THE PERCEPTION OF HIGH SCHOOL GUIDANCE PERSONEL OF TECHNOLOGY EDUCATION AND THE PLACEMENT OF SPECIAL NEED STUDENTS IN TECHNOLOGY EDUCATION CLASSES

by

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ABSTRACT

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The change from Industrial Arts to Technology Education was more than just a name change in this discipline. Many people outside of education may not know the change of philosophy and content and the same may be said of individuals in education. The discipline is still referred to as shop and is looked on as a place of hands on learning and vocational education. Technology education curriculum differs from its predecessors, but not all schools have changed to it completely. Elements of old programs still exist, and in some cases, nothing has changed except the name.

If the discipline has an identity problem this can affect student success and can cause problems when students are placed in technology education classes. Guidance counselors without knowing the class content may improperly place students in a technology education class. In the case of special students, services and support staff may be required; the class may not meet the student's individual educational program. The significance of this study may lead to better understanding the needs of special needs students and how technology education can successfully contribute to their education.

This study examined the perception of technology education by guidance counselors and how this perception related to special education students in high school. The study addressed

several questions. What is technology education as perceived by guidance counselors? What decisions are used to place students with special needs into certain technology education classes? The study concluded with an examination of the results and recommendations that may lead to improved results for both students and instructors.

Acknowledgements

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CHAPTER I

Introduction

Technology Education has been evolving since the industrial revolution of the late 1800's and early 1900's. A work force was needed to operate equipment and perform the tasks that industry provided as places of employment. Industry needed a work force technically literate in the technology of the times. It was at this time that schools developed curriculum that would help fill the needs of the industrial workplace. This type of education became known as Industrial Arts (Pucel, 1994).

Time has passed and the needs of the workplace have changed. The economic shift of moving from the industrial age to the information age has resulted in the need for change in the educational needs of the workforce and society. Recognizing this need for change, a movement was undertaken to update the curriculum and change the name from Industrial Arts to that of Technology Education in 1985 (D'Apolito, 1997).

Under the old system, programs included classes such in auto mechanics, woodworking, metals and drafting (D'Apolito, 1997). These classes were very vocational oriented and did not reflect the needs of today's places of employment (Pucel, 1994). MacDonald and Zargari (1994) stated that during this half century, industrial/technology education was centered on the training of disadvantaged individuals and this philosophy does not serve today's needs. The new curriculum, of technology education, includes classes in courses called manufacturing, communication, transportation, and construction. This new curriculum reflects a change to concepts and systems (D' Apolito, 1997). The goal of modern technology education is to have a technologically literate society, by

definition technology literacy as the ability to use, manage, and understand technology (Satchwell & Dugger, 1996).

Technology Education became the name, but not all schools changed the courses they were teaching to reflect the new philosophy. Some schools have continued with what they have been teaching for years (Foster, n.d.). Foster (n.d.) stated that Pullias identified three viewpoints regarding the evolution to Technology Education. These included everything from a new area of study, to just a name change with the same old curriculum. Disagreement of what technology education is should be, and exactly what is being taught in different schools contributes to the confusion related to these programs by educators and the public (Daugherty, Hill, & Wicklein, 1996).

This research is not designed to examine the debate of technology education verses industrial arts or examine the philosophy of each area. It is designed to document what is perceived as technology education by guidance personnel as related to special needs students.

The individuals with disabilities education act (IDEA) of 1975, reauthorized in 1990 and 1997 mandated that all children receive a free, appropriate public education regardless of the level or severity of their disability. This law brought about mainstreaming and inclusion of special students into the regular classroom when it was deemed appropriate and in the least restrictive environment for the student (The Arc, n.d.).

Inclusion is when students, regardless of the severity of their disability, are educated using appropriate specialized instruction and related services while being in the regular classroom (Havey, 1998). The academic performance of students in inclusion

programs has led to gains for students placed in the programs. These include fewer incomplete assignments, better interactions with other students, and attitudes toward school and learning have improved (Duhaney, & Salend, 1999).

With the implementation of inclusion in the high schools, students are placed in technology education classes along with the required classes. In the author's personal experience, students have been placed in classes where the chance of failure was high because the student did not receive the support needed from special education personnel. In other cases, the students have been placed in advanced technology classes and it seems the appropriate and least restrictive part of IDEA was not used properly.

