

8-2012

Performance of Career and Technical Students on Credential Tests to Determine Options for Enhanced Success

Mona Smith
Old Dominion University

Follow this and additional works at: https://digitalcommons.odu.edu/ots_masters_projects

 Part of the [Education Commons](#)

Recommended Citation

Smith, Mona, "Performance of Career and Technical Students on Credential Tests to Determine Options for Enhanced Success" (2012). *OTS Master's Level Projects & Papers*. 568.
https://digitalcommons.odu.edu/ots_masters_projects/568

This Master's Project is brought to you for free and open access by the STEM Education & Professional Studies at ODU Digital Commons. It has been accepted for inclusion in OTS Master's Level Projects & Papers by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.

Performance of Career and Technical Students
on Credential Tests to Determine Options
for Enhanced Success

A Study Presented to the Graduate Faculty
of the Department of
STEM Education and Professional Studies
Old Dominion University

In Partial Fulfillment of the
Requirements for the Master of Science
Occupational and Technical Studies

By
Mona Smith
August 2012

APPROVAL PAGE

This research paper was prepared by Mona Smith under the direction of Dr. John M. Ritz in SEPS 636, Problems in Occupational and Technical Studies. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Degree of Master of Science in Occupational and Technical Studies.

APPROVAL BY: _____ DATE: _____

Dr. John M. Ritz
Advisor and Graduate
Program Director

ACKNOWLEDGEMENTS

I would like to thank those who provided direction and support of this project. A special thanks to the career and technical teachers at Tazewell High School which provided the data for the statistical calculations. I would especially like to thank Maria White for all of her hard work in gathering and compiling the data necessary to complete this project.

Mona Smith

TABLE OF CONTENTS

	Page
SIGNATURE PAGE	ii
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES	vi
CHAPTER	
I INTRODUCTION	1
Statement of the Problem.....	2
Hypotheses	2
Background and Significance	2
Limitations	4
Assumptions.....	4
Procedures.....	5
Definitions of Terms	5
Summary and Overview	7
II REVIEW OF LITERATURE	8
Need for Skilled Workers	8
Why Credentialing	9
Standards.....	11
Other Research.....	12
Summary.....	13
III METHODS AND PROCEURES	14

	Population	14
	Instrument Design.....	14
	Methods of Data Collection.....	15
	Analysis Data	15
	Summary	16
IV	FINDINGS	17
	Data Reporting	17
	Data Analysis	17
V	SUMMARY, CONCLUSIONS, AND RECOMMENTATIONS	20
	Summary	20
	Conclusions.....	21
	Recommendations.....	22
	REFERENCES	23
	APPENDIX A.....	25

LIST OF TABLES

	Page
Table 1, Pass/Fail – GPAs	17
Table 2, Pass/Fail – Socio/Economic Disadvantages	18
Table 3, Pass/Fail – IEP	18
Table 4, Chi-square Values.....	22

CHAPTER I

INTRODUCTION

Credentialing in its broadest form can mean a whole gauntlet of concepts, from receiving a high school diploma to evaluating foreign documents. Credentialing is the way to prove one knows what one is doing. In Virginia's career and technical education (CTE) programs, students take examinations that test technical skills. Upon passage of these tests, a credential is awarded. The credential, along with the standard credit for a career and technical education course, can be used as a verified credit for graduation (Virginia's Credentialing Initiative, 2011).

In order to serve as an accountability component for career and technical education results and to meet requirements as related to the Carl D. Perkins Career and Technical Education Improvement Act of 2006, Virginia has elected for industry examinations to be given. These are examinations that verify industry standard knowledge and/or skill sets that can be taught as a part of a secondary level career and technical education program. These exams are administered in a "proctored environment" and graded externally to the school learning site (Path to Industry Certification, 2010).

As there is a need for testing and understanding the positive impact a credential can have on career and technical education student achievement, there are many variables that do not seem to be taken into account when standards are set for obtaining these credentials. Taking in all the variables, with the push to increase the enrollment in career and technical education programs, are goals set too high for the types of students being placed in these subjects? Teachers are faced with the job of motivating students who are

enrolled by counselor selection. Teachers have students that have been included in their classes because the student is not academically inclined or does not have the mental capacity and motivation to tackle more rigorous subjects. There was a need to explore credential usage and relate them to the student academic variables within the CTE classes.

