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Cardarella, Brian J. ***An Analysis of Enrollment Trends in Technology Education Courses at Lakes Community High School***

Abstract

The enrollment in Technology Education courses at Lakes Community High School has been on the decline. The purpose of this study was to begin to investigate the possible reason or reasons for the deterioration of student enrollment within Technology Education courses at Lakes Community High School. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program.

The population of this study included all of those who had input into the design of students' schedules as well as those involved in structuring the school day at Lakes Community High School. Interviews were given to the aforementioned subjects. Each interview was converted into written transcripts. Next, the researcher analyzed each interview and coded them to identify key words or phrases. This process of coding uncovered salient themes that emerged.

The results of the study indicated that the two largest barriers to a higher enrollment in technology education courses at Lakes Community High School are the graduation requirements are limiting the students' ability to take technology education courses, and students are not taking technology education courses because they were taking higher level "college preparatory" courses.

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Chapter I: Introduction

Technology Education classes are, to many students, as important as their core general education classes. Due to many possible influences, however, the number of students enrolled in Technology Education classes at Lakes Community High School is greatly diminishing. Significantly less than half of all high school graduates will earn any type of degree within ten years of graduation (Mulcahy, 2006). The deteriorating enrollment numbers are not only worrisome due to the lack of students taking the classes, but if numbers continue to fall, the Technology Education department as a whole is threatened.

Lakes Community High School serves 1,300 students in extreme northern Illinois. Lakes Community High School is one of two high schools in Community High School District #117, including Antioch Community High School. Lakes Community High School draws students from Antioch, Lake Villa and Lindenhurst Illinois.

There are many possible reasons why the enrollment numbers for Technology Education classes at Lakes Community High School are dropping. Among the possible reasons is the college preparatory classes that are being forced upon the students. Students may have room for elective classes when they are being required to take so many other classes to meet graduation requirements as well as prepare for further education. While students are being required to take courses preparing them for college, data suggests that a large amount of high school graduates will not graduate from college and will, in turn, need skills to be employable. "Of those who go to 4-year colleges, or 2-year colleges with the intent to transfer, about half at best will graduate, and of those who do, about half will end up in jobs they could probably have gotten right out of high school" (Gray, Kerr, 2006, p.3).

Background to the Problem

"We live in an age of unprecedented technological innovation that calls for a level of technological literacy that is unparalleled in the history of humankind. Thus is not a literacy that is restricted to certain groups or individuals but one that is demanded of most people" (Maley, 1987, 44). The world we live in is changing rapidly. The jobs of yesterday are not the jobs of today, and likewise the jobs of today are different than the jobs will be in just a few months. Technology education must change in order to keep graduates competitive on the global market place. Technology education, however, is not new to change. "From the late 1800s to today, technology education has transitioned through methodological and philosophical changes in an effort to meet the demands of an ever-changing technological society" (Daugherty, Klenke, Neden, 2008, p 19). While demands are being placed on Technology Education to keep up with a changing market place, the fiscal means to change are often not feasible in today's economy, "Outdated facilities not only impact the curriculum and the instructor's ability to offer contemporary standards-based learning experiences, but also influence student and public perceptions of the program" (Daugherty, Klenke, Neden, 2008, p 20). As a Technology Education facility becomes outdated, the enrollment of students in the class will naturally drop. Experts agree that Technology Education classes need to continually update laboratories and curriculum to maintain currency and relevance; this requires adequate budgets for equipment and capitol upgrades. "While every reasonable effort should be made to reduce per capita cost, there is a minimum below which effective vocational education cannot be given, and if the course does not permit of this minimum per capita cost, vocational education should not be attempted" (Prosser, Allen, 1929, p 235). While workforce needs are dictating curriculum change, updated curriculum cannot be effectively taught without infrastructure update. "Clearly, any substantial

curriculum modification should include a similar equipment and facilities transformation that includes the removal of ill-suited equipment and the purchase of more appropriate equipment" (Daugherty, Klenke, Neden, 2008, p. 21). As the technology education department also aspires to satisfy Career and Technical Education demands of their students and the surrounding community, financial support of facilities and contemporary curriculum development may be one of many contributing factors in the decline of Technology Education student enrollment at Lakes Community High School.

College preparation receives priority over the students desire to work with their hands, make projects and discover how things work (Kapsner, 2005). Often students at Lakes Community High School do not have the option of taking Technology Education electives due to requirements made by the state or by colleges and universities (See Appendix A). Between the 2004-2005 school year and the 2009-2010 school year, enrollment of Technology Education classes at Lakes Community High School dropped from 192 students to 161 students (Wiegel, email to author 11/09). If the trend does not make a change, the Technology Education department will be in danger of being downsized or eliminated entirely. Partially due to dropping enrollment, Technology Education teachers are losing their jobs. In the time between 2001 and 2009, 7,951 technology education teachers lost their jobs (Moye, 2004).

