality of effort” (1979b) and is maintained at the University of Memphis’ Center for the Study of Higher Education. The CCSEQ (Friedlander, Pace, & Lehman, 1990) survey instrument is a self-report tool.

Lehman (1991) studied the psychometric properties of the CCSEQ and reported the “reliability range to be between .84 to .94” (p. 214), demonstrating the CCSEQ to be an acceptably reliable instrument. Lehman found that the construct based on Pace’s (1984) theory, quality of effort, could be measured. Comparisons to the predecessor instrument, the CSEQ, were used to demonstrate external validity. A basic premise of Lehman’s work was to determine if the quality of effort Scales apply equally to the community college students like the scales used similarly in the College Student Experiences Questionnaire (Pace, 1979a). Lehman tried to determine if the scales could be linked to the actual educational goals of students. She found the relationship to be
consistent with Pace’s (1979b) research. This research found “that the construct, quality of effort, can be found and measured in community colleges” (Lehman P. W., 1991, p. 214). Pace (1984) portends that what students do while they are in college determines the success of both the student and college. Pace argues that “quality of effort is the best predictor of students’ progress toward the attainment of educational goals” (1984, p. 96).

A construct validity study of the CCSEQ was done by Ethington and Polizzi (1996). This work confirmed “strong psychometric properties of the CCSEQ quality of effort scales and parallelism between the inter-item structure and Pace’s (1979b) theoretical conception of quality of effort” (Ethington & Polizzi, 1996, p. 726). The validity is not conditional and the results are valid for transfer students as well as vocational and technical students.

The CCSEQ Test Manual (Ethington, Guthrie, & Lehman, 2001) provides a full statistical breakdown of the quality of effort scales used for each college activities section of the questionnaire. This breakdown includes inter-item correlations, reliability coefficients, and factor analysis for the quality of effort scales used in each section. The Cronbach Alpha values for the Course Activities, Faculty Interaction, Student to Student Interaction and Career/Occupation Skills are .86, .86, .91 and .93 respectively.

Ethington and Horn (2007), like Pace, postulate that the “inferences made from the CCSEQ quality of effort measures would be valid and appropriate for studying the college experience of both vocational and transfer students, full time and part time students, and White, Hispanic, and African American students”. (p. 187) The researchers also suggest that, based on the many years of usage of the CCSEQ, number of times the instrument has been used in publications, and the many times data from the CCSEQ has
been used in presentations that this instrument is a valuable research tool for studying the two-year college student.

Data Collection

This research study utilized archived data gathered by this researcher at PRCC to determine the effects of block scheduling on students. This data was collected in April 2009, prior to the writing of this dissertation, for institutional purposes. Before gathering this data an application for Approval of Investigation Involving Human Subjects was submitted to the Institutional Review Board (IRB) of Pearl River Community College (see Appendix A for PRCC letters of approval). This application was approved and a subsequent approval letter from the President of Pearl River Community College was provided to perform survey research at PRCC. Also, the researcher conferred with the Director of Career and Technical Education as well as the Dean of the Forrest County Center to obtain support for the distribution and collection of surveys. Program faculty agreed to participate and helped administer the surveys during class meetings in April 2009. Past practice indicated that administering surveys during class has led to high response rates (Center for the Study of Higher Education, 2009). Since this study examines the differences between students enrolled in either traditionally scheduled courses or block courses, an extra question was added; “Are you enrolled in a block scheduled program”? (A) Yes (B) No. A subsequent approval was gained from The University of Southern Mississippi’s Institutional Review Board (see Appendix B).

The researcher administered the surveys, with the assistance of the associated faculty member, directly to students. Students were read the disclosure statement on the cover of the CCSEQ. The students were informed that the survey was voluntary; only
one student declined to participate. Upon completion the students were asked to return
the survey to the researcher outside the door of the classroom. The researcher visited 18
of the 30 Career and Technical Education programs. The randomly selected programs
included Heating, Ventilation and Air Conditioning (Hattiesburg and Poplarville),
Automation and Controls, Automotive Mechanics, Banking and Finance, Computer
Networking, Web Development, Drafting and Design, Electronics (Hattiesburg and
Poplarville), Electricity (Hattiesburg and Poplarville), Industrial Electricity,
Instrumentation, Business Marketing, Medical Office, Medical Billing and Coding, and
Construction Management. Subsequently the surveys were sent to the University of
Memphis and scanned into a data file; this file was returned to the researcher in SPSS
format.

