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A study of industrial arts teachers' opinions of gifted and talented students in Black Hawk County, Iowa

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A STUDY OF INDUSTRIAL ARTS TEACHERS' OPINIONS OF GIFTED AND TALENTED STUDENTS IN BLACK HAWK COUNTY, IOWA

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ABSTRACT

While the handicapped and disadvantaged have enjoyed the benefit of some unique industrial arts educational programming, relatively little has been done to provide for the special educational needs of gifted and talented students. This may be partially a result of little research completed associating the gifted and talented student with industrial arts. Additionally, legislative support for gifted and talented students has been lacking. It was not until 1978, with the passage of Public Law 95-561, that programs for gifted and talented students have been granted some funding on the federal level. Although this public law can authorize up to $35 million annually for the education of gifted and talented students, in reality only $6.28 million is being appropriated in fiscal years 1980 and 1981.

Educational programming for gifted and talented students is normally accomplished through one of two methods: enrichment and acceleration. Enrichment consists of a broadening of experiences at the students' chronological age level. Acceleration, on the other hand, ignores chronological age or grade in school, and allows a student to progress into coursework at a rate faster than the norm. The few special programs which have existed in industrial arts for gifted and talented students have relied primarily on enrichment.

The purpose of this study was to describe the opinions which industrial arts teachers in Black Hawk County, Iowa, have of gifted and talented students.

Results of this study indicate an appreciation of the diversity gifted and talented students possess or display. Respondents identified such traits as the ability to problem solve, above average mental or physical ability, self-motivation, creativity, and curiousity, as identifiers for gifted and talented students in industrial arts.

While industrial arts was seen as relevant to the educational needs of gifted and talented students, the clustered areas such as communications, power and energy, manufacturing, production, and construction were generally reported as being more appropriate than traditional areas such as metals, woods, graphic arts, drafting, electricity, autos/small engines, and photography. The industrial arts teachers also indicated they feel capable of teaching gifted and talented students, and are willing to do so; with most indicating a preference for teaching the gifted and talented in integrated, rather than segregated, classrooms.

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CHAPTER I

INTRODUCTION

Background of the Problem

It was not until the Soviet launching of the Sputnik Satellite in 1957 that the American educational system realized its technical and scientific inadequacy. This event, and all the implications of it, "jarred us out of an unjustified complacency with the quality of our schools" (Marland, 1973, p. 203). At least as a partial response to this deficiency, the National Defense Education Act of 1957 was enacted. This Act provided funding to "improve instruction in chemistry, physics, mathematics, biology and economics," (Lyon, 1981, p. 16GS) at the elementary and secondary school levels, for academically able students. Unfortunately, the Act, and all accompanying benefits have expired - with no significant legislation serving as a replacement (Marland, 1973).

Twelve years after the National Defense Education Act expired, under P. L. 91-230 (1971), the gifted and talented were again recognized legislatively. Although this law provided no direct funding or programs, it did serve to further stimulate educators' interests in gifted and talented students. This added interest has primarily resulted from a research publication mandated by P. L. 91-230, entitled, "Education of the Gifted and Talented" (Marland, 1971), a significant research project directed by the then Commissioner of Education, Sidney P. Marland. This publication has become the

primary springboard for further research regarding gifted and talented educational programs.

Also within the past decade, legislation providing education for groups with special educational needs other than the gifted and talented was enacted. Public Law 94-142 (1975), the Education for All Handicapped Children Act, provides for a free and appropriate public education for all handicapped children. Recognition of the special educational needs of special needs groups has spread from those with disabilities, to the gifted and talented, partially as a result of P.L. 94-142.

As technological knowledge continues to escalate, the need for persons with the ability to grasp and utilize this increasing body of technical knowledge becomes increasingly important. The ability of persons with exceptional potential is compatable with the needs of new and developing technology (Jessup and Stewart, 1975). Industrial arts and industrial arts teachers can serve the industrial/technological needs of the gifted and talented student (Berger, 1973: Smalley, 1980).