Statement of the Problem

Student enrollment in Technology Education courses at Lakes Community High School are rapidly decreasing. This research will enable instructors in the Technology Education department, the guidance counselors and administrators at Lakes Community High School, and the school board of Community High School District #117, to understand the factors surrounding the decreasing enrollment. Furthermore, this study will identify the perceptions of the

superintendents, administrators and guidance counselors involved in the Technology Education department at Lakes Community High School.

Purpose of the Study

The purpose of this study was to begin to investigate the possible reason or reasons for the deterioration of student enrollment within Technology Education courses at Lakes Community High School. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program. Furthermore, this study was conducted to determine if there is a plausible method for instructors, administrators, or school board members to reverse the trend in enrollment.

Research Questions

There are many questions that this research answered; however there are four particular items that the research was aimed at answering. Declining enrollment within Technology Education courses at Lakes Community High School is the major issue identified by this research. Within that context, answering the following four questions will help to define a method to resolve the problem.

1. What do counselors and administration perceive as the barriers to enrollment in Technology Education courses at Lakes Community High School?
2. How do counselors and administration at Lakes Community High School perceive Technology Education courses and their ability to prepare students for post secondary education (two and four year programs)?
3. How do counselors and administration at Lakes Community High School perceive Technology Education courses and their ability to prepare students for post secondary training (military, civil service work etcetera)?

4. How do counselors and administration at Lakes Community High School perceive Technology Education courses and their ability to prepare students for direct entry into the workforce?

Importance of the Study

In 2010 over 68 percent of high school graduates immediately attended a college or University (United States Bureau of Labor Statistics, 2011). Clearly, many students at Lakes Community High School plan to enter college directly after graduation, however, students who do not earn a post secondary degree will need to find a job with the skills they learned at Lakes Community High School. If students are not taking courses at the high school level to prepare themselves for the workforce they will be outmatched when competing against others for skilled jobs. Furthermore, data shows that students who enroll in Technology Education courses will be more likely to graduate from high school than those who did not. Therefore, even those students who do not plan on entering the work force out of high school will be greatly benefited by enrolling in at least one Technology Education course (Mulcahy, 2007).

Limitations of the Study

Portions of this study will be based directly from interviews conducted with school administrators and guidance counselors. The results of this study will be strictly limited to Lakes Community High School. These results will not be viable if used by a school in any other geological location or with students of a different demographic makeup. Furthermore, the results of this study are limited to Technology Education classes. While other elective classes at Lakes Community High School may share some common issues with the results of this study, the results are only conclusive to Technology Education classes.

Definition of Terms

Career and Technology Education (CTE): Formerly known as Vocational Education. Prepares learners for jobs and careers that often do not require a bachelor's degree. Curricular areas include Technology Education, Family and Consumer Education and Business Education.

Community High School District #117: A school district in extreme northern Illinois serving the high school needs for the cities of Antioch, Lake Villa, and Lindenhurst Illinois. Community High School District includes Lakes Community High School and Antioch Community High School and as of 2008 served 2,713 students. (Illinois District Report Card)

Technology Education: Provides a general framework of skills and experiences that equip students with the ability to utilize technology as it exists and evolves. Lakes Community High School technology education courses include Wood Technologies, Woods Advanced, Electronics, Technical Drawing, Architectural Drawing and Technical Drawing 2. Some courses have objectives that are closely aligned with those of Career and Technology Education, while others align more closely with the objectives related to Technology Education.

Chapter II: Literature Review

The purpose of this study was to begin to investigate the possible reason or reasons for the deterioration of student enrollment within Technology Education courses at Lakes Community High School. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program.

Statistics show that a declining enrollment in Career and Technology Education classes is not specific to Lakes Community High School. Nationally in 2000, public high school graduates enrolled in 4.20 Career and Technology Education courses. Just five years later, in 2005, public high school graduates had dropped to enrolling in only 4.01 Career and Technology Education credits. (United States Department of Education, 2008) While this may seem like a subtle drop, the rate is alarming when looking at the long term enrollment of Career and Technical Education. Lakes Community High School is part of the nationwide struggle to retain Technology Education teachers, let alone add onto the Technology Education program. Due in part to the federal No Child Left Behind Act of 2001, Lakes Community High School has shifted its attention to preparing students for college, when studies show that less than 50% of high school graduates will go on to earn a bachelor's degree. (Mulcahy, 2006).

