A STUDY OF INTEREST SURVEY RESULTS AND ELECTIVE TECHNOLOGY EDUCATION COURSES AT OSHKOSH WEST HIGH SCHOOL

by

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ABSTRACT

The purpose of this study was to determine if a relationship exists between interest survey results and the number of elective courses taken in technology education at Oshkosh West High School. There was no current data to indicated that student enrollment in elective courses in technology education are consistent with their interests. The study also considered differences in interest inventory scores between male and female who have taken technology education in their high school experience. The study considered the class of 2005 from Oshkosh West High School. Data for the study was gathered from existing records. Confidentiality of every student was maintained. The study used student record information that included results from Holland's Self-Directed Search when students were in eighth grade. This study did find statistically significant differences in interest scores between male and female students. The study also found a strong positive correlation between males taking technology education

courses and interest inventory scores in the Realistic category. There were no statistically significant relationships for females taking technology education courses and their interest inventory scores.

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Chapter I: Introduction

Background of the Problem

Students in today's schools have many decisions to make for themselves that will have significant implications for their entire lives (Meinster & Rose, 2001). It has been stated for some time that students at younger ages face bigger decisions with increasing frequency that create or close future options (Hendrick & McDaniels, 1987; Meinster & Rose, 2001). Some of those decisions may be about the selection of courses in school, participation in extra curricular activities, the friends they choose, whether to do their homework or go home after school, part-time employment, or dating. The list of possible issues, decisions and implications that today's students encounter continues to grow each day (Maeroff, 1989). The process of how a student chooses to make decisions in any given situation can vary greatly (Hedrick & McDaniels, 1987).

Students have a number of possible resources to utilize in their decision making process. They may choose to ask their brother or sister, a parent, a relative, friend, teacher, school counselor or a person from a religious or social organization (Anderson & Betz, 2000; Olson, 1997; Murnane & Levy, 1996); they may ask any combination of those sources (Smeltzer, Contrucci, Hottman, Bethke, 1991); or, they may choose to ask no one and make a decision on their own. Students may also utilize information they have gained from classes, previous experiences or some type of data gathering or profile tool such as a survey or self- assessment (Gavin, Kellog, Gugerty, Lombard, 1993). Hopefully, students will include people and resources in their decision making process which will provide a sense of sustained support in having made effective decisions (Meinster & Rose, 2001).

Many of the decisions students make include choices related to school activities and selecting school courses. The courses a student chooses to participate in as elective courses can have significant importance (Olsen, 1997). Elective courses can help students explore and prepare for a variety of post-secondary options such as college, technical school, military or entry into the work force. Some other benefits of effective course selection may include increased school satisfaction, performance and strengthened support from those who have been part of a decision making process (Gordon, Petrini, Campagna, 1997).

In addition to selecting elective courses that are satisfying, each student is engaged in the process of career exploration. The choices made in selecting elective courses have the potential to lead a student toward a fulfilling career (Smeltzer, Contrucci, Erpenbach, Hottman, 1991). Careers in the United States appear to becoming more competitive, making it all the more necessary to begin to build a solid foundation as soon as possible (Murnane & Levy 1996). It has been stated that courses in technology education can begin to build a solid foundation for many career pathways (Olson, 1997).

Students have ideas about their future with only a limited frame of reference to build upon (Murnane and Levy, 1996; Gottfredson, 2003). Each experience in a class can help to build a sense of future (Duffy & Wannie, 1995; Stienberg, 1996). The effectiveness with which students make course choices can enhance career development and satisfaction (Collins, Larsen, & Shanovich, 1994). A tool that has been proven to assist with effective decision-making in elective course selection is an interest survey (Smeltzer, Contrucci, Erpenbach, Hottman, 1991).