Statement of the Problem

The gifted and talented have been neglected legislatively (Marland, 1971) as well as educationally (The Council for Exceptional Children, 1978). Industrial arts and industrial arts teachers have the responsibility to serve the gifted and talented, as well as any other group with special educational needs (Berger,

1973). Industrial arts has an untapped opportunity to meet the educational needs of the gifted and talented student through effective educational programs (Smalley, 1980).

The influence a teacher has on the gifted or talented student may be considered of equal or greater importance than the subject matter itself (Passow, 1978; Berger, 1973). For the gifted and talented student, the industrial arts teacher can become more of a facilitator than an authority, as compared to teaching styles used with typical industrial arts students (Berger, 1973). In a study reported by Passow (1978), it was suggested that relationships formed between teacher and student bear greater educational significance than the actual curriculum. In addition, Passow indicates that classroom learning seldom contributes as much to the personal development of the gifted and talented student as a teachers' personal influence. With this in mind, opinions which industrial arts teachers have of gifted and talented students can be of vital importance in the teaching/learning process.

The problem of this study was to discover those opinions which industrial arts teachers in Black Hawk County, Iowa, have of gifted and talented students.

Importance of the Study

Industrial arts has the opportunity and responsibility to serve the unique educational needs of gifted and talented students (Jessup and Stewart, 1975). The way in which industrial arts

teachers perceive and react to the gifted and talented may be especially influential in the students' learning. It is argued that oftentimes the teacher, and not the curriculum, has the greater educational influence on gifted and talented students (Passow, 1978).

With these concepts in mind, opinions which industrial arts teachers have of gifted and talented students should be determined. These opinions can serve as the first step in discovering appropriate educational approaches for industrial arts teachers to take in respect to gifted and talented students.

Assumptions

The following assumptions were made in respect to this study:

1. The gifted and talented, although comprising a conservative estimate of 3 percent of the school age population (Marland, 1971) still remain unidentified, they exist in the classrooms, and may be overlooked in terms of recognition and special programming.
2. Teachers surveyed will respond honestly to the survey opinionnaire.

Limitations

There are limitations to the study:

1. This study was limited to junior and senior high school level industrial arts teachers currently teaching in Black Hawk County, Iowa, during the spring semester of 1981.

2. Since the survey was conducted in Black Hawk County, Iowa, on a population of industrial arts teachers, no generalizing of the results can be made to other industrial arts teachers or populations.

Definitions of Terms

For the purpose of this study, the following terms were defined:

Gifted and Talented

Children capable of high performance include those with demonstrated achievement and/or potential ability in one or more of the following areas, singly or in combination:

1. general intellectual ability
2. specific academic aptitude
3. creative or productive thinking
4. leadership ability
5. visual and performing arts
6. psychomotor ability (Marland, 1971, p. ix)

Opinion

In popular usage, a belief, judgment, idea, impression, sentiment, or notion that has not been conclusively proved and lacks the weight of carefully reasoned judgment or certainty of conviction (Good, 1959, p. 399).

Industrial Arts

Industrial Arts is organization of subject matter which provides opportunities for experience concerned with developing insights into the broad aspects of industry: such as construction, transportation, communication, manufacturing, and research and development with the resulting personnel and technological effects (Buffer, 1973, p. 5).

Junior and Senior High School

Junior and Senior High School is defined as grades six through twelve in American schools.

CHAPTER II

REVIEW OF THE LITERATURE

The literature review for this study represents an examination of educational, social, and legislative issues regarding the gifted and talented. Such issues involve educational and legislative neglect; definition and identification; career guidance; educational programming; and special gifted and talented programs in industrial arts.