While it is clear that the enrollment in Technology Education courses at Lakes Community High School is dropping, the cause for the declining enrollment is not clear. In order to make a program appealing, educators need to have funding available to keep the laboratory up to date (Daugherty, Klenke, Neden, 2008). Funding for Technology Education classes at Lakes Community High School has dropped dramatically. Research indicates that the decreased funding for technology education classes may have a direct correlation to the dropping enrollment numbers in the program. (Daugherty, Klenke, Neden, 2008).

Curricular Shift away from Elective Courses

The curriculum at Lakes Community High School is increasingly shifting towards college preparation and not workforce preparation. Studies show, however, that students who enrolled in Career and Technology Education (CTE) courses are more likely to be prepared to succeed at the post secondary level. Specifically, students who combine a college-preparatory academic curriculum with a specific CTE sequence had gains in math, reading and science test scores during high school that were similar to the gains of students who took only the college-prep curriculum (Mulcahy, 2006). Oftentimes a college preparatory schedule leaves no room for elective Technology Education courses (Rossetti, Elliot, Price, McClay, 1989). Students entering Lakes Community High School as freshmen are allotted two periods of electives. Guidance counselors encourage students to take a foreign language due to the fact that most major universities require two or three years of foreign language to be admitted. Subsequently, students have one elective available, and many chose a study hall instead of an elective course.

College readiness has been defined as, "the level of preparation a student needs to enroll and succeed-without remediation-in a credit bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program" (Conley, 2007, p 1). At one time the perception of Technology Education courses was that they cater only to those students who were not intending to attend college. Career and Technical Education (CTE) courses, including Technology Education, have begun a transformation since that time. "Once considered a track for non-college bound high school students, CTE has evolved to include an increased emphasis on rigorous academic preparation and integrated and articulated CTE courses and programs" (Dare, 2006, p. 73). However, there is research to suggest that "CTE will continue to lose student enrollment unless CTE leaders can clearly show these

programs: a) contribute to academic success of students as measured by state academic tests and b) serve as motivation for students to stay in school and help students perform better in academic courses" (Chadd, Drage, 2006, p. 80).

Statistics show that the majority of high school students in America will not graduate from college despite the emphasis on college readiness at the high school level. Specifically, for every 100 students that enter ninth grade, 68 of them will graduate from high school in four years. Forty of these students will begin college and only 27 of them will start their sophomore years. Lastly, of those 100 students, only 18 of them will graduate from college in four years. (Mulcahy, 2006) This would suggest that college preparatory curriculum in a secondary setting neglects a large portion of the student body. Furthermore, of students with a C average in high school, only nineteen percent earned any credential (certificate, AA or BA) in the six years following high school (Rosenbaum, Stephen, and Rosenbaum, 2010).

The No Child Left Behind Act of 2001 requires all states to measure each public school's and district's achievement and establish annual achievement targets for the state (ISBE, 2010). School districts are being forced to make Adequate Yearly Progress (AYP) which is based on standardized test scores. Each year, states will calculate a school or district's AYP to determine if students are improving their performance, based on the established annual targets. If a school or district does not meet AYP there are consequences for that school. Specifically, after four straight years of not meeting AYP, a school or district is forced to enter into Corrective Actions. The corrective actions include efforts such as extending the length of the school day, replacing the school staff who are deemed relevant to the school not making AYP, and significantly decreasing management authority at the school and restructuring the internal organization of the school (ISBE, 2010). In order for school districts to make AYP they need to have high scores in

mathematics and reading. This represents another reason why school districts across the nation are forcing students to take more upper level mathematics and English classes, not allowing room for electives.

Additionally, since implementation of The No Child Left Behind Act, new graduation requirements include one additional year of mathematics, two years of writing-intensive courses, and one additional year of science. As a result of these additional requirements, CTE courses may be squeezed out of the curriculum (Chadd & Drage, 2006**).** While the No Child Left Behind Act was put into place with good intentions, the unintended effects of the act may prove devastating to certain elective disciplines across the country. The one-size-fits-all requirements do not meet the diverse needs of our economy for many types of high-skilled workers and do not meet the diverse interests of students (Bartik and Hollenbeck 2006). Bartik and Hollenbeck testified to the Michigan Senate Education Committee that there are four major unintended outcomes from the No Child Left Behind Legislation: a) increased likelihood of student drop-out rates; b)"watering down" of the curriculum for all; c) some excellent classes, such as in the area of career and technical education, may get crowded out of the curriculum; and d) graduation requirements may stifle curricular innovation (2006).