In many school districts, all students are given the opportunity to complete an interest inventory to provide some information to assist each student with elective course selection. The interest survey can be provided to students electronically or with paper and pencil. The typical survey includes a series of questions designed to describe individual similarities and differences as compared to personality types, classification of work environments and occupations. The information gained from such surveys can be used as an aid in considering occupations that may be compatible with individuals' personality types. The high degree of reliability and validity of this assessment have been long established, making this an effective tool in assisting with elective course selection (Brown, D., Brooks, L. & Associates, 1996).

The process of administering an interest survey to all students is, in part, intended to help students make effective course selections that can assist in career development. There have been many anecdotal stories and reports of improved student satisfaction in their elective course selections. The importance of using person specific data in choosing elective courses is becoming more important every day (Murnane, & Levy, 1996). However, there is little data to demonstrate the effectiveness of interest inventory results in selecting technology education elective courses. A benefit of using interest survey results is that students may make choices that are more congruent with their developing vocational identity. The courses students' select match their perception of how they identify and define themselves (Brown, et al., 1996).

Statement of the Problem

There is currently no data to demonstrate any relationship between the results of student interest surveys and student participation in elective courses in technology education at Oshkosh West High School.

Purpose of the Study

The purpose of the study was to determine if a relationship existed between interest survey results and elective courses taken in technology education. The study also considered differences between male and female students who have taken technology education courses. As a result of this study, staff will have an increased awareness of the characteristics of the students in their classes. This awareness can help staff in designing teaching activities and develop course content that will more closely meet the needs and interests of students in their classes. As staff gain a greater understanding of the students served, staff can more effectively deliver the instruction of which students are interested, student satisfaction can increase as well as a decrease in the negative issues associated with dissatisfaction in a classroom.

With the results of this study, staff will be able to more effectively plan for future needs in the technology education department. Staff members need to continue to update and change course content to reflect the ever-changing nature of technology. With an accurate description of the students in technology education, staff will be able to more effectively enhance current course offerings, eliminate areas of low interest or out-dated offerings and develop and implement new courses designed to meet the demands of the changing face of technology and the needs of a changing student body. The results of this research can also help reinforce the use of interest inventory results for selecting

elective courses and career exploration. This study will be shared throughout the district to include the technology education department, school counselors, administration, and the curriculum director.

Research Hypotheses

This study seeks answers to the following null hypotheses:

1. There is no difference in scores on the Holland Self-Directed Search based on gender.
2. There is no relationship between female student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.
3. There is no relationship between male student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

Definition of Terms

Technology: Human innovation in action that involves the generation of knowledge and process to develop systems that solve problems and extend human capabilities. The innovation, change, or modification of the natural environment to satisfy perceived human needs and wants (ITEA, 2000).

Technology Education: A study of technology that provides an opportunity for students to learn about the process and knowledge related to technology that are needed to solve problems and extend human capabilities (ITEA, 2000).

Limitations of the Study

1. The participants of this study are confined to one high school in one school district. All school districts function in a slightly different manner. Further, other

school districts may have course offerings that are different from those courses offered by the high school in this study.

2. The data for this study are from records of students from only one class. The data used from this class may have been affected as a result of a significant such as a local influence or an event such as September 11, 2001.
3. The area of the state where the school is located is considered to be an area where a high degree of manufacturing is located. The results of the study may not be representative of areas of the state that are more rural, agriculturally oriented or areas are more urban.
4. Complete data for all students was either not available or accessible at the time of data collection. The researcher assumes that all students had similar access to interest inventory information and assessment.

Chapter II: Literature Review

Brief History

The evolution of technology education is as long as the history of man. Technological change was very slow for many reasons. Some of those reasons include the ineffective transmission of knowledge and skills. In the mid part of the last millennium, skill and knowledge began to shift from the social elite groups to a wider range of common workers. During that same period, agriculture in Europe began to produce starches and proteins that allowed the expansion of population (Saettler, 1990). With that expansion there came a greater need for more skilled workers. Knowledge needed for the new skilled worker was transmitted to by working along side the skilled and experienced worker in all manners of trade. But the decision to gain skill and knowledge was primarily a survival decision (Bennett, 1937). Formal school was the rare exception.

