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The Need for a Building Trades Program at Brunswick Senior High School

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THE NEED FOR A BUILDING TRADES PROGRAM AT BRUNSWICK SENIOR HIGH SCHOOL

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SIGNATURE PAGE

This research project was prepared by Raymond P. Bersch under the direction of Dr. John M. Ritz in OTED 636, Problems in Occupational and Technical Education. It was submitted to the Graduate Program Director for partial fulfillment of the Master of Science Degree.

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CHAPTER I

INTRODUCTION

Southside Virginia is dealing with a number of difficult issues related to the rural nature of the region and a struggling economy. Industry has been slow to move into the region providing the growth in jobs needed by the local economy. At the same time, construction companies are having difficulty finding a properly trained workforce in the building trades. This results in a gap in the skill sets needed by local employers and the labor market of the region.

It is the purpose of secondary education "to create an excellent statewide system of public education that equips all students with the knowledge and skills to excel in postsecondary education and careers and to become capable, responsible, and self-reliant citizens" (Virginia Department of Education, 2005, p. 8). Schools have the responsibility to provide appropriate and timely curriculum choices that will benefit their students and the local community. As existing jobs are lost and new jobs become available, school systems must change and adapt to the present conditions. With the building construction industry in desperate need for qualified workers, it is reasonable to expect the local school systems to provide the training needed for the student to be able to fill these jobs.

In the geographical limits of this study there are two school systems. One, Mecklenburg County started a building trades program in the 2005-2006 school year and the second, Brunswick County does not have a building trades program. Funding for the building trades programs is important to the success of the school system's mission to prepare its students for life after high school and to provide local businesses the workforce it requires. This mission is emphasized in the Virginia Board of Education Comprehensive Plan: 2005-2010 with the integration of the Carl D. Perkins Act and the

No Child Left Behind Act of 2001. The Comprehensive Plan states that the career and technical education (CTE) "programs are responding to the real needs of local businesses in health care, information technology, the construction trades, and other occupations" (Virginia Department of Education, 2005, p. 22) . It is the hope of this researcher that the review of this problem will assist the local school systems to either start or continue the building trades programs in the public secondary school systems.

Statement of the Problem

The purpose of this study was to determine the need for a building trades program at Brunswick Senior High School.

Research Goals

The objectives of this study were to explore the following questions:

1. What are the economic projections for the demand of building trade workers in Southside Virginia?
2. What is the need for work opportunities for students graduating from high school?
3. What are the skills the local construction industry needs new employees to be proficient in?
4. How effective is Mecklenburg County's building trades program in placing students in the building trades industry?

Background and Significance

Career and technical education has been used for centuries to prepare youth to enter the workforce with the skill sets needed by industry. As economies change and adapt to the world around them, so must the education community change and adapt to meet the needs of the times. Throughout history young people have been trained in the

skills that were needed by industry and society at the time. As advancements in technology, materials and methods improve, the skills needed to utilize these improvements change as well. Career and technical education can be a very fluid and dynamic process that must be quick to adapt and change so it can provide timely and appropriate training.

The Southside Virginia region has been subjected to many economic challenges over the past few decades that include the demise of the tobacco industry, the decline of manufacturing, combined with a slow influx of new industries to fill the void. The rural nature of the region and its distance from a major city has resulted in a slow economy with few choices for the employment of the young workforce. One of the bright spots in the local economy is the construction industry. The region has Lake Gaston and Kerr Lake where home construction is strong. The demand for qualified workers to build the homes and structures in the area is being largely unfilled because of a lack of qualified workers. At the same time the young people entering the workforce are having difficulty finding jobs in the local market.

This is a problem that is not unique to the Southside Virginia region. Many other regions have had similar issues. Centennial High School in Ft. Collins, Colorado, created a building trades program after hearing of the difficulty local builders were having finding employees with the proper skill sets. They created “a program where students can gain both computer, text and hands-on skills that will prepare them for gainful employment directly out of high school” (Centennial High School Building Trades Program, 2000). This is the type of response the Southside Virginia region needs from the local school systems to provide its students with the skills they need to fill the available jobs in the local marketplace.

Limitations

This study is constrained by the following limitations:

- The geographic boundary of this study was the Mecklenburg and Brunswick Counties of Virginia.
- Mecklenburg County has a building trades program that is one year old.
- Brunswick County does not have a building trades program.
- The primary source of industry data was obtained from members of the local Lake Country Home Builders Association, the Virginia Employment Commission, and the local school systems and may not represent contractors or other parties that do not belong to or utilize these organizations.

Assumptions

This study is based on the following points that were assumed to be true and correct:

- A building trades program in the secondary schools will provide the skills required for the students to be prepared for employment or further training in the construction industry.
- Students that graduated from high school with the skill sets taught in a building trades program will be able to find employment in the construction industry.
- It is the desire of the public schools to provide appropriate training for its students to be ready to enter the workforce or to continue their education after graduation.

Procedures

The data required for this study came from several sources. The need for qualified workers and the skills in demand was determined by a survey given to contractors that were members of the local Lake Country Home Builders Association.

The local Employment Commission was interviewed to determine the level of request for qualified workers. They were also interviewed to determine the level of unemployment in the local economy and the skill sets potential workers need.

The school personnel of Mecklenburg County were interviewed to determine the level of participation and success of their building trades program. The school personnel of Brunswick County were interviewed to determine their desire to have a building trades program initiated at Brunswick Senior High School.

Definition of Terms

The following definitions will assist the reader in understanding this research paper.