Budget Concerns

One of the roles of secondary Career and Technical Education is to, "prepare students who may choose to enter the workforce directly after high school with skills and knowledge in a particular career area that will be valued in the marketplace" (Meder, 2006, p. 1). Outdated facilities not only impact the curriculum and the instructor's ability to offer contemporary standards-based learning experiences, but also influence student and public perceptions of the program (Daugherty, Klenke, Neden, 2008). An adequate budget is necessary to run and

promote a successful Technology Education program. According to public records, Community High School District #117 spent a total of $42.2 million for the 2007-2008 school year, a total of $43.0 million for the 2008-2009 school year and $40.8 million for the 2009-2010 school year (FTP Directory, 2010). During that time, the district cut just under four percent of their operating budget. During that same time the Technology Education supplies budget was cut from $13,279 down to $1,800 (Wiegel, email to the Author, 3/2010). This decline in the Technology Education budget, however, is not entirely by the choice of school administration. State and federal law makers have cut funding to education to a point where school administrators do not have the option of providing optimal funding for any of their programs.

This trend is not specific to District #117. In 2010 Illinois Governor Pat Quinn originally proposed a 1.3 billion dollar cut to education in Illinois. Quinn, looking for another route, went on to ask lawmakers to raise the personal income tax rate to 4 percent from 3 percent and the corporate rate to 5.8 percent from 4.8 percent. That would generate $2.8 billion a year that would go to prevent education cuts and help the state pay schools the money it already owes them (Bellandi, 2010).

Chapter III: Methodology

Introduction

The purpose of this study was to determine what factors are contributing to the declining enrollment in Technology Education courses at Lakes Community High School. Upon completion of this research, information will assist in changing current practices at Lakes Community High School. The research will help to develop new practices that will help to sway the current dropping enrollment in Technology Education courses. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program. If there is a flaw anywhere within the Technology Education program at Lakes Community High School, those involved in this study should define it. The technology education program at Lakes Community High School includes some courses whose objectives closely resemble those of career and technology education while other courses are more closely aligned with the objectives of technology education.

Subjects

The population of this study included all of those who have input into the design of students' schedules as well as those involved in structuring the school day. Those included were both co-superintendents, the building principal, the assistant principal for pupil personnel service, the assistant principal of curriculum and instruction and all four guidance counselors. All of those chosen to participate in this research have a minimum of a master's degree. The population consisted of both males and females of varying ages between 30 and 55 years of age.

Instrumentation

To collect the necessary data to help solve the problem, interviews were given to the subjects described in the population. The questions asked to the subjects were developed by the

research. The first question asked is intended to identify what the subjects feel are the contributing factors for a declining enrollment in Technology Education classes at Lakes Community High School. The remaining three questions are intended to determine how the subjects perceive Technology Education and its ability to prepare students for post secondary education, post secondary training, and direct entrance into the workforce. The questions asked are open ended, in hopes of allowing the subjects to elaborate on their opinions.

Data Collection Procedures

An email was sent to all of those who were being asked to participate in the study. In this email the subjects were asked if they would be willing to participate in the study through an interview process. After the subjects consented to participate in the study, an appointment was made and the interview took place. The interviews were recorded digitally so the researcher could review the interviews repeatedly.

Data Analysis

Each interview was converted into written transcripts. Next, the researcher carefully analyzed each interview and coded them to identify key words or phrases. This process of coding uncovered salient themes that emerged. Lastly, the salient themes were shared with each of the participants of the study.

Chapter IV: Results

The purpose of this study was to begin to investigate the possible reason or reasons for the deterioration of student enrollment within Technology Education courses at Lakes Community High School. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program.

The population of this study was the two co-superintendants, the building principal, two assistant principals and four guidance counselors. These nine individuals were chosen because they have either a direct input into the design of students' schedules or are involved in structuring the school day. To collect the necessary data, interviews were given to those nine subjects. Each participant was asked the following four research questions:

1. What do you perceive is the largest barrier to a higher enrollment in Technology Education classes at Lakes Community High School?
2. How do you perceive Technology Education classes and their ability to prepare students for post secondary education (two and four year programs)?
3. How do you perceive Technology Education classes and their ability to prepare students for post secondary training (military and civil service work etc.)?
4. How do you perceive Technology Education classes and their ability to prepare students for direct entry into the workforce

Each participant was simply asked the aforementioned questions just as they are written. All of the interviews were digitally recorded. Each interview was converted into written transcripts. Next, the researcher carefully deconstructed each interview and coded them to identify key words or phrases. This process of coding uncovered salient themes that emerged. These themes were then analyzed to produce the following results.