STATEMENT OF THE PROBLEM

The problem of this study was to investigate the performance of career and technical students on credential tests to determine options for enhanced success.

HYPOTHESES

The following hypotheses were projected to guide this study.

H₁: Students who have a 2.50 or higher grade point average will successfully earn career and technical education business/industry credentials.

H₂: Students who do not have socio-economic disadvantages will successfully earn career and technical education business/industry credentials.

H₃: Students who do not have learning disabilities will successfully earn career and technical education business/industry credentials.

BACKGROUND AND SIGNIFICANCE

When the Virginia Department of Education began identifying industry credentials in 2002, only a small percent of Virginia students were enrolled in courses with the potential for achieving an industry credential. In 2010, all career and technical education courses offer training for one or more industry credentials (The Path to Industry Certification, 2010).

Types of credentials include:

- Full Industry Certification, from a recognized industry, trade, or professional association.
- State Licensure, required for entry into a specific occupation.
- Pathway Industry Certification, entry-level exams in an industry certification program leading toward full certification.
- Occupational competency assessment, a national standardized assessment of skills/knowledge in a specific career and/or specific career and/or technical area: (Virginia's Credentialing Initiative, 2011)

The push for credentialing came as a result of the passing of the Public Law 109-270. This was the Carl D. Perkins Career and Technical Education Improvement Act of 2006 and will cover the period of 2008-2013. The law states that coherent and rigorous content shall be given to students (Association For Career and Technical Education, 2006)

To validate this and to make the states and localities accountable, levels of performance must be evaluated. One way Virginia has of validating that the correct content is used is for teachers to comply with the competencies set forth in each career and technical education course offered. Detailed reports called SCRs (Student Competence Reports) are maintained throughout the school year and finalized at the end of each school year on each student.

Additionally, Virginia is giving business/industry tests to assure students have mastered the skills offered in the classes. There was supposed to be 100% success rate by 2010-11, but this percentage has been adjusted in recent years (G. Brown, personal

conversation, January 25, 2011). One drawback to this, for example, is that teachers cannot take a NOCTI (National Occupational Competency Testing Institute) assessment and must arrange for a school proctor to administer the knowledge-based component to their students. They just have to hope that the test questions are aligned with the competencies that go along with their coursework.

This study sought to show that a number of CTE students are unable to attain the top level of performance. A 100 percent success rate among career and technical education students is unrealistic. Because of this, adjustments need to be made in determining the percent that completers are tested and expected to pass credential tests. This study shows that more research needs to be done to accurately measure students' ability to obtain credentialing.

LIMITATIONS

The limitations for this study are as follows:

1. Only the career and technical education students at Tazewell High School in Tazewell, Virginia, were studied in Spring 2012.
2. Tazewell High School is identified by Virginia's School Report Card for the 2009-2011 school year as being a high poverty disadvantaged school.
3. Test results were limited to the credential tests taken by Tazewell High School career and technical education students for the 2011-2012 school year.

ASSUMPTIONS

This study was based on the following assumptions:

The students who participated in this study were a representation of students throughout Virginia including Tazewell County.

1. The students with IEPs (Individualized Education Plan) are expected to be successful at credentialing (Virginia's Resource Center, 2011).
2. Teachers are teaching to content aligned with the credentialing test.

PROCEDURES

For this study, the researcher had the career and technical education teachers furnish data identifying by students' subject taken, pass/fail, credential test taken, and the students' course grade point average. The school counselor provided data on the students' socio-economic status and learning disabilities. After the testing for the 2011-12 school year, results of pass/fail were tabulated. The results of the testing as well as the data from teachers and counselor were reported and statistically compared.

DEFINITIONS OF TERMS

The following terms are defined to assist the reader:

Career and Technical Education – “Organized occupational activities (courses) that offer a sequence of courses that provides individuals with coherent and rigorous content that is aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for future education and careers” (Association for Career and Technical Education, 2006).

Carl D. Perkins Career and Technical Education Improvement Act of 2006 – Federal law passed by Congress that provides the direction and the funding to support continuous improvement in career and technical education. As stated in the Act,

student attainment of an industry-recognized credential, a certificate, or a degree is required (Association for Career and Technical Education, 2006,).