By the time of the early 1800's the idea of formalizing training for the acquisition of skill and knowledge became increasingly popular. (Bennett, 1937) As the population continued to grow and move to the west, the needs for skilled workers and the transmission of knowledge continued to grow. By the late 1800's schools were developed to meet those needs. Apprenticeship schools became common by 1890. By 1900, debate grew as to who should bear the cost of training the workforce needed by the bustling economy of the time. The state of Massachusetts established a commission in 1906 to interview business owners and workers to try to determine who should be responsible for training a productive workforce. It was determined that the public schools of the time should be responsible for training. The commission also determined the best age to begin this training was the age of 14 (Bennett, 1937). About the same

time, John Dewey, a progressive advocate, believed that the advance of education depended on the application of social science, particularly psychology, to education (Bennett, 1937 & Ravitch, 2000). This idea, stated by Dewey, can be considered the support needed for the use of individual assessment on a broad scale in determining appropriate placement for students in a training school. The thought of selecting school courses that is consistent with an individual's interests is common throughout educational environments today.

However, that logical thinking was not always the case. Career development theory emerged in the United States in the early part of the twentieth century (Brown, D., Brooks, L. & Associates, 1996). The roots of career development began to emerge in the early 1900's from the work of Frank Parsons. His work focused on three broad factors: (1) a clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources, limitations and their causes; (2) a knowledge of the requirements, conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; (3) true reasoning on the relations of these two groups of facts (Parsons, 1909). Central to Parson's conceptual framework was the idea that if people actively engaged in choosing their vocations rather than allowing chance to operate in the job search process, they will be more satisfied with their careers, employers' costs will decrease, and employees' efficiency will increase (Brown, et al., 1996).

Parson's work was useful for the time in which it was developed and distributed; however, his work was a conceptual framework rather that a theory. It built upon ideas that had been incubating since the fifteenth century. His work was seen as the first guide in career decision making although his work did not get to students on a wide spread

basis (Brown, et al., 1996). The reality of the time was that the vast majority of people were involved in farming and agriculture, which they saw as their future with minimal thought given to the possibility of change. As business and industry changed and developed during the first half of the twentieth century, the needs and abilities of education and the workforce changed as well. With these changes came an increased need for students to be able to make effective decisions about post-secondary employment and education options.

During World War II (WWII), the use of assessments and testing was common in the military to help assign soldiers to effective tasks. After the war some of those tools were modified to use with schools to help identify successful tracks of study as well as in the workforce to ensure appropriate placement of workers. It was after WWII that John Holland began his work of identifying what made people successful. He became one of the most influential researchers in the area of career development. In his early work of the nineteen-fifties, he sought to identify factors other than test scores that would predict student success. Much of this work was done at the National Merit Scholarship Corporation. Holland's works lead to the development of the Self-Directed Search (SDS) (Ethington, Feldman, & Smart, 2000).

Holland began to collect data and facts about successful people and began to categorize that information (Brown et al., 1996). His ideas blossomed as he worked with the National Merit Scholarship Corporation and colleges around the country. Career development theories developed as personal, education and business needs changed. Several central concepts evolved such as careers could be explored, that people could be

matched with jobs that were suited to them. As much as fifty percent of occupational interest could be attributed to genetic sources (Brown, et al., 1996).

The Holland Self-Directed Search (SDS) is the tool that evolved out of Holland's work. The SDS has developed into an effective tool that can provide information and insight into one's personality and preferences related to occupations and career exploration. Today this tool is widely used with middle and high school students as an aid in selecting school courses and career exploration. Paper and pencil and on line versions of the Holland Self-directed Search are used with results remaining consistent (Osborn & Reardon, 2004).