Barriers to Enrollment

The first research question asked the subjects what they perceived were the barriers to a higher enrollment in Technology Education courses at Lakes Community High School. During the nine interviews,two themes clearly emerged as possible barriers to a higher enrollment in Technology Education classes at Lakes Community High School. The first theme dealt with students not having enough room in their schedule to take elective courses due to graduation requirements. Since implementation of The No Child Left Behind Act, additional requirements include one additional year of mathematics, two years of writing-intensive courses, and one additional year of science. As a result of these additional requirements, CTE courses may be squeezed out of the curriculum (Chadd & Drage, 2006). An interview participant stated, **"**All the requirements you need to get in to graduate and all the requirements colleges are requiring to get in often does not leave time for other courses they might have explored." Also, "we have foreign language and all the different requirements that fill schedules pretty quick."

The other theme was students were not taking Technology Education courses because they were taking higher level courses, also alluded to as "college preparatory" classes. These findings correlate well to the literature regarding the curricular shift away from elective courses. Oftentimes a college preparatory schedule leaves no room for elective Technology Education courses (Rossetti, Elliot, Price, McClay, 1989). This notion was alluded to in the interviews, specifically, "the pressure is more structured to the core classes for admission purposes into colleges," and "students try to do college bound and (technology education) at the same time and that's hard." A participant also noted that "there's a lot of competition and the demands of (the) college ready program is getting pretty big."

Preparation for Post-Secondary Education

The second research question dealt with Technology Education courses at Lakes Community High School and their ability to prepare students for post-secondary education. The only salient theme was technology education courses do a good job of preparing students to apply knowledge. This theme is aligned with evidence found in the professional literature, "Once considered a track for non-college bound high school students, CTE has evolved to include an increased emphasis on rigorous academic preparation and integrated and articulated CTE courses and programs" (Dare, 2006, p 73) A participant mentioned, "technology pushes kids to another order and prepares kids to do well and think at higher levels for a better post - secondary experience." Also mentioned was, "even the creative aspects of woodshop and things like that help prepare students for a two year degree and four year degree if they get a little real life application." Another participant noted that, "in terms of college, the (technology education) students who choose to go down that path, are more prepared to write research papers, do the research, and utilize the technology."

Preparation for Post-Secondary Training

The third question dealt with technology education at Lakes Community High School and its ability to prepare students for post-secondary training. The one salient theme that emerged represented the notion that Technology Education courses do a good job of preparing students for post-secondary training by offering hands on learning opportunities for students. Technology education has continued to focus on the development of hands-on activities, helping students become technologically literate by developing problem solving adaptation skills and a positive attitude toward technology. (Martin, 1985) The following are excerpts from the interviews that helped to define this theme. "You're applying the knowledge hands on and

getting your hands dirty with that knowledge." An interviewee also mentioned, "I think a lot of the things you learn in technology education are practical, everyday hands on things. Especially in the military where you have a lot of mechanical, it's a really valuable skill to have, and great course work to do here." Also mentioned was, "the hands on application I think is the difference in actually using the skills. Getting that advantage here in high school, and being able to apply it and use it on a resume."

Preparation for Direct Entrance into the Workforce

The fourth and last question was directed at Technology Education at Lakes Community High School and its ability to prepare students for direct entrance into the workforce. This question yielded two unique themes. Theme number one was that Career and Technology Education courses, in some facet, do a good job of preparing students for direct entrance into the workforce. One of the roles of Career and Technology Education is to "prepare students who may choose to enter the workforce directly after high school with levels of skill and knowledge in a particular career area that will be valued in the marketplace" (Meder, 2006, p 1). "(Students) can go in and actually know how to do a job or be familiar with actually completing the task at hand." Also, "(Technology Education) will give them a leg up of knowledge that will get them into a career that has a future, without necessarily going on and completing a college diploma." Another participant stated, "I think the technology (education) classes are probably one of the only areas where kids could pick up some skills where they would actually be usable after high school; woodworking, cooking, drafting, architecture could all be applied right after high school for a job."

The other theme that was developed was that students who enter a vocational program of study are prepared to enter directly into the workforce. Vocational education, in this study,

refers to the program where students are transported to the local college to take technological courses. This program is often referred to simply as "Technology Campus." Some items directly from the interviews back up the fact that enrolling in a vocational program does prepare students for direct entrance into the workforce. "I'm an advocate of a technology campus so we have developed here a technology campus and I think it offers kids opportunities they would not otherwise have." A participant also mentioned, I do think there are kids that go through a vocational program, kids that go through Lake County Technology campus, their able to move right into the job area and actually begin working and earning a pay check." This theme, however, is not necessarily supported by professional literature, "Vocational Education can no longer prepare students for direct entry into the world of work as skilled workers in a highly technological society." (Pucel, 1998, p 1).