Completer – “A student who has met the requirements for a career and technical concentration and all requirements for high school graduation, or an approved alternative education program” (VERSO, 2011, para. 4).

Credential – Awarded when a student passes an approved external examination that tests technical skills.

Disabled – The state of having a physical or mental impairment that substantially limits one or more of the major life activities of an individual.

National Occupational Competency Testing Institute (NOCTI) – “is a leading provider of high-quality occupational competency assessment products and services to secondary and post-secondary educational institutions in the United States and around the world” (NOCTI, 2011, para. 1).

Socio-economical disadvantages – social and economic experiences and realities that help mold one's personality, attitudes, and lifestyle that is not to their benefit.

Student Competency Records – “Virginia Standards for Competency Based Education require a recording system to provide information about competencies achieved to employer, student-employee, and teacher. The Student Competency Records provide a means for keeping track of student progress. Ratings are assigned by the teacher for classroom competency achievement and by the teacher-coordinator in conjunction with the training sponsor when competence is evaluated on the job” (VERSO, 2011, para. 1).

Verified Credit – Used for high school graduation in Virginia to meet literacy and numeracy requirements for the Modified Standard Diploma.

SUMMARY AND OVERVIEW

The attitudes, abilities, and socio-economic statuses of students are not always taken into account when laws are passed. When credentialing tests are given, there should be options provided to give students the best chances of success. This study sought to investigate the performance of career and technical students on credential tests to determine options for enhanced success. Chapter I was an introduction to Virginia's initiative to credentialing. Industry credentialing in Virginia was identified. Some variables were also identified. Limitations and assumptions were made concerning the testing. Terms used in the study were defined.

Chapter II of this study will show a review of literature focusing on the career and technical education students and the credential testing available. Chapter III shows the methods and procedures used for the compilation of the data for this study. Chapter IV lists the findings of the study. Chapter V summarizes the study, concludes the study, and show recommendations for future credentialing.

CHAPTER II

REVIEW OF LITERATURE

This study sought to show that 100% passing of career and technical education credentialing tests is unrealistic. While it is understood that credentialing is important and there is a need for industry recognized tests, it should also be understood that all students involved in CTE are not capable of passing a credential test. This chapter reviews literature associated in studies involving industry credentialing testing. Within this chapter the need for skilled workers is shown and why credentialing is done. It shows the standards involved, other research, and the summary.

NEED FOR SKILLED WORKERS

As the global economy has gained strength and businesses and industries increasingly seek employees with higher levels of expertise, a national movement to ensure a steady supply of skilled workers has grown. Many employers, states, and localities are turning to workforce readiness credentials to validate common workplace skills in job applicants and employees, and in turn, education and workforce agencies are responding by issuing or preparing students for these credentials (Issue Brief, 2008).

Employers have reported that the most important skills employees need more of include technical skills, strong basic employability skills, and reading, writing, and communications skills. While traditional education programs and assessments may address some of these skills, few provide comprehensive training across the skill spectrum. Higher standards in industry and in education have put a stronger emphasis on strategies that help students graduate from high school with skills for success in preparation for both college and work.

Not all people will be able to find or fit into careers that require total academic preparation. Careers in the service, retail, and manufacturing sectors are necessary in order for the economy to grow and people to prosper. Career and technical education programs are critical to economic diversity. The CTE curriculums and instructional practices are helping to ensure that youth will have a place in the workforce. It is important that credentialing is provided to validate that an individual is workforce ready.

Industry must have ways of ensuring that there are individuals that are ready to enter the workforce with enough knowledge to perform given tasks. There has to be proof that employees can function at particular jobs. As employers seek ways to measure these skills efficiently and evaluate potential hires, the use of workforce readiness credentials is likely to increase. Credentialing provides value added to the skills necessary for workplace readiness success (Issue Brief, 2008).

The Perkins Act of 2006 requires that students attain challenging career and technical skill proficiencies, including student achievement on technical assessments that are aligned with industry-recognized standards, if available and appropriate. With credentialing, once a student goes into the workforce they should be able to find employment in high-skill, high-wage, or high-demand occupations or professions (Association for Career and Technical Education, 2006).

WHY CREDENTIALING?