Career exploration can be described as a developmental stage identified by career development theorists (Farmer, 1995). This typically occurs during adolescence as students try out a variety of work roles in part-time work, volunteer work, or in school and community activities. These exploration tasks also include gaining an increased awareness and understanding of the self, of one's own abilities, interests, values and needs. (Ferrer-Caja & Weiss, 2002).

Current Career Exploration Practices

Many school districts administer a Self-Directed Search (SDS) to all students in some format of paper and pencil or an on-line version. A commonly used version in Wisconsin is available through the University of Wisconsin-Madison, WISCareers. Researchers have found that students' confidence in the career decision making process increased and they selected more congruent occupations to explore after taking the SDS (Osborn & Reardon, 2004). This information is of high importance when considering the needs and developmental process of secondary students. The SDS was a part of an

instructional process to give students information about career decision making and exploration. The ability of any student to make choices about selecting elective courses in high school is in part dependent on their self-perception. That self-perception can be altered, enhanced and clarified through a variety of ways including the use of psychometric tools such as Holland's SDS. Planning a course of study or even exploring career and occupational areas in high school is an important task for students (Rosenbaum, 2001).

The most frequently used measures to aid in career exploration during adolescence are career interest inventories. There are basically two kinds of interest measures, those based on empirical occupational scales such as the Strong Interest Inventory (SII), and those based on homogeneous scales such as the Self-Directed Search (SDS). The SII inventories reflect the interests of persons currently in an occupation, "the status quo". In contrast, the SDS serves to stimulate exploratory behaviors, which provide, for each interest, a measure of how similar a person's interests are to a set of items that all assess that interest (Farmer, 1995

The Holland Self-Directed Search (SDS) is a guide to educational and career planning. It was first developed by Dr. John Holland in 1971 based on extensive research about how people choose careers. The SDS is the most widely used interest inventory in the world (Reardon & PAR Staff). The SDS helps people learn about themselves, and their educational, life and career choices. It is based upon the theory that people can be loosely classified into six different character groups: Realistic, Investigative, Artistic, social, Enterprising, and Conventional.

Research of the SDS over time suggest there is exploration validity and encourages students to explore a wider range of career options. The Self-Directed Search continues to show significantly higher scores for women on Social scales (i.e., those related to people and service oriented occupations) and significantly higher sores for men on Realistic scales (i.e. those related to technical, skilled trades and engineering occupations) (Farmer, 1995). There is some debate whether gender differences in scores are due to bias built into the instruments or the results are an accurate measure of interests. Gottfredson, (2003) suggests that outside social influences can contribute to sex differences by pushing genetically diverse individuals to adhere to a common average sex type for their sex. This adherence becomes more common in lower socio-economic classes as they tend to have fewer resources to articulate their interests. Most people in the field of interest inventory research and practice do agree that interest assessments should be accompanied with counseling (Gottfredson, 2003).

The SDS also considers similar interests of those already in the workforce. In a publication from Robert C. Reardon, Ph.D. studying employment data over the past forty years with respect to the six kinds of work (Holland Code classification) some consistent results were found in areas of employment. The data from: A Holland Perspective on the U.S. Workforce from 1960 to 1990: Technical Report No. 33 (Reardon, Reed & Vermick, 2001), identifies the six Holland type by percentages of the total workforce. The report includes percentages of all occupations from 1960 to 1990 (there were 282 census occupations in 1960 and 500 census occupations in 1990). The following information lists the percentages of jobs in each of the six SDS areas from the 1990 census: Realistic, 48%; Investigative, 12%; Artistic, 2%; Social, 10%; Enterprising, 19%;

and Conventional, 9%. The Holland Code area of the largest increase from 1960 to 1990 was in the enterprising area that went from 10% to 19%.