Chapter V: Discussion

Introduction

The purpose of this study was to begin to investigate the possible reason or reasons for the deterioration of student enrollment within Technology Education courses at Lakes Community High School. This study, specifically, will define how administrators and guidance counselors perceive the Technology Education program. The population of this study was the two co-superintendants, the building principal, two assistant principals and four guidance counselors at Lakes Community High School. These nine individuals were chosen because they have either a direct input into the design of students' schedules or are involved in structuring the school day. The subjects were asked to participate in interviews. The questions asked used to gather data were developed by a thorough review of contemporary and significant literature in the field. The subjects were simply asked the following research questions.

1. What do you perceive is the largest barrier to a higher enrollment in Technology Education classes at Lakes Community High School?
2. How do you perceive Technology Education classes and their ability to prepare students for post secondary education (two and four year programs)?
3. How do you perceive Technology Education classes and their ability to prepare students for post secondary training (military and civil service work etc.)?
4. How do you perceive Technology Education classes and their ability to prepare students for direct entry into the workforce?

Each interview was converted into written transcripts. Next, the researcher analyzed each interview and coded them to identify key words or phrases. This process of coding uncovered salient themes that emerged.

The purpose of this section is to identify the findings brought to light by the research. Furthermore, this section will discuss the findings and their ability to alter the technology education program at Lakes Community High School.

Findings

Finding #1: Students do not have room in their schedules to enroll in technology education courses due to graduation requirements.

The data from this study showed that a possible cause for the deteriorating enrollment in technology education courses at Lakes Community High School is the graduation requirements that are in place. Graduation requirements hurting enrollment in technology education requirements is backed up by professional literature. "Recent reform efforts have focused on increasing graduation requirements which in turn led to the elimination of elective courses such as CTE in the secondary curriculum" (Drage, 2009, p 32). Twice in the last seven years a graduation requirement was added at Lakes Community High School. Data showed that both times a specific graduation requirement was added, the enrollment in technology education courses dropped significantly. (See Appendix X)

Finding #2: Enrollment in Technology Education courses at Lakes Community High School has declined due to students enrolling in traditional "college preparatory" courses.

Above and beyond mandated graduation requirements, due partially to the No Child Left Behind Act, administrators at Lakes Community High School exhibit a constant push for students to enroll in higher level courses such as advanced placement and honors courses. Clearly, as students begin to enroll in higher numbers in these upper level courses, elective courses are going to lose enrollment numbers. This is not a new phenomenon. College preparation receives priority over the students desire to work with their hands, make projects and

discover how things work (Kapsner, 2005, iii). Also, the Department of Agricultural Education at The Ohio State University found that oftentimes a college preparatory schedule leaves no room for elective career and technology education courses (Rossetti, Elliot, Price, McClay, 1989).

Finding #3: Technology education courses do a good job of preparing students to apply knowledge.

While the specific skills learned in the technology education courses may not have been found to prepare students for post-secondary education, it seems that these courses give students the ability to apply knowledge. Indeed, Micheels suggests that novel environments that subjects such as technology education are taught provide unique opportunities. "Abstract principals are transformed into concrete realities; creative impulses take on a form and substance; and new meanings emerge as the learner builds ideas into objects which can be seen and touched and understood" (Micheels, 1978, p 10-11)

Finding #4: Technology education courses at Lakes Community high school do a good job of preparing students for post-secondary training by offering hands on opportunities.

Hands-on learning has long been a cornerstone of technology education. For centuries it has been understood that a hands-on, laboratory setting creates a great learning environment. "What has to be done must be learned by practice, Artisans do not detail their apprentices with theories, but set them to do practical work at an early stage; thus they learn to forge by forging, to carve by carving, to paint by painting, and to dance by dancing" (Comenius, 1657, as cited in Norris, 2000, p 173)

Finding #5: Technology Education courses at Lakes Community High School do a good job of preparing students for direct entry into the workforce.

In response to the question, "How do you perceive technology education and its ability to prepare students for direct entry into the workforce" an interview participant stated that, "I think the technology (education) classes are probably one of the only areas where kids could pick up some skills where they would actually be usable after high school…" Upper level secondary courses are designed to prepare students for post-secondary education. Technology Education, on the other hand, helps make students employable immediately upon graduation. While there may not be immediate entry type jobs directly related to the subject matter being taught in technology education courses, these courses instill a work ethic into students that will immediately help them find work. Professional literature backs up the fact that technology education courses teach students to have a good work ethic. "A positive work ethic is just one more way career and technology educators are preparing students for the workforce" (Predmore, 2005, p 1)

Conclusions

1.) Graduation requirements are greatly hindering enrollment in technology education courses at Lakes Community High School. Students are not required to take any sort of Technology Education course prior to graduation.