Neglect. Of all persons with special educational needs the gifted and talented stand as perhaps the most neglected in American public education (Marland, 1971; The Council for Exceptional Children, 1978). Whereas legislation, such as P.L. 94-142 provides programs and funding for those with physical, sensory, emotional, and mental disabilities, it can be stated that the U.S. Department of Education provides little in the way of federal programs specifically for the gifted and talented student (Marland, 1971). This national neglect of a viable, needy and renewable natural resource tends to not only stifle the progress of mankind, but also the progress and potential these superior people innately possess (Lyon, 1981; The Council for Exceptional Children, 1978).

Education has a moral and social responsibility to the gifted and talented. The educational services provided, or denied, may have a direct influence on the future of gifted and talented individuals and of society; "They are the difference between what we are and what

we could be as a society," (Gallagher, 1975, p. 9). Failing to provide special educational services for the gifted and talented is as serious as failing to provide for those with limited abilities. The quality of services is of vital importance to the gifted and talented student (George, Cohn, and Stanley, 1979).

In a democratic society, where efforts have been made to provide an education conducive to each individual's ability, it is vitally important to provide such services to gifted and talented students, (Project AGATE, 1976). The abilities of the gifted and talented could lay in waste until deserving recognition is given, through legislation, identification, guidance and programming (Lyon, 1981).

Much of the neglect has come as a result of the general assumption that the gifted and talented will natually provide for themselves (Marland, 1971). In addition, educational and legislative neglect has occurred because the gifted and talented have been considered only a long term problem; with the problems of other special educational needs groups taking precedence (Gallagher, 1975; Lyon, 1981).

Definition. Through the historically significant Terman (1926) and Hollingworth (1927) longitudinal studies, educators began to consider the terms giftedness or talent in light of cognitive abilities only (Neuman, 1978; Khatena, 1977). Although intellectual ability is indeed one characteristic of giftedness, many other characteristics exist, as defined by Sidney P. Marland, past Commissioner of Education:

> Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:
>
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual and performing arts
> 6. psychomotor ability (Marland, 1971, p. ix)

Giftedness and superior talent tend to be reported as rather nebulous concepts, although the experts generally agree that the term gifted be narrowly defined as "exceptionally high levels of academic aptitude" (Hoyt, 1975, p. 7), and the term talented implies any superior ability or "remarkable performance in any worthwhile field of endeavor" (Kirk and Gallagher, 1979, p. 61; Berger, 1973).
The concept of giftedness and superior talent is plagued further with definitional problems, when one considers the cultural, racial, or social variations of definition. Superior ability, by definition, is culture-bound, fitted to the needs, desires and demands of time and place (Lyon, 1981; Gallagher, 1975).

In a study by Smalley (1980) industrial arts teachers surveyed defined the gifted and talented as being creative problem solvers, ambitious and inquisitive, independent, having a positive work attitude, and capable of working with abstract concepts.

Legislation. Unlike those persons with disabilities, the gifted and talented have been all but left out in terms of legislation. Funds for the gifted and talented have been virtually nonexistant on the federal level except in cases of those disadvantaged and/or handicapped who were also gifted (Marland, 1971).

Since the publication of the Marland report, however, some effort has been made in accomodating the gifted and talented, although "this field of endeavor still has a long way to go to achieve parity with other education programs" (The Council for Exceptional Children, 1978). Specific legislation aimed directly at the gifted and talented currently consists of P.L. 95-561 (1978). This public law provides for a strengthening of local and state education agency gifted and talented programs through increased services available to local and state education agencies by the Office of the Gifted and Talented; teacher training programs in colleges and universities; and for funding research (Lyon, 1981). In addition, grant monies have been appropriated at $6.28 million for each of the fiscal years 1980 and 1981. This appropriation is, however, less than 18 percent of the $35 million annual federal authorization for education of the gifted and talented (Lyon, 1981).

In the state of Iowa no specific legislative appropriations are provided for gifted and talented students (Iowa State Education Association, 1976). The underlying disparity noted in this study is that it is estimated that the cost of programs for the gifted and talented, grades kindergarten through twelve, would be a maximum of $7,000,000. This dollar amount is less than one percent of the total State of Iowa school district budgets. In addition, it is assumed that five percent (612,987 students) of Iowa's students may be gifted or talented (Iowa State Education Association, 1976).