The report suggests for the future that this trend of increase will continue in the Enterprising area followed by increases in the Social and Realistic areas respectively. These trends have remained consistent in percentages over the past forty years and have been reviewed by many other researchers (Reardon, et al. 2001). With this data, school staff can more effectively plan for current and future needs of students, continue to encourage career exploration, consider post-secondary plans and the needs for course planning and development. Schools can expect to find similar results in percentages of the six areas of interest as defined through Holland's work.

Interest inventories also serve to reinforce with students, their perceived and real competencies and self-determination which effects motivation. With feedback from an SDS, students' self –perception can be clarified and reinforced giving one a greater sense of motivation to select a course in which they believe they will be successful. Access to accurate information from an interest inventory can serve students as reinforcement for motivation and a predictor of success (Ferrer-Caja & Weiss, 2002).

Summary

Participation in technology education has evolved from a limited transmission of knowledge to an important choice in school. Interest inventories are a reliable and valid tool used with high school students for many years (Holland et al., 1994 & Brown et al. 1996). Interest inventories used with high school students serve a useful purpose to enhance career exploration and to aid in the selection of elective courses consistent with

student interest, values, abilities and goals. In recognizing the reliability and validity of interest inventories and the assistance they can provide to students in the selection of courses, school staff can analyze student data to help ensure quality education and effective continuation of career development.

Chapter III: Methodology

Currently, there is little information about the relationship between student interest as determined by the Holland Self-Directed Search (SDS) and participation patterns in technology education elective courses taken at OWHS. Information about student interests and the technology education courses taken can be helpful in recognizing the student population being served, the role technology education plays in student success and exploration, course planning and delivery, considerations for future course changes and the students not selecting technology education as an elective.

Population

The population for this study included the graduating class of 2005 from OWHS that includes 414 seniors. In order to obtain an accurate representation of the complete high school student's experience, the entire senior class who gradated in May 2005 will be considered for this study. The school has a population of 1969 students, 976 male, and 990 female. The ethnic diversity of Oshkosh West High School is 1810 White, 32 African American, 7 American Indian/Native Alaskan, 90 Asian/Pacific Islanders. Students with disabilities are 275 and economically disadvantaged is 293. Oshkosh West High School is one of three high schools in the city; two are public and one private, in a university community with a total population of approximately sixty-thousand.

Instrumentation

The Holland Self Directed Search Interest Inventory (SDS) is designed to provide students with information and insight about their own areas of occupational interest traits, disposition, and personal orientation as developed and defined through the research work

of John L. Holland.). The Holland SDS is considered to be highly valid and reliable. The SDS has an internal consistency ranging from .90 to .94 and a test-retest reliability ranging from .76 to .89 (Holland, Powell & Fritzche, 1994, Brown, et al. 1996). Many documents and studies exist to verify those results (Reardon, et al. 2001).

The results of the inventory have a rating of six occupational characteristics or traits, Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The data received by each individual includes a rating in each of the six areas that range from a score of zero to fifty. Scores are a representation of similarity to possible personality types or characteristics. These personality types are complex theoretical groupings of identifiers based upon personality and interests. A Holland type is an empirical and theoretical organizing construct. Enterprising, and Conventional. Here is a brief description of the six Holland types:

Realistic (R) people like to work with things more that people. The R type likes realistic careers where they can work with tools and machines.

Investigative (I) people generally like to explore and understand things or events. The I type usually has math and science abilities and likes to work alone to solve problems.

Artistic (A) people generally likes to work with creative ideas and self-expression. The A type usually has artistic skills, enjoys creating original work and has a good imagination.

Social (S) people generally like to help, teach and counsel people. The S type usually likes to be around people, is interested in how people get along and likes to help others with their problems.

Enterprising (E) people generally like to persuade or direct others. The E type usually has leadership or public speaking abilities.

Conventional (C) people generally like orderly routines and clear standards. The C type has clerical and math abilities, likes to work indoors and maintain organization.