This researcher must consider that special students are not placed in advanced classes in math or science. This would be due to the knowledge of what the curriculum contains in the math and science areas. On the other hand, technology education has its roots in the manual arts and industrial arts; these areas have the paradigm of being hands on shop classes (MacDonald, & Zargari, 1994). Experts indicate that there is a misunderstanding of what is entailed in technology education and it is more than just a name change from industrial arts. Appropriate education does not mean always the best education; the educational services must meet the student's needs (The Arc, n.d.).

Statement of the Problem

Placing students with special needs in technology education classes without addressing their needs or strengths and without an understanding of what technology education covers in its curriculum sets some students up for failure, and fails to meet the potential of other students.

Are these students being placed in classes that do not conform to the individuals IEP? Are special students who would succeed in technology education being placed there? Are these students receiving what the Individuals with Disabilities Education Act intended to provide? Is it possible that guidance personnel and teachers of special students are unaware of the changes in curriculum of technology education?

Purpose of Study

The purpose of this study was to examine the perception of technology education by guidance personnel and how special needs students are placed in technology education classes. Technology education has changed from what industrial arts programs have taught in the past. In fact, technology education curricula have moved to resemble that of the sciences. To add to the confusion, some technology education programs have only had a name change and are still teaching old curriculum. Technology education may be viewed as shop by individuals in education, and as a place of only hands on experience. It may be assumed by some that technology education classes are still a place of manual or vocational training. Confusion exists concerning this discipline and placement of special needs students in this area can result in success or disaster. Information concerning this discipline and treatment of special students could lead to improved outcome for both students and instructors.

Research Questions

Guidance counselors, in their role to meet the needs of students, have the responsibility to place students in classes that are required and those that are considered electives. Technology education classes at the high school level are usually electives.

Due to this change, confusion over curriculum and lack of change to technology education by some schools, the identity of the discipline may be vague.

The focus of this research was to examine the relationship of Technology Education, guidance counselors and special students by addressing the following questions.

1. What is technology education as perceived by guidance counselors?
2. What criteria are used in decisions about placing students, with special needs, into technology education courses?

Definition of Terms

For clarity and better understanding, the following terms have been defined.

ED: Emotional disturbed, a classification of a student with special needs.

IDEA: Individuals with Disabilities Act, a law first passed in 1975 and reauthorized most recently in 1997.

IEP: Individual educational program, a plan to meet the educational needs of a student with special needs, a legal document.

Inclusion: The placement of special needs students in general education classes with appropriate specialized instruction and related services.

Industrial Arts: Are those occupations by which changes are made in the forms of materials; in education, a study of changes made by man. (MacDonald & Zargari, 1994)

LD: Learning disabled

Special education: A term used to describe education of students with exceptionalities.

Special students: Those students with exceptionalities attending an educational setting.

Technology: A body of knowledge and the systematic application of resources to produce outcomes in response to human needs and wants.

Technology education: A dynamic problem-solving and design-based program that enables student to gain experience working with a wide variety of technological devices and processes.

Technological literacy: The ability to use, manage, and understand technology.

Assumptions and Limitations

CESA 11 contains thirty-eight schools and may not reflect the results that a larger study may find. The study includes subjects from schools that are primarily rural, and smaller to medium in size with only several large schools. It is assumed that the survey will be answered honestly.

CHAPTER II

Literature Review

Introduction

This chapter examines the literature related to the problem statement. It relates interviews with school psychologists and guidance counselors. It reviews information that relates to the problem of placing special students in technology classes. The change of technology education into its present form from that of industrial arts is also examined, as well as the misunderstanding of the discipline and its relationship to special education is presented.

Inclusion and Special Education

Inclusion as stated by Kliewer (1998) cannot be partial; individuals with disabilities must have full participation, full membership and citizenship. This is a fundamental meaning of education for all students.

> Havey (1998) cited (NASP, 1993) with the following definition of Inclusion:
>
> Inclusive programs are those in which students, regardless of the severity of their disability, receive appropriate specialized instruction and related services within an age appropriate general education classroom in the school they would attend if they did not have a disability. p. 145

Inclusion cannot happen by simply placing student with special needs in general education classrooms. The individuals with disabilities act requires that these students have an individual education plan or IEP (Huefner, 2000). The placement of special

students in classes that are selected for them must reflect the intent of that individual's individual educational program (IEP). IEP's have been at the center of the individuals with disabilities act Part B (Huefner, 2000). The IEP is the plan for services to be delivered based on an assessment of the individual by an IEP team. This plan then becomes a legal document.