Identification. Little can be done educationally for the gifted until they are identified. In the past, the teacher was often seen as

the best identifier of gifted and talented students (Neumann, 1978). Teacher identification of gifted and talented students, however, has been shown to be unreliable (Renzulli, Hartman, and Callahan, 1971) necessitating more objective and multifaceted rating methods and the use of "professionally qualified persons," (Marland, 1979, p. x).

Identification of gifted and talented students is most often attempted via a triad of evaluation and identification methods. Currently, according to Neuman (1978), most gifted students are identified by achievement tests, intellegence tests, and teacher referral. In most cases, an I.Q. of 130 is considered the cut off point for intellectual giftedness (Scott, 1981).

Those students with superior talents can be even more difficult to assess. In most cases, formal testing is supplemented by experts' evaluations in the particular curriculum, content, or skill area (Colson, Borman, and Nash, 1978). These persons may include artists, musicians, psychologists, or any other person with special training qualified to appraise special or exceptional talents (Marland, 1971).

The identification problem is further compounded by the students themselves. In an effort to maintain positive peer relationships, gifted and talented students oftentimes mask their abilities (Marland, 1971). In addition, their enhanced sensitivity to criticism deters them from taking classroom risks (Johnson, 1981). As behaviorists purport, all behavior is learned. Such would seem to be the case of so-called "intentional mediocrity," in which the exceptional student learns that the teacher does not accept superior abilities as readily

as so-called "normal" behavior (Jacobs, 1972).

Whether their actions are intentional or not, gifted and talented students are often undiscovered by teachers, not for attempting to be like their peers, but for being themselves. The superior talents and abilities they possess may lead them to be disciplinary problems. Although possibly desirable outside the classroom, inside the classroom such traits as originality, insight, independence, disorderliness and freedom of expression may be frowned upon (Marland, 1971).

In the general school population, relatively few gifted and talented students are being identified. Research by Marland (1971), Neumann (1978) and the Iowa State Education Association (1976) have indicated less than satisfactory results in identifying gifted and talented students. It was found in the Marland (1971) study that over 50% of the schools in the nation indicated they had no gifted pupils in attendance. This finding may indicate a lack of concern for the unique educational needs of gifted and talented students.

Additional problems confounding the identification of gifted and talented students relate to culture, race, sex, socioeconomic status and language barriers. It is not possible to speak of gifted and talented, and white middle class in the same context. It has been found that gifted and talented students come, more or less equally, from all races, cultures, both sexes and all walks of life (Lyon, 1981; Iowa State Education Association, 1976).

Career Guidance. Career guidance, for the gifted and talented, is more necessary and important than for most students (Milne and

Linderkugel, 1976). It is because of their multiplicity of talents and abilities that career choices and other decisions become rather formidable tasks (Isaacs, 1973). The gifted and talented have, at their disposal, many career options, presenting problems of choice (Marland, 1971). Choosing a career is made especially difficult for the gifted and talented because of their lack of exposure, and the resulting misunderstanding, about different career options available (Krueger, 1978). Problems of career choice tend to be exaggerated in those with exceptionally superior intellect and talent (Milne and Linderkugel, 1976).

In the past, career guidance for the gifted and talented has proven rather unsuccessful or insufficient. As adults, gifted and talented persons have shown a propensity for changing jobs even after deciding on and preparing for a particular career (Ellis, 1976).

Part of the problem may be related to the overvalue given to a college education, and the supposed undesirability of a vocational education or anything related to practical work endeavors (Krueger, 1978). This may be partially a result of the elitism associated with college graduation, as compared to the lack of prestige associated with vocational education (Milne and Linderkugel, 1976). By over-emphasizing college education, the gifted are "encouraged to stay in school so they can go on to still more school" (Borman, Nash, and Colson, 1978) rather than learning skills necessary for a career possibility of their choice. Unfortunately, this attitude has succeeded in producing an overabundance of professionally prepared persons, thereby

leaving industry and business short of skilled employees (Milne and Linderkugel, 1976). All too often, a gifted student interested in skilled trade careers is counseled out of these areas; however, the gifted and talented can make a definite contribution in these fields (Isaacs, 1973).