- Building Trades – Building Trades refers to the various trades that work in the construction of buildings. These trades include masonry, carpentry, electrical, and plumbing.
- CTE – "'career and technical education' means an organized education program offering a sequence of courses that may incorporate field, laboratory, and classroom instruction; and that emphasize career and technical occupational experiences and are designed to prepare individuals for further education and gainful employment" (Code of Virginia, 2001, p. 22.1-227.01).
- Likert Scale – A five point scale that respondents in a survey choose from strongly disagree to strongly agree.
- Occupational Concentrator – "Graduate earning 3.0 or more credits in high school in one of the 10 broad occupational program areas listed under occupational programs" (U. S. Department Of Education, National Center for Education Statistics (2003), p. 237).

- Occupational Programs – There are ten broad and 18 narrow classifications of programs. This study was concerned with the broad program of trade and industry and its subset of construction which "includes coursework in electricity, masonry, carpentry, plumbing, and building construction" (U. S. Department Of Education, National Center for Education Statistics (2003), p. 238).
- Secondary Education – Public high school education grades 9 through 12.
- Skill Sets – Merriam-Webster defines skill as "a learned power of doing something competently: a developed aptitude or ability" (Merriam-Webster Online Dictionary, n.d.).
- Southside Virginia – In this study Southside Virginia refers to the Counties of Mecklenburg and Brunswick.

Summary and Overview

This chapter identified the economic conditions of the Southside Virginia region that supported the need for the implementation of a building trades program in the public schools. The skill gap between the needs of employers and the skills of the available workforce needs to be filled for the benefit of both groups. The public school system has a responsibility to produce students ready to enter the next phase of their development whether it is to further education or entering the workforce. The problem of this study was to determine the benefit of having a building trades program in the Public Schools. Career and technical education has a long history of providing society with workers with skill sets to both provide employment and to produce the products needed by consumers. The limitations, assumptions, and procedures that directed the study were discussed. Lists of definitions were included to acquaint the reader with terms related to the topic and specific definitions as they relate to this study.

Chapter II, the Review of Literature, discusses what is presently known on the use of career and technical education in the public school setting. Chapter III, Methods and Procedures, reviews the collection of data and the methods of analysis used in this study. Chapter IV, Findings, shows the results of the data collection and statistical treatment. Chapter V, Summary, Conclusions and Recommendations is where the study will be summarized, conclusions based on the data will be made, and recommendations based on the findings will be put forth.

CHAPTER II

REVIEW OF LITERATURE

Career and technical education has a long history and much has been written on the subject. This review is limited to recent information that relates to Career and Technical Education, which the building trades program is a part of. The literature that is reviewed concentrates on three general topics. First, the combination of CTE and the normal academic curriculum are discussed. Second, the benefits to students taking career and technical education courses in the construction industry are reviewed. Finally, the effects of CTE on the personal achievement of the students are reviewed.

CTE and Academics

For many years career and technical education had been viewed as an alternative to the standard academic curriculums in most of the secondary school systems that offered vocational classes. This resulted in college bound students not taking vocational classes and students in the vocational programs taking fewer academic classes (Plank, 2001). As a partial result of President Bush's No Child Left Behind initiative in 2001 and the need to be competitive in the global market place there has been a push to incorporate a stronger academic course load into the CTE curriculums. Even before the No Child Left Behind initiative, the trend for vocational students taking academic courses had increased. From 1982 to 1998 "the percentage of occupational concentrators who also completed college-preparatory coursework increased from 1.7 percent … to 25.9 percent" (U. S. Department of Education, 2003).

The push to include a strong academic course load alongside the CTE curriculum has produced many positive benefits. Vocational classes can spark interest in students that may otherwise not see the benefit of taking academic classes since they may not plan

on continuing their education after high school. These students not only become enthused in their vocational classes but with the integration of academic courses into the CTE program they begin to understand the importance of the general academic courses. The result is better scores in their academic courses and a reduction in dropout rates (Plank, 2001).

The initial training of the workforce falls into the hands of the public school system. To meet the needs of today's employment requirements, schools must provide a balanced education. The combination of academic and vocational classes requires schools to share the instructional time between the two disciplines. This limits the time that can be spent on vocational courses but does give students the opportunity to see if they are interested in work in a particular vocational field. Combined with the limited time available and the technical nature of many vocational jobs, the secondary schools can only provide the basic knowledge necessary for students to be able to continue their education in their vocational field after they graduate from high school (Hoyt, 1999). Vocational students can receive background education in their vocational field that provides the basis on which additional education or training can build. This continuing education can take the form of post secondary schools or on the job training.

Construction Trades Education

The progress of human culture has been due largely to human's ability to build the projects society needed to survive and progress (Henak, 2000). In years past the building trade unions provided most of the training for construction workers (Palladino, 2005). The role of the unions has diminished in today's economy and they are unable to provide the necessary training for all of the construction trades especially in remote rural

areas. The responsibility to provide this training is now largely with the public school systems.

This responsibility was exemplified by Perkins I and continues with Perkins III today. The purpose of Perkins III "is to develop more fully the academic, vocational, and technical skills of secondary students and postsecondary students who elect to enroll in vocational and technical education programs" (Carl D. Perkins Vocational and Applied Technology Education Amendments of 1998, section 2). The benefit of pursuing vocational training in the construction industry is both a social and individual issue. Society is dependent on the construction trade to build homes, offices, factories, infrastructure, and most of our physical environment. It is essential that the younger generations develop the skills needed to continue the building of society's projects. As the existing workforce ages and moves out of the profession, new workers are needed to fill the void they leave behind. Without this new talent entering the workforce, society will have to pay a steep price in increased cost and shortages of workers to construct the projects that our society depends on.