Inclusion does not always mean success for special students. Fornero (1994) relates that he has had students who are not prepared for meeting the requirements of advanced technology classes. Counselors have stated that there must be something the students can do in his classes. Have the IEP of these students been reviewed or has the student been placed in a technology class because there is a perception that this hands on environment will lead to success?

Interviews of Guidance Counselors

In an interview with K. House, school psychologist at the Barron High School (personal communication, April 2000), it is very common to assume that so-called shop classes are a good environment for special needs students. It was also discussed that shop classes are not what they used to be. When industrial arts had elements of vocational education, special students were placed in these classes to give them an opportunity that would lead them to a possible vocation. With the change of curriculum to that of technology education, the vocational aspect as been removed, special education teachers and guidance personnel are still assuming that things have not changed, only the name. When students are placed in classes they may not succeed in, has the goal of inclusion been reached? This can be answered by the IEP being followed.

An interview with B. Lichty, guidance counselor Bruce High School (personal communication, Oct. 2000), he was unaware of the content areas of technology education: manufacturing, communication, transportation, and energy. He depended on information from instructors so that the changes in curriculum in technology education are relevant. As it was discussed further, they have brought some of these elements into the curriculum as new teachers came into the program at their school, but they still have industrial arts type classes in place.

Mr. Lichty stated that in a smaller school placing, special students in areas where they might meet with failure is less likely because of the smaller number of student and the communication between the department and his office. IEP's play an important role in placing students and the problem would be more for cognitive disabled students. He also related that special education teachers help to guide these students and they need to know the curriculum. Again, the size of the school helps to prevent students from slipping through the cracks.

In discussions with J. Joslin, Weyerhaeuser School guidance counselor (personal communication, Oct. 2000), he stated that the move from industrial arts to technology education has left some special students with a void in their education. If the area becomes more and more aligned with the sciences and engineering, this discipline will become an area that special need students will not be placed or placed in an area that they will be set up for failure. One problem he stated was that change is a constant element in this area and he does not always know what is the latest concerning this area. He stated that there is a need for these special students to have hands on experiences and they may be left out or a way to bring vocational education to them may have to be found.

Technology Education

The change from industrial arts to technology education over the past fifteen years has left the public and those in education unaware as to what the discipline entails. Technology education is still referred to as shop (Daugherty, Hill, & Wicklein, 1996). Daugherty et. al. continued that different opinions of what technology education entails still exists. These views cover that technology education should be part of vocational education or that it should be aligned with science or engineering, while others think it should be integrated with the entire school curriculum.

The International Technology Education Association is developing national standards for technology education for Technology for All American Project. The National Science Foundation and the National Aeronautics and Space Administration are providing Funding for this project (Dugger, 1997).

The Daugherty et. al (1996) study stated that administrators and guidance counselors are primarily responsible for enrollment in technology education classes. Their study further stated that they must identify the perceptions held by these individuals. It was found that technology education for all students was the highest rated item of 45 listed and technology education should be focused on the needs of special students ranked third form last.

The ranking of the needs of special students indicates that there is a problem in the knowledge of the area and how special students are placed in technology education.

Summary

There is little research done relating to technology education and students who are enrolled in this area. The focus of this research is on special students. Much is known on

the laws and plans for these students to succeed, but how placement occurs in technology education, has not been of high importance in the educational community.

The review has indicated that technology education is an evolving discipline that the public and many educators are not knowledgeable. Though the curriculum has changed from that of industrial arts to technology education, many see it as just a name change. Interviews with individuals that guide the placement of these students, shows that technology education is not an area that is understood. If these students are to become inclusive across all educational areas, then a better understanding of technology education must be developed. The review brings out that IEP's are at the center of success for these students.

CHAPTER III

Methodology

Introduction

This chapter described the individuals that will be surveyed in the study. It examined how they were selected and presented with the opportunity to contribute to this study. The instrumentation will be discussed as to its' content and design. The validity and reliability of the instrument is discussed. Lastly there will be conclusion of the chapter.

Description of Population

The population of this research was guidance counselors that directed the selection of classes for all students attending schools within CESA 11. The schools have between one and five individuals that provide the services for the institution. Their participation was voluntary in that they can choose to return the survey or not.