Some gifted students have been known to set career goals early, while most find the process difficult, (Isaacs, 1973). In either event, industrial arts has a vital role to play in career exploration and education. Industrial arts provides career exploration and guidance, and puts the gifted and talented in touch with a variety of people in diverse areas by bringing reality into the gifted and talented students' world (Krueger, 1978).

This reality can assist the gifted and talented student into contributing to and spending his or her energies on the problems associated with today's technological world.

> Many needs must be served, including: reaching energy independence in America, providing adequate health care for Americans, stimulating economic recovery through business and industry, reducing inflation and deficit spending, providing leadership at all levels in government, cleaning up the environment, and satisfying tomorrow's problems (Stone, 1975, p. 5).

Educational Programming. Programs which exist for gifted and talented students may be classified into two categories: enrichment and acceleration.

Enrichment, or horizontal programming, consists of any educational procedure other than grade level acceleration (George, Cohn and Stanley, 1979). Enrichment is, in fact, a broadening of experiences at

the normal (chronological age) grade level of the student. The primary advantage of enrichment is the student is allowed to remain with age-mates, progressing through school at a normal rate, while deepening educational experiences at that grade level (George, Cohn, and Stanley, 1979).

Acceleration allows a student to progress into grade levels or coursework at a rate faster than the norm. Acceleration ignores the lock-step tradition of American educational age grouping and places the student by ability grouping (George, et al., 1979). Acceleration may take the form of early school entry, weekend or summer school, credit through testing or grade skipping (George, et al., 1979).

The battle between those supporting enrichment, and those promoting acceleration persists. Those favoring enrichment maintain that the broadening of experiences and education will deepen or intensify the students' background (George, et al., 1979). In addition, it is argued, the student is socialized most appropriately or normally in an enrichment scheme because the student is allowed to remain with age-mates (George, et al., 1979).

Inasmuch as those in support of enrichment have viable arguments, it has been indicated that acceleration may be the more advantageous educational programming method for most gifted and talented students (George, et al., 1979). These advantages take the form of: (a) reduction of educational boredom, dawdling and redundancy, (b) reduced years in school, resulting in reduced years out of work force - without an income, and (c) socialization with mental age-mates rather than

chronological peers (George, et al., 1979). Essentially, acceleration is viewed from the standpoint of student ability. The primary difference between gifted students and normal students is their rate of learning; therefore, this ability to learn rapidly should be cultivated through an accelerative program (George, et al., 1979).

Industrial Arts Programs for Gifted and Talented Students. Special educational programs in industrial arts for the gifted and talented have been designed, suggested, and on occasion, implemented. Most program designs utilize educational enrichment to accomodate the gifted or talented student. That is not to say; however, that academic acceleration cannot be used to provide appropriate educational services for gifted and talented students.

Proposed programs for the superior student involve substantial changes from what is normally done in the industrial arts laboratory. Program suggestions emphasize independence, experimentation, creativity and decision making development (Buffer, 1973; Keeny, 1970). In addition, Smalley (1980) found that industrial arts teachers stressed advanced research, broader content, and peer tutoring for gifted and talented students. Buffer (1973) places a heavy emphasis on scientific, social and technological relevancy; based upon the students' abilities and interests. Several industrial arts programs for gifted and talented students, which have met with success have been instructed by Jessup and Stewart, and others reported by Buffer (1973).

The program which Jessup and Stewart have operated in Georgia allows gifted junior high school students to work in small groups to

solve interesting and relevant problems. Examples of problems engaged in by students are the design and construction of a rocket with support mechanisms, the use and practicality of residential solar energy, and development of an industrial arts curriculum for mentally retarded students (Jessup and Stewart, 1973).