The data used in this study was gathered from student records and from the school's data base in July 2005. Information gathered from the school's data base was confirmed using hard copy files. An Excel spreadsheet was to provide an effective means to organize and analyze the data. The data gathered for this project included gender, SDS preference results, courses taken in technology education, the grade received in each technology education class, cumulative grade point average (4.0 scale), diploma earned, and number of years as a student at OWHS.

Procedure

Data for this study was gathered through electronic means and by retrieving data from the file of each senior in the class. All data was gathered using the assignment of an arbitrary identification number for each student to ensure the anonymity and confidentiality of all students. All data for the purpose of this study is existing data.

The data was transferred to an Excel program format by the researcher. The data was then processed through the Office of Budget, Planning and Analysis at UW-Stout, using the Statistical Program for Social Sciences (SPSS, V14.0), statistical analysis program. The program will consider relationships using the Pearson r correlation between the six SDS types (Realistic, Investigative, Artistic, Social, Enterprising, and

Conventional) and elective courses taken in technology education at the .05 level. The independent variable is gender and the dependent variables are the courses taken in technology education and the scores from the SDS. The study will also perform a t-test to consider differences between male and female scores on the Self-Directed Search at the .05 level.

Data Analysis

The data for this study was analyzed using a t test to consider differences between male and female students' interest scores and their participation in technology education. A Pearson r correlation was used to consider any relationships between the variables of gender and scores from interest survey results. The Statistical Program for Social Sciences, (SPSS, V14.0) was used to process the data.

Limitations

Some limitations of the study are:

1. The participants of this study are confined to one high school in one school district. All school districts function in a slightly different manner. Further, other school districts may have course offerings that are different from those courses offered by the high school in this study.
2. The data for this study are from records of students from only on class. The data used from this class may have been affected as a result of a significant such as a local influence or an event such as September 11, 2001.
3. The area of the state where the school is located is considered to be an area where a high degree of manufacturing is located. The results of the study may

not be representative of areas of the state that are more rural, agriculturally oriented or areas are more urban.

4. Complete data for all students was not available. The researcher assumes that all students had similar access to interest inventory information and assessment.
5. Complete data for all students was not available or accessible at the time of data collection. The researcher assumes that all students had similar access to interest inventory information and assessment.

Chapter IV: Results

The purpose for this study was to determine if a relationship exists between interest inventory results and elective courses taken in technology education. Data was gathered from existing records and processed using Statistical Program for Social Science, (SPSS, V14.0). The statistical processing included Pearson r correlation coefficient and t tests. Questions from the study will be addressed individually from the results of the analysis. The first two tables describe the population. In Table 1, gender of the population is identified as well as identifying the number of students with complete data and partially complete data.

At the time of data collection, some of the records needed for the study were either missing or not available. The total number of students in the study is 364. This represents 87.92% of the senior class. All of the students in this study are considered to be seniors.

Table 1.

Students in Study by Gender

	Data Availability			
	Complete Data		Partial Data	
Gender	Frequency	Percent*	Frequency	Percent
Male	136	56.6	198	54.4
Female	104	43.6	166	45.6
Total	240	100.0	364	100.0

* This represents the percent of the 240 students with complete data for this study.

The ethnic distribution of this group is shown Table 2. The first two columns show the number of students and the percent for the senior class. The last column represents the percent of each ethnic category for the entire school.

Table 2.

Ethnic Background

Ethnicity	Frequency	% Graduating class	% Total school
White/Non-Hispanic	338	92.90%	91.92%
Hispanic	8	2.19%	1.52%
Asian/Pacific Islander	13	3.57%	4.57%
Black/ Non-Hispanic	5	1.37%	1.62%
Amer.Indian/Native Alask	--	--	.35%
Total	364	100.00%	100.00%

Null Hypothesis 1: There is no difference in scores on the Holland Self-Directed Search based on gender.