Sample Selection

The individual guidance counselors were chosen using the cluster method. The State of Wisconsin is divided into twelve Cooperative Educational Service Agencies (CESA), the criteria that divides these groups is based on geographic location of the schools. CESA 11 is located in west central Wisconsin. CESA 11 has 38 member high schools. One counselor from each high school was asked to respond to the survey.

Instrumentation

The instrument consisted of questions that probed into the knowledge of the selected guidance counselors about Technology Education that concerns philosophy, educational curriculum, and changes in Technology Education. Other elements addressed special needs students and the criteria used to place special needs students in technology education classes. The interview questions were designed to answer the research questions. The researcher constructed the survey instrument for this research. It was reviewed by several professors at UW-Stout including DR. Michael Galloy and Dr. Amy Gillette. Because this is a limited qualitative study, the survey is unique to CESA 11 and the research problem.

Data Collection

Data was collected by mailing a survey questionnaire. This was an anonymous survey. Respondents were asked to return the survey in a pre-addressed stamped envelope by a given date. By returning the survey they volunteered to participate. The survey return percentage was targeted at seventy five percent.

Data Analysis

The information collected by the survey answered questions the researcher developed. The results of each question were tallied and converted into percentages where applicable. Some results are in a graph form for ease of understanding and tables are also employed. These results are in a descriptive narrative form.

CHAPTER IV

Results

Introduction

This chapter will present the results of the survey sent to guidance counselors that were selected for this study. The purpose of this study was to gather information about the knowledge of guidance counselors, at the high school level, concerning technology education and the placement of special students in technology education classes. Demographic information about the respondents will be presented and the results of the research questions will be reported.

Demographic Information

The sample for this study consisted of high school guidance counselors who were members of Cooperative Education Service Agency Eleven. This group consists of thirty-eight high schools located in west-central Wisconsin.

The size of the schools responding were as follows:

Number of students	Schools
0-200	4
201-400	14
401-600	5
601-800	3
801-1000	1
over 1000	1
no response	2
Total	30

The number of guidance counselors at the high school level are as follows:

Number of Schools	Counselors
21	1
4	2
2	3
1	5
2	no response

The percentage of students that receive special education out of the total high school population:

Number of Schools	Percent
2	0-5
13	6-10
9	11-20
2	21-30
2	31-40
2	no response

Percentage of regular students taking technology education classes:

Number of Schools	Percent
3	0-25
13	26-50
12	51-75
0	76-100
2	no response

Percentage of special students taking technology education classes:

Number of Schools	Percent
7	0-25
11	26-50
9	51-75
1	76-100
2	no response

When asked if their school practiced full inclusion of special students:

Response	Percent
Yes	73
No	17
Unsure	10

Does your school require technology education for graduation?

Response	Number of Schools
Yes	2
No	28
Unsure	0

Data Analysis

Research question one asked: What is technology education as perceived by guidance counselors? The following data provides information pertaining to this research question.

Are you aware that the term Technology Education replaced that of Industrial Arts?

Response	Percent
Yes	93
No	3
Unsure	3

The respondents indicated that 93 percent were aware of the name change from industrial art to technology education. The research findings show that guidance counselors are very well aware of the name change from Industrial Arts to Technology Education. This agrees with information that schools changed the name of the discipline in 1985 as related by D'Apolito (1997).

Are you aware of the different philosophies of Technology Education and Industrial Arts?

Response	Percent
Yes	43
No	23
Unsure	33

The high percentage of knowledge of the name change does not follow when asked about the difference in philosophies of the two areas. Forty-three percent were aware that they were different, thirty-three percent were unsure and twenty percent indicated they did not know there was a difference. Information gathered by this study agrees with a statement by Daugherty, Hill and Wicklein (1996) that over half in education are not knowledgeable as to what the discipline entails, and different opinions of what technology education is still exist. This statement can be supported by the following information gathered by this research.

The respondents were asked to select classes from a list that are offered at their high school. There are eighteen classes in the list and respondents were asked to mark the circle next to the class. The chart that follows represents the total number responses for each category in the list.