Data Analysis

The total number of completed, usable surveys included 213 traditionally
scheduled students and 93 block scheduled students. These completed surveys were used
to analyze responses from students to investigate the following research questions:

1. Are there statistically significant differences in the quality of effort levels in
   (a) college course activities, (b) interactions between students and faculty, (c)
   interactions among students, and (d) career and occupational skill preparation
   based on whether the student is enrolled in a block or traditionally scheduled
   program?

2. Are there statistically significant differences in students’ overall satisfaction
   level with the college environment based on whether the student is enrolled in
   a block or traditionally scheduled program?
For the first research question, multivariate analysis of variance (MANOVA) (Green & Salkind, 2005) was utilized to determine the effect of the independent variable on the dependent variables. The dependent variables analyzed are the “quality of effort” levels in (a) course activities, (b) interactions between students and faculty, (c) interactions among students, and (d) career and occupational skill preparation. The independent variable, scheduling, has two levels, block and traditional scheduling. The MANOVA, tested at the .05 alpha level, assessed the data for statistically significant differences based on the scheduling program.

The value of the dependent variable was calculated according to the guidance of Ethington, Guthrie and Lehman (2001). In this survey guide, the authors indicate that the response data in the Course Activities, Faculty, Student Acquaintances, and Career and Occupation Skills section can be summed to provide a scale score for each student’s “quality of effort”. Ethington, et al. (2001) indicate that this quality of effort scale provides a mechanism for comparing groups of students to determine if some are more involved in the college activities than others. Table 1 provides a sample section of the survey with the possible answers to each question in the section Course Activities. For example, an answer of “never” would equate to 1 point. An answer of “occasionally” is awarded 2 points, “often” 3 points, while the answer “very often” would equate to a score of 4. The results from the 10 questions in this section are summed for each student, with the lowest possible score equaling 10 and the highest 40. The scale score for each group of students is summed and means computed and comparisons made. The other three sections of the survey utilized have a quality of effort scales compiled like that of the Course Activities quality of effort scale.
Table 1

*CCSEQ Course Activities Section*

<table>
<thead>
<tr>
<th>Course Activities</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participated in class discussions</td>
<td>Class1</td>
</tr>
<tr>
<td>Worked on a paper or project which combined ideas from different sources of information</td>
<td>Class2</td>
</tr>
<tr>
<td>Summarized major points and information from readings or notes.</td>
<td>Class3</td>
</tr>
<tr>
<td>Tried to explain the material to another student</td>
<td>Class4</td>
</tr>
<tr>
<td>Did additional readings on topics that were introduced and discussed in class.</td>
<td>Class5</td>
</tr>
<tr>
<td>Asked questions about points made in class discussions or readings.</td>
<td>Class6</td>
</tr>
<tr>
<td>Studied course materials with other students.</td>
<td>Class7</td>
</tr>
<tr>
<td>Applied principles and concepts learned in class to understand other problems or situations.</td>
<td>Class8</td>
</tr>
<tr>
<td>Compared and contrasted different points of view presented in a course.</td>
<td>Class9</td>
</tr>
<tr>
<td>Considered the accuracy and credibility of information from different sources.</td>
<td>Class10</td>
</tr>
</tbody>
</table>

The second research question delves into the student’s overall satisfaction with the overall college environment. Like the first question, the variable names are provided by the authors of the CCSEQ Test Manual (Ethington, Guthrie, & Lehman, 2001) and provided in Table 2. However, the College Environment section contains 8 questions, 5 of which form the College Environment scale. The three questions of this section that are not part of the scale ask if (1) the student would choose to attend this college again, (2)
there are places to meet and study on campus and (3) there are places on campus to use computers. The scale is formed and equated by each answer of “all” receiving the numerical value of 1; the answer “most” gets the value of 2; the answer of “some” gets the value of 3; while the answer “all” gets a value of 4. The total scale value for each student can vary from 5 to 20.

Table 2

*CCSEQ College Environment Section*

<table>
<thead>
<tr>
<th>College Environment</th>
<th>Variable Name</th>
<th>All</th>
<th>Most</th>
<th>Some</th>
<th>Few or non-e</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many of the students you know are friendly and supportive of one another?</td>
<td>ENVSTU</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Few or non-e</td>
</tr>
<tr>
<td>How many of your instructors at this college do you feel are approachable, helpful and supportive?</td>
<td>ENVINST</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Few or non-e</td>
</tr>
<tr>
<td>How many of the college counselors, advisor and department secretaries you have had contact with would describe as helpful, considerate, knowledgeable?</td>
<td>ENVCOUNS</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Few or non-e</td>
</tr>
<tr>
<td>How many of your courses at this college would you describe as challenging, stimulating, and worthwhile?</td>
<td>ENVCOURS</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Few or non-e</td>
</tr>
<tr>
<td>Do you feel that this college is a stimulating and often exciting place to be?</td>
<td>ENVCOLL</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Rarely or never</td>
</tr>
<tr>
<td>Sum of Scores</td>
<td>ENVSUM</td>
<td>All</td>
<td>Most</td>
<td>Some</td>
<td>Few or non-e</td>
</tr>
</tbody>
</table>
For the College Environment scale, an analysis of variance (ANOVA) was used to identify if a significant difference based on group membership existed. The dependent variable is overall satisfaction with the college environment. The independent variable is scheduling, which has two levels, block and traditional scheduling.