A t test was performed on the data to address question one. Table 3, t-test for Equality of Means for Interest Inventory Scores, represents data from six Holland Code Types. The last line in the table represents the total number of technology education courses taken. Table 3 show there was statistical difference between male and female responses in the Realistic category (t=10.592; p=.001). Males scored higher in this category than females did (see Table 4 and Table 5). There was also a statistical difference in the Artistic category (t=-7.750, p=.001), Social category (t=-7.316, p=.001) and the Conventional category (t=-2.103, p=.05), where females scored higher. In the last category, Total TE Courses (the total number of technology education courses taken) was also statistically significant (t=10.575, p=.001) with a large number of males enrolled in technology education courses.

Table 3.

T-test for Equality of Means for Interest Inventory Scores

	df	F	t	Sig(2-tailed)	Mean Difference
Realistic	238	.142	10.592	.001	11.912
Investigative	238	1.315	1.664	--	2.242
Artistic	238	.513	-7.750	.001	-9.750
Social	196	5.517	-7.316	.001	-8.601
Enterprising	238	.002	.469	--	.641
Conventional	238	3.532	-2.103	.05	-2.587
Total TE Courses	249	138.446	10.575	.001	2.651

Table 4 shows the distribution of interest scores for males only, n=136. The information suggests that males clearly score higher in the R type category. The Median Score for the R type is more than double that of females (Table 6).

Table 4.

Mean, Median and Range scores for Males on the Holland Self-Directed Search

Holland Types	Mean Score on SDS	Median Score on SDS	Range Low	Range High
Realistic	28.94	30.00	6	45
Investigative	23.93	23.00	3	46
Artistic	20.13	20.00	3	44
Social	19.39	19.00	2	40
Enterprising	23.35	23.00	2	47
Conventional	18.97	19.00	2	45

In Table 5, the mean, median and range of interest scores for females, n=104, is given. The A type category is the highest Mean score for females. The S type category is also significantly higher for females and this category has the greatest difference in Median scores. The range for both male and female is very similar, noting that the greatest differences are in the R type and the S type categories.

Table 5.

Mean, Median and Range scores for Females on the Holland Self-Directed Search

Holland Types	Mean Score on SDS	Median Score on SDS	Range	
			Low	High
Realistic	17.03	14.00	3	41
Investigative	21.69	22.00	2	45
Artistic	29.88	29.00	8	47
Social	27.99	29.00	4	49
Enterprising	22.71	22.00	2	44
Conventional	21.56	22.00	2	44

Null Hypothesis 2: There is no relationship between female student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

Pearson r was performed to answer question two and is displayed in Table 6, Correlation of Total Number of Technology Education (TE) Courses Taken. The third column (Female) indicates there is no statistically significant relationship between taking courses in technology education and interest survey scores in this study group.

Table 6.

Correlation of Total Number of Technology Education (TE) Courses Taken

	All Students N=364	Students in TE n=194	Female n=166	Male n=198
Realistic	.489*	.393*	-.017	.431*
Investigative	-.076	.016	-.174	-.158
Artistic	-.374*	-.326*	-.140	-.250**
Social	-.321*	-.237	-.093	-.190**
Enterprising	-.216*	-.274*	-.295	-.339*
Conventional	-.188**	-.085	-.169	-.160

*p<.001, **p<.05.

Null Hypothesis 3: There is no relationship between male student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

Pearson r was performed to answer questions three and is displayed in Table 6, Correlation of Total Number of Technology Education (TE) Courses Taken. The fourth column (Male) does indicate a strong positive correlation between males selecting technology education courses and male scores in the realistic category ($r=.431$, $p<.001$). A negative correlation is found in the other five categories. Three of the categories, Artistic, Social and Enterprising have a statistically significant negative correlation of p,.05 or stronger. A strong positive correlation also exists in the Realistic category for All Students ($r=.489$, $p<.001$).

Chapter V: Discussion

Chapter five is divided into three sections. The first section will summarize the purpose of the study. The second section will discuss conclusions based on the research conducted. The third section will address the researcher's recommendations for further study.