On an individual level students that may not have the desire or ability to continue on to post secondary education need to be able to find suitable employment that will provide a living wage. Students that will not go on to post secondary education need to have the opportunity to receive an education in the vocational trades so that they will be able to start their career at a higher job level and to be able to progress up the ladder of success faster than they could without the vocational training. The exposure in the classroom to the various construction trades will give them the foundation needed to be successful in additional training whether it is in a classroom or in the real world. The educational experience also provides insight for the students into the nature of

construction work and allows students to explore various career options to see what fits their individual personalities and needs (Henak, 2000).

Students that may go on to post secondary education can benefit greatly from the experience of being in a building trades class. They will develop an understanding of how man made projects in their environment work and how they are constructed. They can use this knowledge to build or repair things for themselves. This experience will give them an understanding of the construction process that will benefit them when they are faced with making decisions related to construction projects at home and in the work place. These students will have an appreciation for the decisions that contractors must make and how they will be affected by them (Henak, 2000).

Student Achievement

Career and technical education provides many benefits to the students that take these courses. All students can benefit from the knowledge obtained about the vocational jobs and information about how these jobs are performed. For college bound students this knowledge provides a foundation of how the world around them is constructed and maintained. The students that are at risk of dropping out of school or not having the skills to enter the workforce can gain great benefits from career and technical education. CTE can often times instill motivation and a desire to learn in students that may otherwise feel abandoned and left out by mainstream academic education.

Students that perform poorly in the academic setting because of the lack of ability or motivation may perform better in the general academic curriculum if they believe that there is a reason or purpose for them to be in these classes. In the employment market place of the 21st century many of the jobs that traditionally did not require a solid academic background do so today. By exposing students to the CTE classes and

incorporating the academic subject material into the vocational curriculum, students will develop a better understanding of the importance of their academic classes. A student that believes an academic class has relevance to his life and career path will devote more effort and time to learn the material and to do well as they understand the importance of education to the jobs that they may have (Hoyt, 1999).

The combination of attending courses that interest the student and the motivation to do well in the academic courses that the student may have previously found too difficult or unrelated to them produces several positive results. The scores the student gets both on standard report cards and SOL tests can be expected to go up. Taking courses that the student finds interesting and has a high potential for meaningful employment can motivate the student to stay in school and graduate. This is an important step to achieving the goals of keeping students in schools and improving their scores.

Summary

The review of literature showed many positive outcomes of a solid career and technical education program that is combined with the traditional academic curriculum. There were many students that do not respond well in a purely academic setting. A career and technical education program can provide interest and motivation to the student to stay in school and to apply themselves in all of their classes that they take including the core academic classes. This results in a higher retention rate of students to graduate and higher scores in their academic classes.

Providing students that are not inclined to attend post secondary educational institutions the opportunity to learn job skills that will allow them to earn a living wage is a powerful tool. Society has a need for these jobs to be filled by new workers that have the basic skills with which employers can build. By providing these skills to the students

they are empowered to make the most of their potential and to become productive members of society. Chapter III, Methods and Procedures, reviewed the collection of data and the methods of analysis of the data used in this study.

CHAPTER III

METHODS AND PROCEDURES

The methods and procedures used in this study were discussed in this chapter. The items covered in this chapter were: population, instrument design, methods of data collection, statistical analysis, and summary.

Population

The population of this study consisted of the public school systems of Mecklenburg and Brunswick Counties, members of the Lake Country Home Builders Association located in Southside Virginia, and the Virginia Employment Commission in South Hill, Virginia. The members of the school systems that were surveyed were the school personnel that dealt directly with the career and technical education programs. The contractors surveyed were members of the Lake Country Home Builders Association. This group provided 33 responses. The schools that were the stimulus for this study were Park View High School and Bluestone High School in Mecklenburg County with 15 respondents and Brunswick Senior High School in Brunswick County, Virginia with 9 respondents.

Instrument Design

This study used surveys to develop the data required. The surveys given to the school personnel in Mecklenburg County were designed to elicit responses on the success of the existing career and technical program that specialized in the building trades. The surveys given to the Brunswick County school personnel were designed to determine their perception of the need for a building trades program. The surveys given to the contractors and Virginia Employment Commission were designed to determine the need

for new workers and the skills these new workers need to have to be ready to start work. The survey instruments used in this study are shown in Appendix A.

Methods of Data Collection

The data were collected by the use of surveys of the administration and faculty in Mecklenburg and Brunswick Counties that had direct involvement with the career and technical education programs. The researcher met with the Principals of the three high schools. The researcher discussed with them the purpose of the survey and requested their assistance. They distributed the surveys to the individuals in their respective schools that taught and administrated the career and technical education programs. The researcher met with the administrators in the central office of both counties that oversee the career and technical education programs. The purpose of the survey was discussed and the researcher got their responses to the statements.

Data from the private sector were obtained by surveying contractors that belong to the Lake Country Home Builders Association located in Southside Virginia and the South Hill branch of the Virginia Employment Commission. The researcher attended the October, 2006 meeting of the Lake Country Home Builders Association meeting where he distributed the survey. The researcher explained to the members the purpose of the survey and requested their participation. The Virginia Employment Commission was contacted by telephone. The survey completed represented the position of the local branch. This survey was combined with the responses from the Lake Country Home Builders Association.

The survey statements were presented in a manner that utilized a five point Likert scale to determine how the participants felt about the issues raised by the statements on the survey. The surveys were grouped into three sets representing each school system

and the private sector. The responses were tabulated and summarized. The names of all respondents were kept confidential with the results reported in aggregated form.