Buffer (1973) discusses several special industrial arts programs. In Fullerton, California, a program for gifted high school seniors "is based on the premise that technical-manipulative experiences can provide the opportunity for an application of mathematics, science and other subjects" (Buffer, 1973, p. 11). In Lexington, Massachusetts, gifted students have been presented with pre-engineering laboratory experiences, research and independent study, or interdisciplinary studies involving industrial arts and other academics (Buffer, 1973).

Traits common to these and other successful industrial arts programs for gifted and talented students include allowing students to work independently on problems of their own choosing, providing research and experimentation opportunities, including some discovery learning, and relating industrial arts to the technical problems in daily life (Smalley, 1980).

Summary. The gifted and talented are, perhaps, the most neglected special education needs group. Legislation, definition, identification, guidance, and special education programs for gifted and talented students are not a frequent occurrance in the public schools and especially in industrial arts.

Special educational programs consist primarily of enrichment or acceleration, with the former used most often in model and actual industrial arts programs. Industrial arts programs for gifted and talented students are based primarily on independent learning, research, problem solving and technological relevancy to the real world.

CHAPTER III

RESEARCH METHODOLOGY

Research Questions.

This study was designed to describe opinions which Black Hawk County, Iowa, industrial arts teachers have of gifted and talented students.

The following eight research questions were developed for this study.

What opinions do Black Hawk County, Iowa, Industrial Arts teachers have regarding the gifted and talented? Specifically:

1. What characteristics do the gifted and talented possess or display?
2. How are the gifted and talented best identified?
3. How do Industrial Arts teachers feel about the ability for specific industrial arts content areas to provide a relevant educational experience for the gifted and talented?
4. How do Industrial Arts teachers feel about the ability for industrial arts to provide a relevant educational experience for the gifted and talented?
5. What do Industrial Arts teachers feel about their own ability to provide an appropriate education for the gifted and talented?
6. What do Industrial Arts teachers feel about their own willingness to provide an appropriate education for the gifted and talented?

7. How do Industrial Arts teachers feel about integrating the gifted and talented into industrial arts classes with other students?
8. What do Industrial Arts teachers feel about providing special industrial arts classes for gifted and talented students?

Population. The research population for this study consisted of junior and senior high school industrial arts teachers, currently teaching in Black Hawk County, Iowa. The particular school districts and number of industrial arts teachers in each are outlined in Table 1.

Procedure. The research procedure used in the present study has utilized a self-reporting mailed opinionnaire developed with respect to the literature review. It consisted of three demographic items to be checked, 29 Likert scale items and one open-ended question (see Appendix D). Each survey item was designed to respond to one of the eight research questions, with the demographic data serving to describe the population.

Pilot testing of the instrument included the individual assistance and recommendations of a Professor of Educational Psychology at the University of Northern Iowa. In addition, assistance was elicited from the Director of Research for Iowa Area Education Agency Number 7. Actual testing for clarity and validity was performed at Cedar Rapids - Jefferson High School, Department of Industrial Arts. Seven members of the eight-member department voluntarily cooperated in the pilot testing. Upon the completion of the pilot test, the final instrument was produced. Minor changes to the survey cover letter (see Appendix C) were

TABLE 1

School Districts and Industrial Arts Teachers in Black Hawk County, Iowa

SCHOOL DISTRICT	INDUSTRIAL ARTS TEACHERS
Waterloo Community Schools	26
Cedar Falls Community Schools	15
Hudson Community Schools	2
LaPorte City Community Schools	2
Dunkerton Community Schools	1
TOTAL	46

strongly recommended and made per the pilot groups' suggestions. These suggestions included further describing the study for the respondent, and explaining that the survey is, in fact, an opinion study which assumes opinion with or without prior exposure to gifted or talented pupils. Approval to use the instrument in each school district involved in the study was gained by contacting the appropriate administrative authority verbally and/or in writing prior to mailing.