2.) Students at Lakes Community High School are choosing to take higher level "college preparatory" courses as opposed to elective technology education courses. The data from the research indicates that the administrators and guidance counselors at Lakes Community High School do not refer to technology education courses as college preparatory. The professional literature, on the other hand, indicates that students who enroll in career and technology courses (including technology education) are more likely to succeed at the post-secondary level. Students who combine a college-preparatory

academic curriculum with a specific CTE sequence had gains in math, reading and science test scores during high school that were similar to the gains of students who took only the college-prep curriculum (Mulcahy, 2006).

3.) Technology Education courses at Lakes Community High School do a good job of preparing students to apply knowledge. As students progress through their academic careers, they will be asked to complete tasks with less and less guidance. Students will be asked to problem solve on their own, as opposed to being told how to do every step. The ability to apply knowledge leads to better problem solving skills, which will help students in any future endeavor.

4.) Technology Education courses at Lakes Community High School offer students hands-on learning opportunities. These hands on learning opportunities help to prepare students for a post-secondary training situation. The portion of students at Lakes Community High School who choose to enter post-secondary training will be more prepared if they enrolled in a technology education course at some point in their secondary education career. Students learn very well by doing the activities which they are learning about.

5.) Students who took a technology education course at Lakes Community High School will be more prepared for direct entry into the workforce than those who did not. Significantly less than half of all high school graduates will earn any type of degree within ten years of graduation (Mulcahy, 2006). These students who do not earn any type of degree need to be able to find employment with the skills they already posses. Technology education courses at Lakes Community High School will help these students to find employment.

6.) Data from the research shows that Lakes Community High School students who attend the vocational education program through the College of Lake County are better prepared

to enter directly into the workforce. Lakes Community High School has a partnership with the College of Lake County where students can take technological courses at their campus. These students have been found to be more prepared to find work directly out of high school.

Recommendations

1. In the six plus years the researcher has been employed at Lakes Community High School, two additional graduation requirements have been added. While it seems unlikely that these graduation requirements will be lifted, there are a few possible recommendations that could help the technology education program. Many graduation requirements are made at the state level, thus making them very difficult to be amended. Some graduation requirements, however, are made at the district level, and it is feasible to add additional graduation requirements at this level. The technology education program at Lakes Community High School is part of the "Applied Technology" department. The Applied Technology department encompasses business, family and consumer and technology education. The possibility exists that an additional graduation requirement could be made; forcing students to enroll in a class within the department. Adding this graduation requirement, however, would face challenges. The state of Illinois already has a "consumer education" graduation requirement. Students often fulfill this obligation by enrolling in a course named Life Resources Management, which is taught by the Family and Consumer Education department. This new graduation requirement however could be satisfied by taking any course within the business, family and consumer or technology education program at Lakes Community High School. The school board may be reluctant to add an additional graduation requirement since there technically is a

graduation requirement within the scope of the Applied Technology department. The potential new graduation requirement, however, allows for many options for students.

2. Professional literature shows that Technology Education courses can do a very good job of preparing students for post-secondary education. The data from this research, however, showed that many of the administrators and guidance counselors did not feel the same way about the Technology Education program at Lakes Community High School. Those within the Technology Education department at Lakes Community High School need to make it known that these classes should be considered college preparatory. The first and most important step in this process is to ensure the curriculum and teaching practices are, in fact, college preparatory. Once it is clear that the technology education courses are helping to prepare students for post-secondary education, it is the role of the instructor to make sure that all of the administrators and guidance counselors in the building are aware that this is happening. A great method for an instructor to evidence what is going on in any class is to invite others to witness the class. In addition to allowing others to get a first-hand look at the technology education department, instructors can also use their curriculum as a piece of evidence. The written curriculum can often be even more powerful than a visit, since the curriculum can show connections to state and national standards, as well as core subjects.
3. While it was found that the technology education department does a good job of teaching students to apply knowledge; it is safe to say that many students are not aware of this fact. Students at Lakes Community High School need to be made aware of the great things happening within the technology education department at Lakes Community High School. Posters, daily announcements and emails can often get the attention of many

students. A promotional video can also show other students how technology education teaches students to apply knowledge. Furthermore, since many students at Lakes Community High School have intentions of enrolling in post-secondary education, it is important to illustrate the technology education program's ability to prepare them for their future. Many students are under the impression that the technology education department at Lakes Community High School is not intended for those intending to earn a higher education. The technology education program at Lakes Community High School does, in fact, prepare students for post-secondary education, and it is the role of the educators within the department to make this fact well known.