In order for schools to obtain and keep federal money for their career and technical education programs, they must prove that they are within the guidelines of the Perkins Act of 2006. Before this act, career and technical educators in Virginia only had to complete student records showing the competencies that students obtained. Now, in

addition to the student competency report, students must attain challenging career and technical skill proficiencies, including student achievement on technical assessments that are aligned with industry recognized standards (Association For Career and Technical Education, 2006)

Virginia's Department of Education requires that graduating completers take external credential tests. In Virginia any industry certification examination, licensure, or occupational competency assessment that is passed by a student which is eligible for the student-selected verified credit option approved by the Virginia Department of Education (VDOE) is a credential.

The major objectives of Virginia's ongoing credentialing initiative are:

- To serve as an accountability component for Career and Technical Education results and to meet requirements as related to the Carl D. Perkins Career and Technical Education Improvement Act of 2006 (passed as Public Law 109-270) to cover the period 2008-2013.
- To provide continuing program and instructional improvement options.
- To provide opportunity for students to achieve industry certification and licensure which serve as "stepping stones" for students' progress in specific career pathways and/or post-secondary education.
- To provide students an opportunity to demonstrate competence in job-related skills and knowledge that are considered industry standard.
- To offer an option for students to achieve the CTE diploma seal upon graduation.

- To offer students an opportunity to earn student-selected verified credits for graduation. (Path to Industry Credentialing, 2011, p. 2)

These external credentialing examinations are in addition to the existing course requirements mandated by the Virginia Department of Education. All Virginia CTE programs are required to follow state-developed standard course essential competencies. School divisions report to the state results of student achievement of these competencies through the use of student competency records (SCR). A report is prepared for each student enrolled in a CTE course. The reports state how well a student performed (or mastered) a given task. CTE programs that teach to the credentials integrate the related skill sets and knowledge into the normal instruction of required competencies. Or, they teach the credential's subject matter in addition to the state developed minimum competencies.

The addition in the new legislation of CTE targets “high skill, high wage, and high demand” jobs and that all students should achieve one or more industry credentials. This meets the requirements of the Virginia Report Card System which reports for each secondary school the number of credentials earned by students for passing examinations, and workplace readiness skills assessments (The Virginia Credentialing Initiative, 2011).

STANDARDS

The question is not whether credentialing is needed, but whether all students should take the exam. This should be an option. In addition to the SCR attainment, testing with an approved external examination is now required for each CTE completer. The percentage of CTE completers who must pass an industry credential test are:

- 2008-2009: 33%

- 2009-2010: 33%
- 2010-2011: 50%
- 2011-2012 100%

(Rowe, 2012)

Virginia uses credentialing to comply with the regulations set forth by the Perkins Act of 2006. The Perkins IV legislation serves as an accountability component for CTE results. Virginia must meet requirements as related to the Carl D Perkins Career and Technical Education Improvement Act of 2006 (passed as Public Law 109-270) to cover the period of 2008-2013. Virginia DOE must conduct testing for each CTE graduating completer with an approved external examination by the end of 2012-2013. For the school year 2010-11, the external testing goal for graduating CTE completers has increased to 50%. The state goal for passing external testing is 100% for the 2011-12 school year (Creasy, 2011).

Students with an Individualized Education Plan (IEP) or an Individualized Students Alternative Education Plan (ISAEP) will be rated, on the Student Competency Report, using the same scale as other students but only on the competencies identified in their IEP or ISAEP (Virginia's Resource Center, 2011). As long as a student is a completer they are required to have an industry credential. No exceptions are made for accommodations. In addition, no exceptions are made for socio-economic disadvantage students.

OTHER RESEARCH

Although research proclaims the need for credentialing and why employers like students having credentials, there is not much information on the students that are unable

to achieve this milestone. There is, however, evidence that there is a strong feeling of apathy in much of today's youth. The publication "Pathway to Prosperity", portrays dropouts describing their classes as not interesting, that high school was unrelentingly boring. They didn't believe high school was relevant. They also believed their high school was not providing a pathway to achieving their dreams (Ferguson, Schwartz, & Symonds, 2011). This feeling is shared not only by dropouts but also students that are in school only because they have to be there. When it comes to credentialing, how motivated are these students to do their best and attain the 100% pass rate goal?