Summary

The purpose of this study was to determine if students report significantly different self-reported quality of effort levels when enrolled in block scheduled programs as compared to traditionally scheduled programs. A quantitative research design approach was utilized. The population included students at Pearl River Community College enrolled in Career and Technical Education Programs in the spring of 2009. Some of the students are enrolled in programs that follow a block schedule, while some are in traditionally scheduled programs. The assumption is that different programming has no affect on students, as reported by students.

The block scheduled students were purposefully sampled with a high success rate. A total of 93 of the 97 block students were surveyed. There were a total of 143 students that took a block scheduled class during the spring of 2009. However, due to the flexibility of this format, some had completed a course(s) and were not available for sampling. Traditionally scheduled students were cluster sampled randomly by program and consisted of 213 samples.

The Community College Student Experiences Questionnaire (CCSEQ) was utilized for this research. This instrument is an outgrowth of the College Student Experiences Questionnaire (CSEQ). The CSEQ was developed by C. Robert Pace (1979a).
Validation and reliability studies for this instrument are outlined in the CCSEQ manual (Ethington, Guthrie, & Lehman, 2001). The instrument is maintained at the University of Memphis’ Center for the Study of Higher Education. This survey data was gathered in the spring of 2009. Chapter IV will provide an analysis of the data gathered.
CHAPTER FOUR

RESULTS

Introduction

This chapter presents the statistical results of this study, including demographic descriptions of the participants. Students enrolled at Pearl River Community College during the spring 2009 served as the population of this study. The purpose of this study was to analyze institutional data to determine if significantly different self-reported quality of effort levels existed between students enrolled in block scheduled programs and those in traditionally scheduled programs. This study focused on Career and Technical Education programs. Programmatic changes at Pearl River Community College provided an opportunity to analyze the following research questions:

1. Are there statistically significant differences in the quality of effort levels in (a) college course activities, (b) interactions between students and faculty, (c) interactions among students, and (d) career and occupational skill preparation based on whether the student is enrolled in a block or traditionally scheduled program?

2. Are there statistically significant differences in students’ overall satisfaction level with the college environment based on whether the student is enrolled in a block or traditionally scheduled program?

Demographic Data

The CCSEQ contains several demographic questions used to gather background information such as students’ age, gender, ethnicity, employment, family responsibilities and native language. Also included are questions that gather data about students’ college
enrollment status such as credits earned, current credits enrolled, grades, hours spent studying, and hours spent on campus and reasons for attending college. For this study, 294 surveys were analyzed; however five respondents didn’t properly report if they were block or traditional students; therefore 289 is the baseline sample size reported for any demographic and statistical analyses. The group sample came to 192 traditional students and 97 block students; the size of each demographic category is reported. For the demographic survey, if the student didn’t answer a particular question/section of the CCSEQ properly, the survey was not discarded as the remainder of the data was utilized. In the statistical analyses, 258 respondents completed the sections needed, which exceeds the needed sample size of 245.

For all of the demographic data reported herein, a two-sample contingency chi-square was conducted to assess whether there was a difference in each reported demographic. Utilizing the Bonferonni correction technique, the significance for each test was calculated at the .004 level (.05/12 = .004); the alpha level divided by the number of tests). Only one test, gender, was significant, \( \chi^2 (1) = 41.741, p = .000 \). A subsequent factorial MANOVA, adding gender as an independent variable, revealed no significant findings.

The analysis of the demographical background information found that 71% (n=97) of the block enrolled students were between the ages of 18 to 22 compared with 61% (n=192) of the traditionally enrolled students (see Table 3). In terms of gender, 97% (n=94) of the block students were male and 3% female, while 61% (n=191) of the traditionally scheduled students were male and 39% female. The racial or ethnic identification found that 84% (n=81) of the block students identified themselves as white
and 16% African American; the makeup of the 190 traditionally scheduled students indicated that 71% identified themselves as white and 25% African American.