Summary

The purpose of the study was to determine if a relationship exists between interest survey results and elective courses taken in technology education. The study also considered differences in interest results between male and female students who have taken technology education courses. There were 364 students considered in this study form Oshkosh West High School. The data for the study was collected from existing data.

The literature review included information about the interest surveys used as a means to assist with career exploration, course selection and gender differences in survey results. The last century saw the development and wide spread integration of interest surveys in our schools to help provide information and direction for students through their developmental process. There is also discussion about gender differences in interest surveys that may be built into surveys or the result of external influences.

The researcher identified three null hypotheses to address in this study:

1. There is no difference in scores on the Holland Self-Directed Search based on gender.
2. There is no relationship between female student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

3. There is no relationship between male student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

Limitations

1. The participants of this study are confined to one high school in one school district. All school districts function in a slightly different manner. Further, other school districts may have course offerings that are different from those courses offered by the high school in this study.
2. The data for this study are from records of students from only on class. The data used from this class may have been affected as a result of a significant such as a local influence or an event such as September 11, 2001.
3. The area of the state where the school is located is considered to be an area where a high degree of manufacturing is located. The results of the study may not be representative of areas of the state that are more rural, agriculturally oriented or areas are more urban.

Complete data for all students was not available. The researcher assumes that all students had similar access to interest inventory information and assessment.

Conclusions

Based on the statistical findings of the sample of students from Oshkosh West High School, the following conclusions were made about the three null hypotheses. Each hypothesis was addressed in chapter IV.

Null Hypothesis 1: There is no difference in scores on the Holland Self-Directed Search based on gender.

Scores on the Holland Self-Directed Search did show some statistically significant differences. The male students scored significantly higher in the realistic category. Females had a statistically significant higher score in the Artistic, Social and Conventional areas of interest. These results are consistent with findings from other research. In recognizing that some differences do exist between male and female students, the technology education department may consider designing a course that appeals to the interests of those who are currently under represented in technology education.

Null Hypothesis 2: There is no relationship between female student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

From the data gained after processing, there was no statistically significant relationship found between the interest scores for females and the number of classes taken in technology education. It is important to recognize differences between male and female data. Low enrollment of females in technology education is a concern.

The low enrollment of females in technology education may serve to validate social bias that may exist in areas traditionally associated with males. This may also demonstrate that the interest inventory is not a good predictor for marketing technology education to females.

Null Hypothesis 3: There is no relationship between male student scores on the Holland Self-Directed Search and the number of Technology Education classes taken.

There were several statistically significant correlations found with the scores from males' interest survey results. The Realistic category had the strongest positive correlation while the Artistic, Social and Enterprising all had a negative correlation that was statistically significant. These results are consistent with findings from other research. This may indicate that the students who chose to take technology education have a similar set of defined beliefs and expectations about the elective courses in which they participate. The high number of males taking technology education is contributing factor in considering the strong correlation between technology education and Realistic for the entire class.

It is also important to recognize the negative correlations from a marketing stand point. Students whose score is low in the categories that have a strong negative correlation may be more likely to take a technology education course.

Recommendations

The following recommendations are based on the results of the study:

1. Results of this study suggest that male students who score high in the Realistic category are a large portion of students in technology education. Students who match these criteria should be encouraged to take technology education as an elective in high school.

2. In order to serve a wider range of students, the school district and technology education department should analyze the current methods of content delivery and consider changes that would be more inclusive for females and those with interests in areas other than skill based or hands-on activities.

3. The information from this study should be shared with all members of the technology education department, guidance and administration. As demands increase for performance testing, these three groups may consider ways to build academic skills through technology education.

4. This study should be replicated by other schools to gain a better understanding of the students who are and are not being served by the technology education department.

5. The school district may consider providing an interest inventory to students in their sophomore year to more accurately assess the developmental changes that have occurred since the eighth grade interest survey was administered.

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