Students that are disadvantaged are more likely to have difficulty passing a credential test. These students may have not obtained the basic level of knowledge by the time they become a completer to be able to score at a passing rate. There should be other consequences for low-performing and economically disadvantaged students.

SUMMARY

Virginia has elected for industry examinations to be given to serve as an accountability component for career and technical education results and to meet requirements as related to the Carl D. Perkins Career and Technical Education Improvement Act of 2006. Rigor and relevance are important in order for Virginia's students to compete in today's workforce. Employers need to know newly hired workers are competent and an industry credential will show that not all students fit a mold and cannot be judged on the same levels.

The credentialing required by Virginia is an important part of ensuring that the regulations for federal funding are met. Although high expectations are nice, they are not always realistic. In Chapter III the methods and procedures will be described to gather data for this study.

CHAPTER III

METHODS AND PROCEURES

Chapter III contains the methods and procedures used in this study. A quasi-experimental method of research was used to investigate the performance of career and technical students on credential tests to determine options for enhanced success. The chapter will describe the population, instrument design, methods of data collection, and statistical analysis used.

POPULATION

The population for this study was the 2011-12 students enrolled in career and technical education classes at Tazewell High School who completed certification examinations. The data from the following classes, with the number of students testing in each class, were collected: Marketing, 53 students; Family and Consumer Science, 32 students; Word Processing, 60 students; and Agriculture, 16 students. A total of 161 students were tested.

INSTRUMENT DESIGN

The instrument design was a form given to teachers of career and technical students at Tazewell High School. This form requested information on the students taking the credentialing tests. Included in this information were the students' GPA or class standing, credential test score, socio/economically disadvantaged, and whether the student was learning disabled. A copy of this form is in Appendix A.

METHODS OF DATA COLLECTION

The methods of obtaining this data consisted of personally giving the forms to the teachers of career and technical education classes and having them complete the forms. The teachers were given forms after their students had completed the credentialing tests. The teachers filled out the forms that contained the student name, test, and score. They then sealed them in an envelope and gave them to the school's guidance counselor. The guidance counselor searched the school's data base and recorded whether the students had an IEP or was socio/economically disadvantaged. After the data was compiled, the guidance counselor cut the names of the students from the forms leaving only a number for each student and his/her information. The guidance counselor then put the forms in an envelope and gave them to the researcher. The researcher had the needed data without student names or other identifier. The researcher kept the data forms under lock and key when not analyzing the data. When the information was entered into a computer it was password protected. All data were reported in aggregate. Forms were destroyed after the data were processed.

ANALYSIS DATA

Information was collected and tabulated from the forms of the sample student group by the career and education teachers at Tazewell High School. Totals were tabulated from each category (pass/fail, IEP/no IEP, and socioeconomic disadvantaged/no socio/economic disadvantaged). A chi-square correlation was done for the pass/fail to GPA, pass/fail to learning disabled, and pass/fail to socio/economic status. After all data were collected, these were analyzed and tabulated to determine the options for enhanced success.

SUMMARY

A quasi-experimental method of research was used to investigate the performance of career and technical students on credential tests to determine options for enhanced success. The population for this study was the career and technical education students who took credential tests at Tazewell High School in spring 2012. A total of 161 students were tested.

The instrument design was a form completed by teachers of career and technical education test takers. This form included information on the students pass/fail rate, the student's GPAs, socio/economic disadvantages, and learning disabilities. Once the pass/fail information was completed by the teachers, the forms were given to the school guidance counselor. The guidance counselor gathered data on the student's GPAs, socio/economic disadvantages, and learning disabilities. The names were cut from the forms and the data given to the researcher. All data were reported in aggregate. The forms were destroyed after the data were processed.

Once the information was collected, totals from each category (pass/fail, IEP/No IEP, socio/economic disadvantaged/no socio/economic disadvantaged) were tabulated. Chi-square correlations were done for the pass/fail rate to GPA, pass/fail rate to the learning disabled, and pass/fail rate to socio/economic disadvantaged. The results of the statistical correlation are presented in Chapter IV.

CHAPTER IV

FINDINGS

The purpose of this study was to investigate the performance of career and technical education students on credential tests to determine options for enhanced success. This chapter presents the statistical analysis of data collected for this study.