Table 3

Age of Respondents

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Sample N=289</th>
<th>%</th>
<th>Block n=97</th>
<th>%</th>
<th>Traditional n=192</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19</td>
<td>91</td>
<td>31</td>
<td>36</td>
<td>37%</td>
<td>55</td>
<td>29%</td>
</tr>
<tr>
<td>20-22</td>
<td>98</td>
<td>34</td>
<td>33</td>
<td>34%</td>
<td>62</td>
<td>32%</td>
</tr>
<tr>
<td>23-27</td>
<td>48</td>
<td>17</td>
<td>17</td>
<td>18%</td>
<td>31</td>
<td>16%</td>
</tr>
<tr>
<td>28-39</td>
<td>40</td>
<td>13</td>
<td>11</td>
<td>11%</td>
<td>29</td>
<td>15%</td>
</tr>
<tr>
<td>40-55</td>
<td>11</td>
<td>3</td>
<td>0</td>
<td>0%</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Over 55</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0%</td>
<td>4</td>
<td>2%</td>
</tr>
</tbody>
</table>

When asked about employment and how their job affects college course work (see Table 4), 83% (n = 97) of the block scheduled students maintained some level of employment while 68% (n = 192) of the traditionally scheduled students were employed. Of those with jobs, 48% (n = 97) of the block scheduled students indicated that their job didn’t interfere with school work while 31% (n = 192) of the traditionally scheduled students indicated that their job did not interfere with school work.

Table 4

Hours Worked Per Week

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Sample N=289</th>
<th>%</th>
<th>Block n=97</th>
<th>%</th>
<th>Traditional n=192</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Job</td>
<td>77</td>
<td>28</td>
<td>16</td>
<td>17</td>
<td>61</td>
<td>32</td>
</tr>
<tr>
<td>1-10 hours</td>
<td>38</td>
<td>13</td>
<td>17</td>
<td>18</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>11-20 hours</td>
<td>52</td>
<td>18</td>
<td>24</td>
<td>25</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>21-30 hours</td>
<td>54</td>
<td>18</td>
<td>15</td>
<td>15</td>
<td>39</td>
<td>20</td>
</tr>
<tr>
<td>31-40 hours</td>
<td>46</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Over 40</td>
<td>22</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td>6</td>
</tr>
</tbody>
</table>
Students were asked to report their current credit hour enrollment. Both block and traditionally scheduled students were very likely to be full time students. The data indicates that 89% (n=96) of the block scheduled students and 86% (n=192) of the traditionally scheduled students were enrolled in 12 or more semester credit hours. Table 5 indicates that the number of credits completed by each group was similar as well.

As far as grades are concerned, Table 6 shows that the two groups report similar grades, with 76% (n=97) of the block students reporting grades in the A to B range and 71% (n=188) of the traditional students in that same range. In both block (n=97) scheduled students and traditional students (n=192), 92% reported spending 1 to 10 hours studying and preparing for classes each week. The time spent on campus outside of class was similar as well with 75% (n=97) of the block scheduled students spending 6 hours or less on campus and likewise for 73% (n=192) of the traditionally scheduled students. Finally, 81% (n=97) of block students and 78% (n=192) of traditionally scheduled students reported that their primary reason for attending this college was to gain skills to enter the workforce.

Table 5

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Sample</th>
<th>Block</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=286 %</td>
<td>N=95 %</td>
<td>N=191 %</td>
</tr>
<tr>
<td>1-15 credits</td>
<td>46 16</td>
<td>15 16</td>
<td>31 16</td>
</tr>
<tr>
<td>16-30 credits</td>
<td>71 25</td>
<td>27 28</td>
<td>44 23</td>
</tr>
<tr>
<td>31-45 credits</td>
<td>85 30</td>
<td>28 30</td>
<td>57 30</td>
</tr>
<tr>
<td>45 or more</td>
<td>84 29</td>
<td>25 26</td>
<td>59 31</td>
</tr>
</tbody>
</table>

Three questions in the college environment section and not part of the quality of effort scale for this section sought to uncover information about the students’ satisfaction with the campus environment. The students indicated that 7.5% (N=281) would not
return to this college if given the opportunity; four block students and 17 traditional students indicated that they would not attend again.