Statistical Analysis

This study took the interview and survey responses from the Likert scale and treated them as interval data. The measures of central tendency statistical analysis were utilized in this research. The mean, mode, median, and standard deviation were calculated. These data were used to determine the consensus of opinion of the respondents to the survey statements. The mean was used to determine the average response. The mode was used to determine the most frequent response. The median was calculated to indicate the mid-point of the responses. The standard deviation was used to determine how concentrated the responses were about the median.

Summary

Chapter III outlined the methods and procedures used in this study. This included the population studied, instrument design, methods of data collection, and the statistical analysis of the data. Chapter IV presented the findings of the study.

CHAPTER IV

FINDINGS

The purpose of this study was to determine the need for a building trades program at Brunswick Senior High School. This chapter describes the results of surveys given to contractors, the Virginia Employment Commission, and school personnel. The data were tabulated to determine how the population felt about the issues raised by the survey statements. Their responses were based on a five point scale with a response of one indicating strong disagreement, two indicating moderate agreement, three showing a neutral opinion, four indicating moderate agreement, and five showing strong agreement with the statement.

Economic Projections

The economic projections for the demand for building trade workers were determined by a series of statements in the surveys given to the members of the Lake Country Home Builders Association of Southside Virginia and the Virginia Employment Commission. The statements and a summary of the results are discussed in this section. The first statement asked if there are adequate employment opportunities for high school graduates in the local economy. A mean of 3.4 indicated neutral agreement with the statement. A standard deviation of 1.29 indicated that there was weak consensus on this issue. There were slightly more respondents that felt there are adequate employment opportunities with most respondents having a neutral opinion.

The third statement on the survey given to the contractors stated that there is a need for qualified workers in the construction industry. The responses to this statement showed a strong consensus of agreement with the statement with a mean of 4.9 and

standard deviation of 0.33. There were no responses that indicated disagreement with the statement.

The next statement stated that there is a shortage of trained workers in the local workforce. The mean response to this statement was 4.6 indicating a fairly strong agreement with the statement. The standard deviation was 0.70 showing good consistency among the respondents.

The fifth statement posed to the contractors stated that they expected to hire new or replacement workers in the next year. The most frequent response was indicated by the mode of five while the median result was 3.9. While most of the respondents indicated they would be hiring, not all agreed. The standard deviation of 1.23 showed a fairly wide variation of responses with three responses indicating they were not expecting to hire in the next year.

Statement six was designed to see if the contractors would hire a building trades graduate over an untrained worker. Most of the respondents indicated that they would hire a building trades graduate over someone that had received no training in the trades. The mean response was 4.6 with a standard deviation of 0.87 indicating strong agreement with the statement.

The seventh statement stated that a building trades graduate could expect to make a higher wage than an individual without this training. There was very strong agreement on this statement with a mean score of 4.9 and a standard deviation of 0.33. On this issue there were no respondents that felt this was not correct.

The last statement on the survey completed by the private sector stated that the demand for qualified building trade workers would continue into the future. On this

point there was strong agreement with the statement with a mean score of 4.8. The standard deviation of 0.37 indicated a strong consensus among all of the respondents.

Table 1 lists the statements used in the economic projection sections. The table shows the details of the responses and has the results of the statistical calculations that show the measures of central tendency.

TABLE 1. Economic Projections

Lake Country Home Builders Association Survey

1. There are adequate employment opportunities for high school graduates in the local economy.

Disagree	1	2	3	4	5	Agree
Responses	3	5	11	5	9	

Mean = 3.4 Mode = 3
Median = 3 Standard Deviation = 1.2947

3. There is a need for qualified workers in the construction industry.

Disagree	1	2	3	4	5	Agree
Responses				4	29	

Mean = 4.9 Mode = 5
Median = 5 Standard Deviation = 0.3314

4. There is a shortage of trained workers in the local work force.

Disagree	1	2	3	4	5	Agree
Responses			4	5	24	

Mean = 4.6 Mode = 5
Median = 5 Standard Deviation = 0.7044

5. You expect to hire either new or replacement workers in the next 12 months.

Disagree	1	2	3	4	5	Agree
Responses	2	1	7	6	12	

Mean = 3.9 Mode = 5
Median = 4 Standard Deviation = 1.2274

6. You would hire a building trades graduate over an untrained worker.

Disagree	1	2	3	4	5	Agree
Responses	1		2	5	24	

Mean = 4.6 Mode = 5
Median = 5 Standard Deviation = 0.8747

7. A building trades graduate could expect to make a higher wage than an untrained worker.

Disagree	1	2	3	4	5	Agree
Responses				4	29	

Mean = 4.9 Mode = 5
Median = 5 Standard Deviation = 0.3314

9. The construction industry in Southside Virginia will have a demand for qualified building trade workers in the future.

Disagree	1	2	3	4	5	Agree
Responses				5	27	

Mean = 4.8 Mode = 5
Median = 5 Standard Deviation = 0.3689

Work Opportunities

The need for work opportunities were addressed by seven statements posed to the Brunswick County School system and one statement on the survey given to the Mecklenburg County School system. The statements and a summary of the results are discussed in this section.

The first statement posed to the Brunswick Schools stated that there are adequate employment opportunities for high school graduates in the local economy. The majority of responses indicated that there were not adequate opportunities for employment for high school graduates with a mode and median score of 1.0. There was some disagreement with this as one response indicated that there were job opportunities and two were neutral resulting in a standard deviation of 1.51.

The second statement stated that students that had received specific trade skills had a better opportunity for local employment than students that had taken a general education curriculum. The responses were tightly clustered around a moderate agreement with the given statement with a standard deviation of 0.78 and a median of 4.0.