4. To help prepare students for direct entry into the workforce, it is important to align curriculum and practices with current workforce needs. Preparing students for the jobs of tomorrow is a very dynamic task. Instructors should invite area business owners to speak to their classes. Those directly involved in local business can most accurately describe the jobs available as well as the type of skills they are looking for in perspective employees.
5. Further study on this topic is necessary. Technology Education is a field that is always changing, thus, curriculum and instructional methods need to change with it. Curriculum work is never completed, but is a constantly ongoing process. Furthermore, the research did not provide an abundance of data on this study. One of the main reasons why a small amount of data was collected was due to the researcher not asking follow up questions during the interview process. Had follow up questions been asked during the interview process, a great deal of additional data would have been collected and additional, or more refined themes may have been developed.

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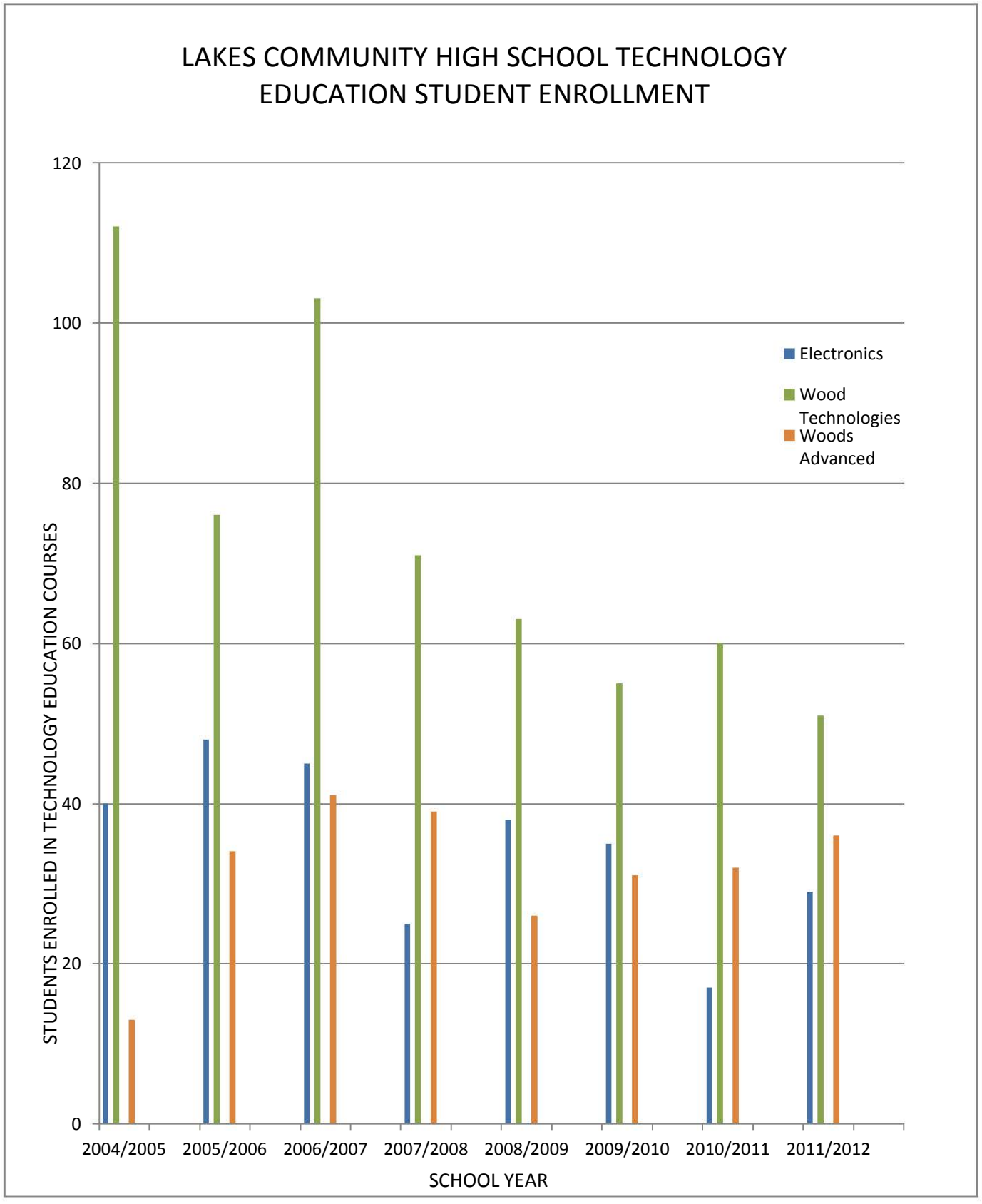
Appendix A: Student Enrollment



Appendix B: Graduation Requirements

Graduation Requirements for Students at Lakes Community High School

State Requirements:

- 4 years of Language Arts
- 3 years of Mathematics
- 2 years of Science
- 2 years of Social Studies
- 1 year of Elective (Art, Music, Foreign Language, Vocational Education)

District Requirements

- 3 years of Social Studies
- 1 course of Fine Arts