Table 6

Grades at this College

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Sample</th>
<th></th>
<th>Block</th>
<th></th>
<th>Traditional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=285</td>
<td>%</td>
<td>n=97</td>
<td>%</td>
<td>N=188</td>
<td>%</td>
</tr>
<tr>
<td>A</td>
<td>45</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>A-, B+</td>
<td>117</td>
<td>25</td>
<td>43</td>
<td>44</td>
<td>74</td>
<td>39</td>
</tr>
<tr>
<td>B</td>
<td>46</td>
<td>30</td>
<td>15</td>
<td>16</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>B-, C+</td>
<td>69</td>
<td>29</td>
<td>23</td>
<td>23</td>
<td>46</td>
<td>24</td>
</tr>
<tr>
<td>C, C-</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Lower than</td>
<td>1</td>
<td>&lt;1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>C-</td>
<td>2</td>
<td>&lt;2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Analysis of Research Questions

The focus of this research study was to examine differences between block scheduled students and traditionally scheduled Career and Technical Education students at PRCC in the spring of 2009. Specifically, the focus areas included (a) the student quality of effort levels in college course activities, (b) quality of effort levels in student to faculty interaction, (c) quality of effort levels among fellow students, (d) quality of effort levels in career and occupational skill preparation, and (e) overall satisfaction with the college environment. In these areas, the scores from responses on the associated sections of the CCSEQ were utilized. The statistical analyses for the research questions are reported. The MANOVA examined the effect of scheduling (block or traditional) on the four areas college course activities, student to faculty interaction, interaction among fellow students, and effort levels in career and occupational preparedness. A separate ANOVA will be performed on the fifth question pertaining to the student satisfaction with the college environment.
Green and Salkind (2005) provide the statistical assumptions for the ANOVA and one-way MANOVA. The first is that the “dependent variables are multivariately normally distributed for each population, with the different populations being defined by the levels of the factor” (p. 224). The second assumption is that the “population variances and covariances among the dependent variables are the same across all levels of the factor” (p. 224). The third assumption is that of random selection and independence of the sample participants.

The first assumption of normality was tested through skewness and kurtosis measures. None of the dependent variables showed skewness measures of greater than one or less than negative one. The kurtosis measure of each variable also fell between one and negative one. For the MANOVA, the measure of variance and covariance was marginally significant. The Box’s M test revealed a p value of .05.

The one-way MANOVA (N = 258) was conducted to examine the effect of scheduling on block students (n = 91) and traditional students (n = 167) on the four dependent variables: quality of effort levels in college course activities, student to faculty interaction, interaction among fellow students, and career and occupational preparedness. No significant differences were found from the effect of scheduling on the four dependent measures, Wilks’s $\Lambda = .996$, $F(4, 253) = .222$, $p = .926$. Table 7 contains the means and standard deviations of the four dependent variables.

Follow up ANOVA tests on each of the four dependent variables indicated no significant findings. The ANOVA for each area examined provided the following results: for course activities $F(1, 256) = .12$, $p = .73$; for student and faculty interactions
\(F(1, 256) = .75, p = .39;\) for student to student interactions \(F(1, 256) = .01, p = .90;\) and for occupational skill preparation \(F(1, 256) = .00, p = .96.\)

**Table 7**

*Means and Standard Deviations of the Dependent Variables*

<table>
<thead>
<tr>
<th></th>
<th>Total Sample (N=258)</th>
<th>Block (n=91)</th>
<th>Traditional (n=167)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of Effort</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Activities</td>
<td>24.55 5.72</td>
<td>24.38 5.72</td>
<td>24.65 5.74</td>
</tr>
<tr>
<td>Student/Faculty</td>
<td>19.94 5.69</td>
<td>19.53 5.95</td>
<td>20.17 5.54</td>
</tr>
<tr>
<td>Student/Student</td>
<td>12.26 4.82</td>
<td>12.21 4.76</td>
<td>12.28 4.86</td>
</tr>
<tr>
<td>Career Prep</td>
<td>23.77 7.08</td>
<td>23.74 6.30</td>
<td>23.78 7.48</td>
</tr>
</tbody>
</table>

An ANOVA was conducted on research question two: Is there a statistically significant difference in the overall satisfaction level with the college environment based on whether the student is enrolled in a block or traditionally scheduled program? This one-way ANOVA evaluated the relationship between scheduling (block and traditional) with the students overall satisfaction with the college environment. The ANOVA was not significant \(F(1,274) = 3.24, p = .07.\)

**Table 8**

*Mean and Standard Deviation for College Environment*

<table>
<thead>
<tr>
<th></th>
<th>Total Sample (N=276)</th>
<th>Block (n=90)</th>
<th>Traditional (n=186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M 2.90</td>
<td>10.00 2.55</td>
<td>10.67 3.03</td>
</tr>
</tbody>
</table>

**Threats to Validity**

The validity threats to this study include statistical conclusion validity threats, construct validity threats, internal validity threats and external validity threats. The statistical conclusion threats (SCT) “concerns two related statistical inferences that affect the covariation component of causal inferences” (Shadish, Cook and Campbell, 2002, p.
42). This can happen when Type I or Type II errors might occur. Shadish et al. states that finding a significance level greater than the p-value but reporting this as non-significant when it could in fact be significant is another statistical conclusion threat to validity. Another potential SCT is violating the underlying assumptions of the statistical tests. In this study, the participants were self selected to their program of study and not randomly chosen, violating the MANOVA assumption of random selection.