The next statement stated that there was a need for additional job opportunities for graduating students. On this point there was unanimous agreement with all response feeling strongly that more opportunities were needed.

The fourth statement stated that there was adequate training for those students that were not planning on attending college to obtain local employment. The mode and median response to this statement was 4.0 which indicated moderate agreement with the statement. There were significant respondents that had a moderate and strong disagreement that resulted in a standard deviation of 1.22.

Statement number five addressed how successful the existing CTE programs were to prepare students for good careers after graduation. The responses were clustered around the median score of 4.0 with a standard deviation of 0.83. The most frequent response indicated a strong agreement that the present programs were successful in providing the training needed for the students to obtain good jobs after graduation.

The sixth statement said that a building trades program would provide the training needed by the local market place that would result in good jobs for the graduates. Most of the respondents indicated a neutral opinion with a mode of 3.0. The median response rate was 4.0 with a standard deviation of 0.83. This indicated a consensus of opinion with a moderate agreement with the statement, indicating that many respondents were not sure of the effects of a building trades program.

The last statement stated that there would be a strong demand by the students to support a building trades program. There was little consensus on this point. Even though the most frequent response was a strong agreement that there would be a strong student demand, there were many that were neutral or disagreed on this point. This was indicated by a median score of 3.0 with a standard deviation of 1.67.

The Mecklenburg school system was given the statement that stated that there were adequate employment opportunities for high school graduates in the local economy. The responses had a standard deviation of 1.10 which indicated a poor consensus on this point. There were two modes of 3.0 and 5.0 showing that most respondents either agreed or were neutral on the opportunities for local employment of the graduates. There were no respondents that strongly disagreed with the statement.

Table 2 lists the statements used in the work opportunities section. The responses are detailed and tabulated. The table shows the statistical results of measures of central tendency as applied to the data.

TABLE 2. Work Opportunities

Brunswick County Schools Survey

1. There are adequate employment opportunities for high school graduates in the local economy.

Disagree	1	2	3	4	5	Agree
Responses	5		2		1	

Mean = 2 Mode = 1
Median = 1 Standard Deviation = 1.5119

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

Disagree	1	2	3	4	5	Agree
Responses			2	4	3	

Mean = 4.1 Mode = 4
Median = 4 Standard Deviation = 0.7817

3. There is a need for additional job opportunities for graduating students.

Disagree	1	2	3	4	5	Agree
Responses					8	

Mean = 5 Mode = 5
Median = 5 Standard Deviation = 0

4. There is adequate training for entrance into the work force for those students not planning to attend college.

Disagree	1	2	3	4	5	Agree
Responses	1	3		5		

Mean = 3 Mode = 4
Median = 4 Standard Deviation = 1.2247

5. The present vocational programs are successful in training students for good careers after graduation.

Disagree	1	2	3	4	5	Agree
Responses			2	3	4	

Mean = 4.2 Mode = 5
Median = 4 Standard Deviation = 0.8333

6. A building trades program would provide the training needed by the local market place resulting in good jobs for the graduates.

Disagree	1	2	3	4	5	Agree
Responses			4	3	2	

Mean = 3.8 Mode = 3
Median = 4 Standard Deviation = 0.8333

7. There will be strong demand by students for building trades classes to support the program.

Disagree	1	2	3	4	5	Agree
Responses	2		3		4	

Mean = 3.4 Mode = 5
Median = 3 Standard Deviation = 1.6667

Mecklenburg County Schools Survey

1. There are adequate employment opportunities for high school graduates in the local economy.

Disagree	1	2	3	4	5	Agree
Responses		2	5	3	5	

Mean = 3.7 Mode = 3, 5
Median = 4 Standard Deviation = 1.0998

Skills Needed

The Lake Country Home Builders Association and the Virginia Employment Commission were surveyed to determine if potential employees needed specific trade skills and what skills were most needed in the local construction industry. The survey elicited a response to the value of specific skills and each respondent was asked to pick two items from a list of ten trades.

The second statement of the survey presented to the Lake Country Home Builders Association and the Virginia Employment Commission stated that graduates that have been taught specific trade skills will have more opportunity for local employment than those that only completed a general education curriculum. There was fairly strong consensus that agreed with this statement with a mode and median score of 5.0. The majority of responses strongly agreed with the need for specific trade skills while there were a small number of responses that moderately disagreed or were neutral on this point.

Statement eight asked the respondents to choose what trade skills were most needed in the local building trades industry. The most frequent response was for carpentry which received 25% of the responses. The electrical trade was second with 17.65% followed closely by masonry with a 16.18% response rate. Tied for the fourth most responses were the plumbing and HVAC (heating, ventilation, and air conditioning) trades, with 11.76% of the responses. Sixth was sheet rock with 8.82%. Equipment operators received 4.41% of the responses. Finally, insulators, painters and roofers each received 1.47% of the responses. The responses and percentages are shown in Table 3.

TABLE 3. Skills Needed

Lake Country Home Builders Association Survey

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

Disagree	1	2	3	4	5	Agree
Responses		3	2	5	22	

Mean = 4.4 Mode = 5
Median = 5 Standard Deviation = 0.9817

8. What are the skills most needed in the local construction industry? Please circle up to 2 choices.

	Responses	%
Carpentry	16	24.24%
Electrical	12	18.18%
Plumbing	7	10.61%
HVAC	8	12.12%
Insulators	1	1.52%
Sheet rock	6	9.09%
Painters	1	1.52%
Roofers	1	1.52%
Masonry	11	16.67%
Equipment operators	3	4.55%
Total	66	100.00%

Building Trades Program Effectiveness

The survey presented to the Mecklenburg County School system contained a series of statements designed to determine the effectiveness of their building trades program in placing students in the local building trades industry. The responses to these statements are discussed in this section.