Upon completion of satisfactory pilot testing and the securing of school district permissions, the instrument and cover letter were reproduced by offset lithography. The entire first-class mailing consisted of the cover letter and instrument, a pre-addressed and stamped return envelope and a tea bag enclosed as an incentive and as a token of appreciation for respondent cooperation.

The first telephone follow-up for non-respondents was made seven working days after the initial mailing. A second telephone follow-up was made seven working days after the first telephone follow-up. A second mailing was also made at this time for members of the population who could not be contacted by telephone, or for those who had misplaced their initial survey instrument. Ten working days transpired between this second follow-up/mailing and ceasing acceptance of additional returned surveys for data analysis. By the closing date, 35 of 46 surveys were satisfactorily returned, resulting in a 76% return rate.

Design. The design of this descriptive study consisted of a self-reporting, mailed Likert-scale opinionnaire, developed with respect to the literature review, and the pilot testing. Analysis of the data

employed measures of central tendency to describe opinions, and answer the research questions.

Survey Instrument. The opinionnaire was developed based upon the literature review, and developed research questions.

An opinionnaire consisting, in part, of 29 Likert-scale value statements was mailed to the research population. The Likert-scale was used because it differentiates, on a continuum, various degrees of positive to negative opinion or feeling (Logan, 1976). In addition, one open-ended question was included to elicit supplemental information to answer research question one. Three demographic items were included to describe the population.

The Likert-scale responses for each of the 29 survey items have been assigned a point value ranging from one to five, corresponding to the relative degree of disagreement or agreement with the item. Statements were scored by assigning a value of five for a "Strongly Agree" (SA) response, four for an "Agree" (A) response, three for a "Neutral" (N) response, two for a "Disagree" (D) response and one for a "Strongly Disagree" (SD) response. In this manner, individual question and group scores were calculated, such that a score of five indicates strong agreement with the item. Conversely, a score of one indicates strong disagreement with the item.

Each group of related survey items pertaining to each of the eight research questions was collectively analyzed from responses of the completed surveys. Statistical analysis utilized measures of central tendency, specifically the mean and standard deviation. In this manner, descriptive data was collected to answer each research question.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

General Information

The data presented in this chapter were obtained from 35 completed and returned survey opinionnaires. These 35 opinionnaires represented 76% of the 46 member research population (see Table 2).

This population may be described as:

a) all males

b) experienced industrial arts teachers, with over 77% (N=27) of the respondents indicating they have 7 or more years of teaching experience, and 8.7% (N=3) having taught from 4 to seven years.

c) possessing a Masters degree (62.9%, N=22), with 25.7% (N=9) having a Bachelors degree, and 5.8% (N=2) having earned a doctorate.

d) primarily senior high school (grades 9-12) teachers (59.9%, N=21) with 25.8% (N=9) teaching junior high school, and 8.7% (N=3) teaching both junior and senior high school.

Each of the eight research questions were designed to be answered by several survey questions on the 33 item opinionnaire. The research questions and related survey questions are shown in Table 3.

The opinions of the respondents were analyzed by using measures of central tendency. These measures are the group mean and standard deviation pertaining to each survey question. The results were

TABLE 2

Research Population Demographic Data

Academic Degree and Grade Level Taught	Years of Teaching Experience by Percentage and Frequency (f)		
	0-3 years	4-7 years	over 7 years
Bachelors			
Junior High	0%, f = 0	0%, f = 0	2.9%, f = 1
Senior High	8.5%, f = 3	2.9%, f = 1	8.5%, f = 3
Both	0%, f = 0	2.9%, f = 1	0%, f = 0
Masters			
Junior High	0%, f = 0	2.9%, f = 1	20%, f = 7
Senior High	0%, f = 0	0%, f = 0	37.1%, f = 13
Both	0%, f = 0	0%, f = 0	2.9%, f = 1
Doctorate			
Junior High	0%, f = 0	0%, f = 0	0%, f = 0
Senior High	0%, f = 0	0%, f = 0	2.9%, f = 1
Both	0%, f = 0	0%, f = 0	2,9%, f = 1
No Response			
5.7%, f = 2			