Shadish et al. (2002) define threats to internal validity as cause and resulting effect could be caused by something other than the treatment. In this case, block scheduled students are in different programs than traditionally scheduled students. The fact that the programs of study are different could lead to an internal validity threat. Also, the fact that the students are assumed to be honest when self-reporting answers to survey questions, might pose an internal threat as well.

Construct validity, as described by Shadish et al. (2002), determines if the research methods used actually measure what the researcher intends to measure. In the case of this study, the construct “quality of effort” was coined by Pace (1984). The instrument, CCSEQ, and the construct “quality of effort” were validated with a study by Ethington and Polizi (1996). This instrument has been utilized many times to measure this construct in the community college setting. However, as indicated by Shadish et al. (2002), self reported data can impart a threat to construct validity.

The external validity threat posed by this study is that this study looks at one college at one particular snapshot in time. Shadish et al. (2002) indicate that treatments given to one variation might not hold true with other variations of the same treatment. Thus, the results found here might not repeat if measured at other community colleges.
Summary

This chapter summarized the statistical results of this study. A total of 294 student surveys were gathered to study students enrolled at Pearl River Community College during the spring 2009. The analysis examined students’ self-reported quality of effort scores on the Community College Student Experiences Questionnaire. The data indicated no statistical differences in the two groups. The overall satisfaction level measured by the College Environment scale indicated no significant difference for students enrolled in a block or traditionally scheduled program.
CHAPTER V
SUMMARY, DISCUSSION AND RECOMMENDATIONS

Introduction

Studies that compare course scheduling have been conducted at the four year college level. This study represents very preliminary research at the community college level analyzing scheduling affects; the literature review revealed very little information on this topic. This study examines students’ self-reported quality of effort levels in (a) college course activities, (b) student to faculty interaction, (c) interaction among fellow students, (d) levels in career and occupational skill preparation, and (e) overall satisfaction with the college environment. To determine if career and technical students at PRCC (spring 2009) achieve different self-reported scores on the quality of effort scales of the Community College Student Experiences Questionnaire (CCSEQ) (Ethington, Guthrie, & Lehman, 2001) the following research questions were analyzed:

1. Are there statistically significant differences in the quality of effort levels in (a) college course activities, (b) interactions between students and faculty, (c) interactions among students, and (d) career and occupational skill preparation based on whether the student is enrolled in a block or traditionally scheduled program?

2. Are there statistically significant differences in students’ overall satisfaction level with the college environment based on whether the student is enrolled in a block or traditionally scheduled program?
Summary and Discussion

A MANOVA examined the effect of scheduling (block or traditional) on the four areas including (a) college course activities, (b) student to faculty interaction, (c) interaction among fellow students, and (d) effort levels in career and occupational preparedness. No significant differences were found from the effect of scheduling on the four dependent measures. This is consistent with research from the four year college level (Daniel, 2000; Davies, 2006; Scott, 2003, Wlodkowski, 2003) that found deviating from the traditional college scheduling environment as an acceptable practice for policymakers. Although further research is needed, PRCC has not compromised the students’ self-reported quality of effort by altering the schedule. My initial pretense was that intense block scheduling might increase the students’ quality of effort scores; however, the MANOVA and subsequent ANOVA analyses indicate no significant findings.

The MANOVA for the quality of effort in college course activities indicated no significant finding. Researchers (Astin, 1993; Delaney, 2008; Douzenis, 1996; Johnson, Johnson, & Smith, 1998b; Lehman, 1991; McClenney, 2007; Pace, 1979b, 1984; Prince, 2004; Strauss & Volkwein, 2002, 2004; Tinto, 1993) have indicated that student involvement and level of effort during course related activities is crucial to student success. The lack of significance in the data confirms to PRCC administrators that the students’ experiences in course related activities are not jeopardized.