Classes Offered

Classes	Number of Schools
Automotive	14
Communication Technology	18
Computer Science	19
Construction	24
Drafting/Cad	25
Electricity/Electronics	12
Energy	11
Fluid Power	8
Graphic Arts/Printing	13
Introduction to Technology	26
Manufacturing	14
Metals/Machine Tool	22
Photography	12
Small Engines	23
Transportation	7
Sheet Metal	9
Welding	23
Woodworking	27

Macdonald and Zargari (1994) point out that the new curriculum of technology education includes classes in manufacturing, communication, transportation, energy and construction. Classes in automotive, woodworking, metals and other traditionally vocational oriented areas are out of step with the philosophy of technology education (Satchwell & Dugger, 1996). All of the classes in the preceding chart are offered under the area of technology education

Some classes that were offered the least, by the responding schools, are part of the new curriculum of technology education. These classes include energy with eleven, transportation with seven, and manufacturing with fourteen. The other technology

education classes that did well were communication technology with eighteen and construction yielding twenty-four.

Traditionally vocationally oriented classes like metals, woodworking, welding and small engines were offered in more than twenty schools. This information agrees with what Foster (n.d.) related that some schools have changed the name but not the curriculum.

Do you feel that technology education has similarities to, or resembles, the curriculum of science?

Response	Percent
Yes	43
No	33
Unsure	23

Are any technology education classes taught in conjunction with other disciplines?

Response	Percent
Yes	40
No	53
Unsure	6

Questions that were directed at technology education curriculum found that forty –three percent feel that technology education has similarities to science, twenty-three percent were unsure and thirty-three percent responded that there were no similarities. Just over half of the respondents were not sure, or, that there were not any similarities between technology education and science curriculums, but standards were created by funding supplied by the National Science Foundation and NASA (Dugger, 1997). Daugherty, Hill and Wicklein (1996) stated that experts feel that technology education should be aligned with science and should be integrated with the entire school

curriculum. This study shows that almost sixty percent of schools do not teach technology education in conjunction with other disciplines.

Are technology education classes considered to be a hands-on environment?

Response	Percent
Yes	96
No	2
Unsure	2

Do technology education classes result in a completed physical product or project?

Response	Percent
Yes	90
No	5
Unsure	5

Whether technology education classes were considered to be a hands-on environment ninety-six percent responded yes. Respondents also indicated, that in their understanding, that technology education classes resulted in physical product or project ninety percent of the time.

D' Apolito (1997) stated that the curriculum for technology education is based on concepts and systems. The study found that the majority of the respondents, ninety-six percent considered this area to be hands on and ninety percent responded that the classes resulted in a physical product or project. Satchwell and Dugger (1996) define technological literacy as the ability to use, manage, and understand technology and is not product oriented. The discipline is considered to be a hands-on environment by the majority of the respondents, and that it produces a product, this disagrees with Satchwell and Dugger (1996).

Research question two asked: What criteria are used in decisions about placing students with special needs into technology education courses?

Is there a need for math skills in technology education?

Response	Percent
Agree	93
Unsure	3.5
Disagree	3.5

Are math skills reviewed before placing special need students in technology education classes?

Response	Percent
Always	6
Sometimes	63
Never	26

Several question related to math. The question asked, is there a need for math skills in technology education classes, and ninety-three percent of respondents indicated that they agreed. When asked if math skills are reviewed before placing special students in technology education classes six percent responded always, sixty-three percent sometimes and twenty-six percent said never.

Ninety-three percent that responded stated that there was a need for math skills in technology education yet only six percent responded that math skills were always reviewed and sixty-three percent said sometimes and twenty-six percent said never.

Would poor reading skills affect performance in technology education?

Response	Percent
Agree	53
Unsure	20
Disagree	26

When asked about reading skills fifty-three percent responded that poor skills would affect a student's performance, twenty percent were unsure and twenty percent disagreed. These responses follow earlier information in this study that view technology education as hands-on and product based. Math and reading skills are needed in technology education, it is based on the ability to use, manage, and understand technology.

Are technology education classes recommended for all special need students?

Response	Percent
Always	16
Sometimes	63
Never	26

Inclusion of special students into regular classes using appropriate specialized instruction was stated by Havey (1998) as the rule for special education. The majority of the responding schools, seventy-three percent stated that they practice full inclusion the balance were unsure or they did not practice full inclusion, but the study shows that only sixteen percent recommend technology education all of the time, and sixty-three percent recommended these classes sometimes, twenty-six percent replied never.

Are technology education classes included in a student's Individual Education Program?

Response	Percent
Always	0
Sometimes	83
Never	10

Are curricula for technology education classes consulted when placing special students?

Response	Percent
Always	23
Sometimes	63
Never	6

IEPs have been at the center of the individuals with disabilities act Part B as stated by Huefner (2000), and the placement of special students in classes that are selected for them must reflect the IEP. This study shows that ten percent never include technology education in the IEP, eighty-three percent of the schools do sometimes and none of the respondent said they always include technology education.