DATA REPORTING

The findings were based on data collected from 161 students taking credentialing tests in the career and technical education classes at Tazewell High School. The GPAs were available for 92% of the students. The data for the 148 students with GPAs were compared to their pass/fail credential scores. The student's socio/economic disadvantages and learning disabilities data were available for all 161 students. A comparison of student pass/fail credential scores and those of socio/economic disadvantages and learning disabilities were made.

GPA AND PASS/FAIL RATES

A population of 148 was used for the comparison of pass/fail rate and GPAs of over 2.50. The chi-square correlation produced a value of 5.47. The .05 level of significance was 2.71. The degree of freedom was one. Table 1 shows the data collected from the credential test scores and GPAs.

Table 1

Pass/Fail Compared to GPAs

	GPA of 2.5 or higher	GPA less than 2.50
Pass	110	25
Fail	7	6

SOCIO/ECONOMIC DISADVANTAGES AND PASS/FAIL RATES

A population of 161 was used for the comparison of pass/fail rate and students with socio/economic disadvantages. The chi-square correlation produced a value of 0.00, which is lower than 2.71 at the .05 level required for significance. The degree of freedom was one. Table 2 shows the data collected from the credential test scores.

Table 2

Pass/Fail Compared to Socio/Economic Disadvantages

	Socio/Econ Disadvantages	No Socio/Econ Disadvantages
Pass	57	91
Fail	5	8

LEARNING DISABILITIES AND PASS/FAIL RATE

A population of 161 was used for the comparison of pass/fail rate and students with learning disabilities. The chi-square correlation produced a value of 4.14, which is greater than the 2.71 value at the .05 level required for significance. The degree of freedom was one. Table 3 shows the data collected from the credential test scores.

Table 3

Pass/Fail Compared to Learning Disabilities

	IEP	No IEP
Pass	5	143
Fail	2	11

SUMMARY

In Chapter IV the researcher presented the statistical analyses for the pass/fail rates for career and technical education students to determine options for enhanced success. Data were collected from 161 students taking credential tests in the career and technical education classes at Tazewell High School. Chi-square correlations were made. The GPAs were available for 92% of the students. The data for the 148 students with GPAs were compared to their pass/fail credential scores. The student's socio/economic disadvantages and learning disabilities data were available for all 161 students. A comparison of student pass/fail credential scores and those of socio/economic disadvantages and learning disabilities were made. The degree of freedom for each correlation was one.

A population of 148 was used for the comparison of pass/fail rate and GPAs of over 2.50. The chi-square correlation produced a value of 5.47. The .05 level of significance was 2.71.

A population of 161 was used for the comparison of pass/fail rate and students with socio/economic disadvantages. The chi-square correlation produced a value of 0.00, which is lower than 2.71 at the .05 level required for significance.

A population of 161 was used for the comparison of pass/fail rate and students with learning disabilities. The chi-square correlation produced a value of 4.14, which is greater than the 2.71 value at the .05 level required for significance. Chapter V will summarize the findings, draw conclusions, and will make recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to summarize the research study. Conclusions will be drawn from the questions stated in the hypotheses and recommendations for further study will be made.

SUMMARY

The problem of this study was to investigate the performance of career and technical education students on credential tests to determine options for enhanced success. The hypotheses of this study were:

H₁: Students who have a 2.50 or higher grade point average will successfully earn career and technical education business/industry credentials.

H₂: Students who do not have socio-economic disadvantages will successfully earn career and technical education business/industry credentials.

H₃: Students who do not have learning disabilities will successfully earn career and technical education business/industry credentials.

Virginia's Department of Education has mandated that career and technical students take credential tests. Given the students' GPAs, socio/economic disadvantages, and learning disabilities that students are faced, the question arose as whether these goals were set too high. There was a need to relate credential scores with the student's individual variables within the CTE classes.

The limitations for this study were:

1. Only the career and technical education students at Tazewell High School in Tazewell, Virginia, were studied in Spring 2012.

2. Tazewell High School is identified by Virginia's School Report Card for the 2009-2011 school year as being a high poverty disadvantaged school.
3. Test results were limited to the credential tests taken by Tazewell High School career and technical education students for the 2011-2012 school year.