The MANOVA for the students’ quality of effort in interactions with faculty based on enrollment in a block or traditionally scheduled program was not significant. Research indicates that faculty to student interaction is an important variable in
successful education practices (Astin, 1999; Checkering & Gamson, 1987; Delaney, 2008; Douzenis, 1996; Finney, 2005; Kuh, Pace, & Vesper, 1997; Pascarella & Terenzini, 2005; Pace, 1984; Pascarella and Terenzini, 2005; Tinto, 1993, 2001, 2006). No significant findings in the quality of effort level in faculty to student interactions indicate that the students’ experience is not affected by this change.

The MANOVA for the quality of effort in interactions among fellow students based on whether the participant is enrolled in a block or traditionally scheduled program indicated no significant differences as well. Researchers (Daniel, 2000; Kuh, Pace, & Vesper, 1997; Smith, Sheppard, Johnson, & Johnson, 2005; Tinto, 1993) have found an increase in student effort, involvement and success when students interact with other students in college related activities. The research indicates that student to student interaction is not altered by the scheduling change.

The ANOVA for the quality of effort levels in career and occupational skill preparation based on whether the participant is enrolled in a block or traditionally scheduled program were not significant for the two groups. Researchers (Berns & Erickson, 2001; Carnevale & Desrochers, 2004; Cohen & Brawer, 2003; Gordon, 2000; Gray & Herr, 1998; Grubb, 2001; Hanushek, 2005; and Tagg, 2008) have prompted educational policy makers to emphasize and improve occupational preparation programs that serve an ever changing workplace. The lack of statistical significance in the findings affirms that the career and occupational skill preparation of PRCC students is not affected by the scheduling change.

An ANOVA was utilized to determine if statistically significant differences in the overall satisfaction level with the college environment (research question 2) existed
between the two groups. No significant relationship was found. Pace (1979b; 1984), Astin (1993), and Tinto (1993) have found that students thrive in an environment that encourages student engagement, be it in the classroom, or with other students and faculty. This research finding should leave stakeholders at PRCC confident that students are not perceiving the college environment differently based on changing the program format.

Recommendations for Future Research

Tinto’s (1997) research of a Coordinated Studies Program CSP at a community college in the northwest United States found a significant effect utilizing both quantitative and qualitative methods. The CSP study not only utilized block scheduling but also registered the students into groups that take classes together. It would be of interest if grouping the students together could create significant quality of effort differences such as the cohorts in the CSP. The scheduling of students into defined groupings with common educational goals could assist in creating learning communities. Research (Cross, 1998; Engstrom & Tinto, 2008; Tinto, 2001) has shown that college policy that favors the creation of learning communities, increases student success factors.

The Community College Student Experiences Questionnaire: Test Manual and Comparative Data (Ethington, Guthrie, & Lehman, 2001) offers data from approximately 40 community colleges across the United States. The data gathered for this analysis could be compared to the data from the manual and thereby offer PRCC a broader comparison. Both the block and traditionally scheduled groups could be compared to this broad sample.

Focus group sessions and/or interviews with groups from both block scheduled and traditionally scheduled students would offer researchers and PRCC administrators the
opportunity to gather qualitative data. This would give students the opportunity to provide information that might not be asked by the CCSEQ. This data could give administrators further improvement opportunities.

The CCSEQ contains an Estimate of Gains section used to analyze students’ self-reported estimate of knowledge gains. Further quantitative analyses could be conducted with the data gathered in this research. Correlations between the scheduling system used and the students’ self-reported estimate of gains could help understand differences in student knowledge gain. Actual student grade point averages (GPA) could be utilized in studying actual grade differentials.

PRCC should perform a retention study of the students enrolled in the block and traditionally scheduled programs. Faculty members at PRCC have reported a higher completion rate, when compared to the rate of students the traditional system. However, there is no data results to back these claims. If students are completing classes at a higher rate, then this is certainly worthy of further analysis.

Policy Recommendations

This study provided data about programmatic change at Pearl River Community College. Researchers such as Gordon (2000), Alssid et al. (2002), Brown and Harnish (2001), Tagg (2008), Cross (1998) Christensen et al. (2008), Jacobs (2002), and Pratzner (1985) have urged education to discover and implement improvement strategies. Because of intense competition, industry has endured dramatic change in order to prosper, or face peril, in the quest to remain profitable (Chesbrough, 2003; Christensen, 1997; Utterback, 1994). Education has not had to endure this sort of scrutiny (Knowles, 1973; Pascarella, 2006). The information gathered here is one small step to developing
and understanding change in the community college setting. While no significant findings were made here, the block scheduling format has allowed PRCC to improve industry interaction. Faculty members have larger blocks of time available to conduct industry workforce training programs. This has certainly improved college to industry relations and workforce development efforts.