One important part of inclusion is that students receive appropriate specialized education (Havey, 1993). In order for the class to be appropriate for the student, a review of curricula would help answer that question. Respondents were asked if curricula for technology education were consulted when selecting technology education classes. Twenty percent said they did consult, sixty-three percent sometimes, and six percent said never.

CHAPTER V

Summary, Conclusions, and Recommendations

Introduction

This chapter discusses the results of the study, conclusions, and recommendations for further study. The study was done to gain information on the perception of technology education by guidance counselors and the criteria used to place special students in technology education. These two areas affect special students participation and success in technology education classes. The information provided insight if improvement or changes were needed in placement and if knowledge about the technology education discipline by guidance counselors was sufficient.

Restatement of the Problem

Placing students with special needs in technology education classes without addressing their needs or strengths and without an understanding of what technology education covers in its curriculum sets some students up for failure, and fails to meet the potential of other students.

Are these students being placed in classes that do not conform to the individuals IEP? Are special students who would succeed in technology education being placed there? Are these students receiving what the Individuals with Disabilities Education Act intended to provide? Is it possible that guidance personnel and teachers of special students are unaware of the changes in curriculum of technology education?

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Data Analysis

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Conclusions and Recommendations

The focus of this research was to examine the relationship of Technology Education, guidance counselors and special students by addressing two research questions.

Research Question one asked: What is technology education as perceived by guidance counselors?

The data gathered related the perception of technology education in the CESA 11 schools, which responded, as a discipline that has had a name change. The philosophy of technology education is not fully understood by the majority of the respondents. The area is still considered as a hand-on product/project orientated area of learning. Less than half of the school counselors considered the discipline to be aligned with science and less than half indicated that technology education is intergraded with other disciplines. These schools offer classes in technology education and industrial arts/vocational education under the heading of technology education.

Based on the data collected it can be concluded that a large majority of guidance counselors in CESA 11 schools do not have the perception of technology education that is inline with experts in the discipline. Although technology education might still produce projects or products the emphasis in curriculum/philosophy correct technology education

is on technological literacy. To achieve this literacy the focus should be on concepts and systems that allow for the ability to use, manage and understand technology.

Changing the name of the area and offering new classes that are curriculum correct, to the previous classes, does not make it technology education. We must conclude that the lack of knowledge about what is the philosophy of technology education and what classes should be offered, are the major reasons why the discipline in these schools offer a program that is not inline with discipline.

Based on the conclusion, it is recommended that:

1. Counselors should be given workshops on the philosophy of technology education. In this way they may better serve their students with classes that comply with the disciplines requirements.

2. Schools districts that offer classes that are industrial arts/vocational education orientated and technology education be set apart as two different disciplines.

Research question two asked: What criteria are used in decisions about placing students with special needs into technology education classes.

The data gathered related the majority of respondents indicated that their schools practice full inclusion yet less than twenty percent recommended technology for all special students. Law requires IEPs for special students; the majority of the respondents do not always include technology education in the students IEP. The study showed that curricula are not or only sometimes consulted sixty nine percent of the time.

The majority of respondents indicated that technology education classes do require good math and reading skills. These skills are not reviewed the majority of the

time. This study found that classroom aides are provided sometimes eighty-six percent of the time.

It can be concluded that the criteria for placing special students is varied and in many cases lacking. Students are being placed in technology education classes with the possibility of failure due to possible weak math and reading skills. Weak skills may require the use of classroom aides and this study found that providing students aides could be increased. This study has found that a deficiency in knowledge about the technology education discipline may have ramifications related to criteria when placing special students in technology education classes.

The practice of not having criteria to place students in classes defined as vocational/industrial arts, carries over into classes that are the true technology education classes. Technology education classes have similarities to science and may require higher skills and knowledge.

Based on the conclusions it is recommended that for schools to be considered as practicing full inclusion that special students always are recommended to take technology education classes. The importance of IEPs for these students and the legal status of the document should compel counselors to include technology education in special students IEPs. This brings us to the appropriate and least restrictive environment part of IDEA. The curriculum for each technology education class should be consulted to maximize the potential for success for the student. Guidance counselors should have knowledge of the curriculum and if it is unknown then it should be reviewed. Students may fail if the curriculum does not fit the student and the proper support cannot be provided by aides

when they are needed, the results are they may be placed in classes that would not give them a positive experience.