The second statement posed to the Mecklenburg school personnel stated that graduates that had received specific trade skills will have more opportunity for local employment than those students that completed a general education curriculum. There was a fairly good consensus around the median response of 4.0 that indicated moderate agreement with the statement. The most frequent response was a strong agreement while there were no responses that strongly disagreed.

Statement three stated that there was good participation by the students in the building trades program. There was a fairly good consensus of moderate agreement on this point as the mode and median both scored a 4.0 with a standard deviation of 0.99. There were no responses that indicated strong disagreement.

The fourth statement indicated that participation in the building trades program increased the chances for a successful high school experience including graduation. The responses indicated general agreement with this point but there was a weak consensus as to how strongly the respondents felt about its effect. The most frequent response was a 5.0 followed by 3.0 and 4.0 with only one less response each. There were no responses that strongly disagreed with the statement.

The fifth statement stated that the building trades program increased employment opportunities for graduates not attending college. There was a strong consensus that the building trades program did provide employment opportunities. The most frequent

response of 4.0 was followed by 5.0 which received only one less response. The standard deviation of 0.70 showed a tight clustering around the median of 4.0.

The next statement stated that participation in the building trades program encouraged the students to perform and behave better overall in school. The responses to this statement indicated a neutral to slightly positive effect. The most frequent response was neutral with both moderate agreement and disagreement getting one less response each. There were two respondents that strongly agreed the program helped students perform better and there were no respondents that strongly disagreed.

The seventh statement stated the building trades program helped to keep at risk students from dropping out of school. There was a good consensus on this point that the program had a moderately positive effect on these students. The majority of respondents moderately agreed with a strong mode score of 4.0 and a standard deviation of 0.83.

Statement eight stated that the building trades program is a vital part of the overall success of the school system curriculum. The most frequent responses were split between a neutral and moderate agreement with only one other response that strongly agreed. The mean score of 3.6 best represented the opinions of the school personnel on this point. A standard deviation of 0.63 showed little variance of opinion by the respondents.

The final statement posed to the Mecklenburg School system stated that other school systems should start and maintain a building trades program. There was a strong consensus on this statement with both the mode and mean scoring 5.0 and a standard deviation of 0.82. There was no disagreement and the majority of responses strongly agreed with the statement.

Table 4 lists the statements used in this section. The responses are detailed and tabulated. The table shows the statistical results of measures of central tendency as applied to the data.

TABLE 4. Building Trades Program Effectiveness

Mecklenburg County Schools Survey

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

Disagree	1	2	3	4	5	Agree
Responses		1	3	4	6	

Mean = 4.1 Mode = 5
Median = 4 Standard Deviation = 0.9972

3. There is good participation by the students in the building trades program.

Disagree	1	2	3	4	5	Agree
Responses		3	3	7	2	

Mean = 3.5 Mode = 4
Median = 4 Standard Deviation = 0.9904

4. For the students that take the building trades program, this program has increased their chances for a successful high school experience including graduation.

Disagree	1	2	3	4	5	Agree
Responses		2	4	4	5	

Mean = 3.8 Mode = 5
Median =4 Standard Deviation = 1.0823

5. The building trades program increased employment opportunities for graduates not attending college.

Disagree	1	2	3	4	5	Agree
Responses			2	7	6	

Mean = 4.3 Mode = 4
Median = 4 Standard Deviation = 0.7037

6. Participation in the building trades program encourages the students to perform and behave better overall in school.

Disagree	1	2	3	4	5	Agree
Responses		4	5	4	2	

Mean = 3.3 Mode = 3
Median = 3 Standard Deviation = 1.0328

7. Participation in a building trades program help keep “at risk” students from dropping out of school.

Disagree	1	2	3	4	5	Agree
Responses		2	4	8	1	

Mean = 3.5 Mode = 4
Median = 4 Standard Deviation = 0.8338

8. The building trades program is a vital part of the overall success of the school system curriculum.

Disagree	1	2	3	4	5	Agree
Responses			7	7	1	

Mean = 3.6 Mode = 3, 4
Median = 4 Standard Deviation = 0.6325

9. Other school systems should start and maintain a building trades program.

Disagree	1	2	3	4	5	Agree
Responses			3	4	8	

Mean = 4.3 Mode = 5
Median = 5 Standard Deviation = 0.8165

Summary

Chapter IV reported the results of the surveys. The data were tabulated and measures of central tendency were applied to the numbers. The mean, mode, median, and the standard deviation were calculated for each question. Chapter V provided the summary, conclusions and recommendations of the study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the need for a building trades program at Brunswick Senior High School. The objectives of this study were to explore the following four questions:

1. What are the economic projections for the demand of building trade workers in Southside Virginia?
2. What is the need for work opportunities for students graduating from high school?
3. What are the skills the local construction industry needs new employees to be proficient in?
4. How effective is Mecklenburg County's building trades program in placing students in the building trades industry?

Summary

The Southside Virginia Region is a rural area that has suffered economic setbacks from the decline of the tobacco and textile industries. The ability for this region to bring in new industry to replace the lost jobs has been difficult with only moderate success. Many individuals entering the work force are having a hard time finding local employment and are either leaving the area or have to travel long distances to find work. At the same time there is a shortage of qualified workers for the construction industry. For the purpose of this study the geographical limits of the population studies were confined to Mecklenburg and Brunswick Counties in Southside Virginia. The population surveyed consisted of representatives of the two school systems, members of the Lake

Country Home Builders Association of Southside Virginia, and the Virginia Employment Commission office in South Hill.