Community colleges are now essential and vital to the United States economy (Millron & Santos, 2004). With the current economic recession, the U. S. government is urging the community college system to increase the level and scope of adult learning and workforce development. The need to retrain America’s workforce is a major reason for the creation of the American Recovery and Reinvestment Act of 2009 legislation. This legislation moves the American community college system to the forefront of post-secondary education for adults seeking job skills.

It is encouraging that the change in scheduling system has not created any negative student experiences at PRCC. The findings of this study should motivate PRCC administrators to continue to experiment outside traditional collegial practices. PRCC administrators and policymakers have proven a willingness to break away from a system that seems to be designed to protect traditional practices. Further measurement and analysis should continue to determine if student learning and satisfaction is enhanced or compromised.
Appendix A

Pearl River Community College Institutional Review Board Letter of Approval

April 7, 2009

Mr. Scott Alsobrooks
Workforce Education Director
Pearl River Community College
906 Sullivan Dr
Hattiesburg, MS 39406

Dear Mr. Alsobrooks:

I have reviewed your application to The University of Southern Mississippi’s Institutional Review Board to perform survey research at Pearl River Community College (PRCC). You have my permission to survey Career and Technical Education students enrolled at PRCC as detailed in your application. It is my understanding that The Community College Student Experiences Questionnaire maintained by the University of Memphis’ Center for the Study of Higher Education is utilized by community colleges across the nation to gauge student experiences in different programs. Institutional research such as this can provide valuable insight into improvement initiatives taking place at Pearl River Community College.

The administration of the College feels that the probability and magnitude of harm or discomfort anticipated in performing this survey research are not greater in and of itself than any normal classroom activities ordinarily encountered in the student’s daily routine. Mr. Alsobrooks has my full support in administering the surveys during normal class room hours, as recommended by the University of Memphis’ Center for the Study of Higher Education.

Sincerely,

William Lewis, Ed.D.
President

101 Highway 11 North  Poplarville, MS 39470  Telephone: (601) 403-1000  Website: www.prcc.edu
Pearl River Community College
Institutional Review Board Decision Letter

The Institutional Review Board (IRB) has completed its review of the following project:

Principal Investigator: Scott Alsobrooks

Project Title: Dissertation study utilizing the Community College Student Experience Questionnaire

Funding Agency: N/A

Proposal Number (if applicable): N/A

The determination of the board is that:

☑ This project complies with the institution's policy and procedures regarding use of human subjects in a grant-funded research project (Common Rule Section 101, subsection b). The project may be conducted as planned subject to continuing review as outlined in the Board's procedures.

☐ This project does not comply with the institution's policy and procedures regarding use of human subjects in a grant-funded research project. Concerns of the Institutional Review Board are outlined in an attached document. The Principal Investigator has the right to modify and re-submit the proposal for another review.

Becky Abern
Chair, Institutional Review Board

4/14/09

Date
APPENDIX B

THE UNIVERSITY OF SOUTHERN MISSISSIPPI INSTITUTIONAL REVIEW BOARD

LETTER OF APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board
118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
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HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 29113003
PROJECT TITLE: The Quality of Student Experiences in Traditionally Scheduled Courses Versus Block Scheduled Courses at Pearl River Community College
PROPOSED PROJECT DATES: 11/30/09 to 05/01/10
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: David "Scott" Alsobrooks
COLLEGE/DIVISION: College of Science & Technology
DEPARTMENT: Workforce and Economic Development
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Exempt Approval
PERIOD OF APPROVAL: 01/14/10 to 01/13/11

Lawrence A. Hosman, Ph.D.
HSPRC Chair

1-20-10
Date
REFERENCES


*Building a career pathways system: Promising practices in community college-centered workforce development.* Workforce Strategy Center.

Astin, A. W. (1970, summer). The methodology of research on college impact, part one.
*Sociology of Education, 43,* 223-254.


*Journal of College Student Development, 40* (5). pp. 519 - 529


US. College of Education at the University of Georgia, School of Leadership and Lifelong Learning. University of Georgia.


Finney, J. E. (2005, August). *A study of the relationship between community college students' perceived levels of math anxiety and their perceived gains in mathematics-based areas of study, in problem solving skills, and in abilities to use technology*. (Doctoral dissertation). Retrieved February 12, 2009, from Proquest:
http://proquest.umi.com.lynx.lib.usm.edu/pqdweb?index=2&did=1051242841&Srch


http://creativeclass.com/rfcgdb/articles/University_and_the_Creative_Economy.pdf


http://www2.aace.nche.edu/research/index.htm

Pace, C. (1979a). *The College Student Experiences Questionnaire*. Bloomington, IA: Indiana University, School of Education.