Based on the conclusions it is recommended that special education teachers, in consultation with technology education teachers, help special students select technology education classes. The mix of vocational/industrial arts with technology education classes may be at the center of the confusion concerning the technology education discipline. The understanding of the difference by guidance counselors and the use of criteria related to each discipline could insure that students are placed were they could succeed.

Math and reading skills should be reviewed before placing special students in technology education classes; this review should be part of the students IEP. With the influence of science on technology education classes these are skills that are depended upon in these classes. With the knowledge of the student's math and reading skills, and the knowledge of what is required in each technology education class, improved placement of the students will result.

It is recommended that all special students always be considered for technology education classes. The responding schools indicated that they practiced full inclusion but special students were not being placed as often as they may have been.

It is recommended that technology education be included in all IEPs. By being in every student's IEP the opportunity for them to be placed in a proper technology education class will exist. When examining the students IEP the guidance counselor will also be able to recommend when the student may need a classroom aide.

By allowing special students to be considered for technology education classes that interact with their abilities, and with the proper support, technological literacy can be a goal for special students.

Recommendations for Further Study

1. This study's sample was one of the twelve Cooperative Educational Service Agencies in the state of Wisconsin. This study could be duplicated in one of the other CESAs and the results compared to the original. One point of interest would be the difference of geographical location and how it affects the results.

2. A study could be conducted on the success of special students in technology education classes. Do special students do as well as regular students and how would success be defined for them.

3. Another possible area for research could be to develop a profile of the students that take technology education classes. The number of special students with in this group could be compared from one school to another. Items could be identified why some schools have higher or lower participation in technology education classes.

Bibliography

Albayrak-Kaymak, D., Deno, S. L., & Espin, C. A. (1998). Individualized education programs in resource and inclusive settings: How "individualized" are they? The Journal of Special Education, 32(3), 164-74.

D' Apolito, T. A. (1997, March). What we are about. The Technology Teacher, 2-5.

Daugherty, M. K., Hill, R. B., & Wicklein, R. C. (1996) Technology education in transition: Perception of teachers, administrators, and guidance counselors. Journal of Industrial Teacher Education, 33(3), 7-21.

Dugger, W. (1997, Winter). Technology for all Americans: Providing a vision for technological literacy. Educational Horizons, 97-100.

Duhaney, L. M.G., & Salend, S.J. (1999). The impact of inclusion on students with and with out disabilities and their educators. Remedial and Special Education, 20(2), 114-126.

Education Week. (No Date). Individuals with Disabilities Act. Retrieved October 24, 2000 from the World Wide Web: http;//www.edweek.org/context/glossary/idea.html

Fornero, D. K. (1994). Special needs students to needy for Vo-Tech. Vocational Education Journal, September, 62.

Foster, P. N. (no date). Technology Education: Aka industrial arts. Retrieved February 12, 1998 from the World Wide Web: Http://borg.lib.vt.edu/ejournals/JTE/jte-v5n2/foster.jte-v5n2.html

Havey, M. J. (1998). Inclusion, the law and placement decisions: Implications for school psychologists. Psychology in the Schools, 35(2),145-52.

Huefner, D. S. (2000). The risk and opportunities of the IEP requirements under IDEA '97. The Journal of Special Education, 33(2), 195-204.

Kliewer, C. (1998, August). The meaning of inclusion. Mental Retardation, 317-321.

MacDonald, K., & Zargari, A. (1994, May, June). A history and philosophy of technology education. The Technology Teacher, 7-11.

National Education Association. (No Date). NEA report on the individuals with disabilities education act. Retrieved October 24, 2000 from the World Wide Web: http://www.nea.org/publiced/idea.html

Oaks, M. M. (1991). A progress report on the transition from industrial arts to technology education. Journal of Industrial Teacher Education, 28(2), 61-71.

Pucel, D.J. (1994). The role that technology must play. The Journal of Technology Studies. (22) 41-45.

Satchwell, R. E., & Dugger, W. E. (1996, November). Technology for all Americans: A rationale and structure for the study of technology. The Technology Teacher, 13-14.

Savage, E., & Sterry, L. (1990). A conceptual framework for technology education. Reston, VA: International Technology Education Association.

The Arc (No Date). Public law: The individuals with disabilities education act. Retrieved October 24, 2000 from the World Wide Web: Http:// www.thearc.org/faqs/p19412.html.