The instruments used in this study consisted of three surveys. Mecklenburg County School System received a survey designed to determine how effective their building trades program was in providing employable skill for their students. The Brunswick County School System received a survey designed to determine the opportunities for employment for their graduates. The Lake Country Home Builders Association and Virginia Employment Commission received a survey designed to determine the need for building trade workers and what skills were needed. There were 15 respondents from Mecklenburg County School System, nine respondents from Brunswick County School System, and 33 respondents from the Lake Country Home Builders Association and Virginia Employment Commission.

The data was collected using a five point Likert scale to determine the respondents' feelings about the statements on the surveys. The responses were tabulated and measures of central tendency were applied to the data. The mean, mode, median, and standard deviation were calculated for each statement on the surveys.

Conclusions

The findings of this study answered the research questions established for this study. Research Goal 1 asked, what are the economic projections for the demand of building trade workers in Southside Virginia? The data showed a strong demand for qualified building trade workers in the local economy. Contractors gave a mean response of 4.9 agreeing with the statement that there is a need for qualified building trade workers. Presently, there is a shortage of qualified individuals to fulfill the demands for

tradesmen in the local building trades industry. The contractors were asked if there was a shortage of trained building trades workers and they responded with a median score of 5.0 that they agreed there was a shortage. The construction industry would prefer to hire workers that have received training in the building trades skills and would be willing to pay these individuals more than untrained workers. In response to the survey statement that they would hire a building trades graduate over an untrained worker the response was in agreement with a median score of 5.0. The respondents agreed with the statement that a building trades graduate would expect to earn more than an untrained worker with a mean score of 4.9. The need for trained workers will continue into the future. The contractor respondents strongly agreed that the demand for building trades workers will continue into the future with a mean response score of 4.8.

Research Goal 2 asked, what is the need for work opportunities for students graduating from high school? There is a need for additional work opportunities for the graduating students in the local economy. The respondents to the survey given to Brunswick County School personnel disagreed with the statement that there are adequate employment opportunities in the local economy with a median score of 1.0. They unanimously agreed that there is a need for additional job opportunities. The present career and technical education programs are providing training that is providing skills that are helping students obtain employment after graduation. The respondents agreed to the statement that the present vocational programs are successful in training students for good careers after graduation with a mode score of 5.0 and a median score of 4.0. While the existing programs are successful, they are not completely satisfying the need. Respondents agreed with the statement a building trades program would provide the

training needed by the local market place resulting in good jobs for the graduates with a median score of 4.0. Additional steps need to be taken to prepare students for employment and interest them in the career and technical education programs. Research Goal 3 asked, what are the skills the local construction industry need new employees to be proficient in? Graduates that have learned specific trade skills have a greater opportunity for employment. The contractor respondents agreed with the statement that specific trades skills enhanced employment opportunities with a median score of 5.0. The top skills needed most in the local construction industry were carpentry, electrical, masonry, plumbing and HVAC.

Research Goal 4 asked, how effective is Mecklenburg County's building trades program in placing students in the building trades industry? The building trades program has been a beneficial factor for the students. The respondents to the Mecklenburg survey believed that specific trade skills will increase employment opportunities and participation in the building trades program increased the chances for a successful high school experience with median scores of 4.0 on both statements. It has provided more employment opportunities and has also had a positive effect on the students while in school. The respondents agreed with a median score of 4.0 that the building trades program increased employment opportunities for graduates. They also agreed with the statements that the building trades program could help keep "at risk" students from dropping out of school and that the building trades program was a vital part of the overall school curriculum with median scores of 4.0 on both. Though these effects are positive, there is still room for improvement. The overall conclusion for the Mecklenburg program is that it is moderately successful with no negative consequences.

Recommendations

It is the recommendation of this study that the Brunswick County Public Schools undertake the following actions.

1. Continue to support the existing career and technical education programs.
2. Expand the career and technical education curriculum to include the teaching of building trade skills not presently being taught such as carpentry, masonry, plumbing and HVAC.
3. Reach out to the local construction industry so that a partnership can be formed to determine the skills needed and to get their participation in the teaching process.
4. Work in conjunction with Southside Virginia Community College so that the programs offered will complement the programs at the college and to encourage the graduates to continue their training beyond high school.

References

Carl D. Perkins Vocational and Applied Technology Education Amendments of 1998. (1998). *H.R.1853*. Retrieved July 17, 2006, from The Library of Congress Web Site: http://thomas.loc.gov/cgi-bin/query/F?c105:6:./temp/~c105Dxqh1H:e4483:

Centennial High School Building Trades Program. (2000, August 15). *Introduction*. Retrieved June 12, 2006, from http://staffweb.psdschools.org/jmcclusk/

Code of Virginia. (2001). *22.1-227.01. Career and technical education defined.* Retrieved July 17, 2006, from State of Virginia Web Site: http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+22.1-227.01

Henak, R. M. (2000). *Exploring Construction*. Tinley Park, Illinois: The Goodheart-Willcox Company, Inc.

Hoyt, K. B. (1999). *Career or Technical, Pick one*. Retrieved July 3, 2006, from http://vnweb.hwwilsonwrb.com.proxy.lib.odu.edu/hww/results/results_single_ftPES.jhtml

Merriam-Webster Online Dictionary. *Skill*. Retrieved June 12, 2006, from http://www.m-w.com/cgi-bin/dictionary

Palladino, G. (2005). *Skilled Hands, Strong Spirits A Century of Building Trades History*. Ithaca, New York: Cornell University Press.