Chi-square statistical analyses were used to analyze the data. These were used to compare the pass/fail rate with students' GPAs, socio/economic disadvantages, and learning disabilities.

CONCLUSIONS

The following hypotheses were answered:

H₁: Students who have a 2.50 or higher grade point average will successfully earn career and technical education business/industry credentials.

The chi-square value of 5.47 was greater than 2.71 at the .05 level required for significance, the researcher accepts H₁ ($\chi^2 (1) = 5.47$ $p > .05$). In other words, the researcher may conclude that students who have a 2.50 or higher GPA will successfully earn career and technical education business/industry credentials.

H₂: Students who do not have socio-economic disadvantages will successfully earn career and technical education business/industry credentials.

Since the chi-square value of .00 was lower than 2.71 at the .05 level ($\chi^2 (1) = .00$ $p > .05$) required for significance, H₂ was rejected. The researcher concluded that there was no difference in students with or without socio/economic disadvantages successfully earning a career and technical education business/industry credential.

H₃: Students who do not have learning disabilities will successfully earn career and technical education business/industry credentials.

After analyzing the results of the chi-square value of 4.14, it was concluded that the value of 4.14 was greater than the 2.71 at the .05 level required for significance. The researcher may accept H_3 ($\chi^2(1) = 4.14, p > .05$). The researcher concludes that students who do not have learning disabilities will successfully earn career and technical education business/industry credentials.

Table 4 shows the chi-square values from each of the analyses. The degree of freedom for each correlation was one.

Table 4

Chi-square values with degree of freedom

Critical chi-square value at $p > .05$ (df = 1)	Chi-square value for GPAs	Chi-square value for socio/economic disadvantages	Chi-square value for learning disabilities
2.71	5.47	0.00	4.14

RECOMMENDATIONS

Based on the findings and the conclusions of this study, the researcher includes the following recommendations:

1. Studies could be conducted to determine if more practice is needed for students with lower GPAs before credential testing is done.
2. Socio/economic disadvantages do not seem to be a factor in successfully earning a career and technical education business/industry credential. Therefore, no recommendations are suggested for additional studies.
3. Similar research could be done to determine if allowances should be made for students with learning disabilities when taking career and technical education business/industry credential tests.

REFERENCES

- ACTE. (2008). *Issue brief: Career and technical education's role in workforce readiness credentials*. Retrieved from <http://www.acteonline.org/>
- Association for Career and Technical Education. (2006). *Perkins Act of 2006: The official guide*. Alexandria, VA: Association for Career and Technical Education.
- Creasy, G. (2011). *Industry credentials, including the new workplace readiness skills assessment*. [PowerPoint slides] Retrieved from www.doe.virginia.gov/instruction/career_technical/admin.
- Ferguson, R., Schwartz, R. & Symonds, W. (2011) *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Boston: Harvard Graduate School of Education.
- NOCTI. (2011). *National Occupational Competency Testing Institute*. Retrieved from <http://www.nocti.org/about.cfm>
- Rowe, A. (1996) *Perkins performance standards – accountability* [PowerPoint slides]. Retrieved from http://www.doe.virginia.gov/instruction/career_technical/
- VERSO. (2011). *Virginia career and technical resource center: Instructional framework*. Retrieved at http://www.cteresource.org/verso2/framework/frontmatter/business_and_information_technology/keyboarding_secondary_615118wks/2011/6151
- VERSO. (2011). *Virginia career and technical resource center: Student competency records*. Retrieved at: http://www.cteresource.org/verso2/framework/scrs/business_and_information_technology/keyboarding_secondary_615118wks/2011/6151

Virginia Department of Education. (2011). *Office of career and technical education services: Virginia's credentialing initiative*. Retrieved at http://www.doe.virginia.gov/instruction/career_technical/path_industry_certification/cte_credentials/va_credential_initiative.pdf

Virginia Department of Education. (2011). *The path to industry certification: The Virginia credentialing initiative: Questions and answers*. Retrieved at: http://www.doe.virginia.gov/instruction/career_technical/path_industry_certification/cte_credentials/faq.pdf

Virginia's Resource Center. (2011). *Student competency records*. Retrieved at <http://www.google.com/cse?cx=015641747013155442845%3Amdjma7ypfcs&ie=UTF-8&q=iep+credentials&sa=go>