Plank, S. B. (2001). *A Question of Balance: CTE, Academic Courses, High School Persistence, and Student Achievement*. Retrieved July 16, 2006, from Virginia Tech Web Site: http://scholar.lib.vt.edu/ejournals/JVER/v26n3/plank.html

U. S. Department Of Education, National Center for Education Statistics. (2003). *Trends in High School Vocational/Technical Coursetaking: 1982-1998*. NCES 2003-025, by Karen Levesque. Washington DC: 2003.

Virginia Board of Education. (2005, September 22). *Virginia Board of Education Comprehensive Plan: 2005-2010*. Retrieved July 14, 2006, from Virginia Department of Education Web Site: http://www.doe.virginia.gov/VDOE/VA_Board/comprehensiveplan.pdf

Virginia Department of Education. (2005, September 22). *Virginia Board of Education Comprehensive Plan: 2005-2010*. Retrieved July 14, 2006, from Virginia Department of Education Web Site: http://www.doe.gov/VDOE/VA_Board/comprehensiveplan.pdf

APPENDIX A

CONTRACTOR SURVEY

The following survey is designed to obtain your responses to the following statements about the building trades programs in the local high schools and the need for these programs for the benefit of the students and the local construction industry. This information will be used as part of a research project with Old Dominion University in pursuit of my Master's Degree. Please respond to each statement as honestly as possible. The names of the respondents will be confidential and will not be published or released to anyone. The data will be reported in summary form only. Thank you. Ray Bersch

1. There are adequate employment opportunities for high school graduates in the local economy.

   Disagree 1 2 3 4 5 Agree

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

   Disagree 1 2 3 4 5 Agree

3. There is a need for qualified workers in the construction industry.

   Disagree 1 2 3 4 5 Agree

4. There a shortage of trained workers in the local work force.

   Disagree 1 2 3 4 5 Agree

5. You expect to hire either new or replacement workers in the next 12 months.

   Disagree 1 2 3 4 5 Agree

6. You would hire a building trades graduate over an untrained worker.

Disagree 1 2 3 4 5 Agree

7. A building trades graduate could expect to make a higher wage than an untrained worker.

Disagree 1 2 3 4 5 Agree

8. What are the skills most needed in the local construction industry? Please circle up to 2 choices.

- Carpentry
- Electrical
- Plumbing
- HVAC
- Insulators
- Sheet rock
- Painters
- Roofers
- Masonry
- Equipment operators

9. The construction industry in Southside Virginia will have a demand for qualified building trade workers in the future?

Disagree 1 2 3 4 5 Agree

10. Please include your name, title and company. This information will not be released and will remain confidential. It will be used to confirm who has responded to the survey and for follow up questions if needed.

Name: _____

Title: _____

Company: _____

BRUNSWICK SURVEY

The following survey is designed to obtain your responses to the following statements about the building trades programs in the local high schools and the need for these programs for the benefit of the students and the local construction industry. This information will be used as part of a research project with Old Dominion University in pursuit of my Master's Degree. Please respond to each statement as honestly as possible. The names of the respondents will be confidential and will not be published or released to anyone. The data will be reported in summary form only. Thank you. Ray Bersch

1. There are adequate employment opportunities for high school graduates in the local economy.

   Disagree 1 2 3 4 5 Agree

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

   Disagree 1 2 3 4 5 Agree

3. There is a need for additional job opportunities for graduating students.

   Disagree 1 2 3 4 5 Agree

4. There is adequate training for entrance into the work force for those students not planning to attend college.

   Disagree 1 2 3 4 5 Agree

5. The present vocational programs are successful in training students for good careers after graduation.

   Disagree 1 2 3 4 5 Agree

6. A building trades program would provide the training needed by the local market place resulting in good jobs for the graduates.

   Disagree 1 2 3 4 5 Agree

7. There will be a strong demand by students for building trades classes to support the program.

   Disagree 1 2 3 4 5 Agree

8. Please include your name and title. This information will not be released and will remain confidential. It will be used to confirm who has responded to the survey and for follow up questions if needed.

   Name: _____

   Title: _____

MECKLENBURG SURVEY

The following survey is designed to obtain your responses to the following statements about the building trades programs in the local high schools and the need for these programs for the benefit of the students and the local construction industry. This information will be used as part of a research project with Old Dominion University in pursuit of my Master's Degree. Please respond to each statement as honestly as possible. The names of the respondents will be confidential and will not be published or released to anyone. The data will be reported in summary form only. Thank you. Ray Bersch

1. There are adequate employment opportunities for high school graduates in the local economy.

   Disagree 1 2 3 4 5 Agree

2. Graduates that have been taught specific trade skills will have more opportunity for local employment than those that only complete a general education curriculum.

   Disagree 1 2 3 4 5 Agree

3. There is good participation by the students in the building trades program.

   Disagree 1 2 3 4 5 Agree

4. For the students that take the building trades program, this program has increased their chances for a successful high school experience including graduation.

   Disagree 1 2 3 4 5 Agree

5. The building trades program increased employment opportunities for graduates not attending college.

   Disagree 1 2 3 4 5 Agree

6. Participation in the building trades program encourages the students to perform and behave better overall in school.

   Disagree 1 2 3 4 5 Agree

7. Participation in a building trades program help keep “at risk” students from dropping out of school.

   Disagree 1 2 3 4 5 Agree

8. The building trades program is a vital part of the overall success of the school system curriculum?

   Disagree 1 2 3 4 5 Agree

9. Other school systems should start and maintain a building trades program?

   Disagree 1 2 3 4 5 Agree

10. Please include your name and title. This information will not be released and will remain confidential. It will be used to confirm who has responded to the survey and for follow up questions if needed.

    Name: _____

    Title: _____