TABLE 3

Research Questions and Related Survey Question Numbers

RESEARCH QUESTIONS	RELATED SURVEY QUESTION NUMBERS
What opinions do Black Hawk County, Iowa, Industrial Arts teachers have regarding the gifted and talented? Specifically:	
1. What characteristics do the gifted and talented possess or display?	7, 16, 22, 31
2. How are the gifted and talented best identified?	6, 11, 14, 28, 33
3. How do Industrial Arts teachers feel about the ability for specific industrial arts content areas to provide a relevant educational experience for the gifted and talented?	32
4. How do Industrial Arts teachers feel about the ability for industrial arts to provide a relevant educational experience for the gifted and talented?	13, 17, 21, 25
5. What do Industrial Arts teachers feel about their own ability to provide an appropriate education for the gifted and talented?	9, 12, 18,23
6. What do Industrial Arts teachers feel about their own willingness to provide an appropriate education for the gifted and talented?	15, 20, 24, 26

TABLE 3 (cont.)

Research Questions and Related Survey Question Numbers

RESEARCH QUESTIONS	RELATED SURVEY QUESTION NUMBERS
7. How do Industrial Arts teachers feel about integrating the gifted and talented into industrial arts classes with other students?	4, 10, 27, 30
8. What do Industrial Arts teachers feel about providing special industrial arts classes for gifted and talented students?	5, 8, 19, 29

calculated such that scores proceed from one (1) to five (5), representing the relative degree of disagreement to agreement, respectively, with the survey item. Similarly, the population demographic data (survey questions 1-3) and open-ended question (number 33) were researcher analyzed to yield a description of the population, and make concluding statements regarding research question two.

Research question one. Research question one asked what characteristics do the gifted and talented possess or display. Respondents indicated an appreciation for the diversity of characteristics possessed or displayed by gifted and talented students. Additionally, a mean of 4.28 and standard deviation of .66 for survey question 16 indicates an awareness of the existance of gifted or talented students in the schools.

Several characteristics which gifted and talented students may possess or display were evaluated by the respondents. Table 4 shows these characteristics, in order of respondent preference.

Research question two. Research question two asked how are the gifted and talented best identified. Table 5 reveals that industrial arts teachers involved in the present study appear to be of the opinion that I.Q. is not a good indicator of psychomotor, industrial arts, or cognitive ability. It was felt, however, that the gifted and talented are more intelligent than the norm.

When the respondents were asked to outline their definition of the gifted and talented in terms of industrial arts, a variety of responses were obtained. Written responses to this question were summarized in order of respondent preference as follows:

TABLE 4

Teachers' Opinions of Gifted and Talented Students

GIFTED AND TALENTED CHARACTERISTICS	TEACHER RATING	
	Mean	Standard Deviation
Students gifted or talented in one school subject may not be gifted or talented in others.	4.40	.64
I have had gifted and talented ability level students in my classes	4.28	.66
Gifted and talented students are inquisitive.	4.20	.62
Gifted and talented students are creative.	4.17	.65
Gifted and talented students are capable of working with abstract concepts.	3.97	.45
Gifted and talented students are problem solvers	3.91	.77
Gifted and talented students possess a specific superior aptitude.	3.74	.94
Gifted and talented students are optimistic.	3.60	.73
Gifted and talented students are ambitious.	3.60	.90
Gifted and talented students possess superior intelligence.	3.57	.78
Gifted and talented students are skilled	3.37	.96
Gifted and talented students are the potential leader.	3.31	1.01
Gifted and talented students are artistic.	3.14	.76
Students who are gifted or talented in one school subject are gifted and talented in all	1.80	.71

TABLE 5

Ratings by Teachers of Intelligence as an Indicator of Gifteness

INDICATOR OF GIFTEDNESS	TEACHER RATING	
	Mean	Standard Deviation
I.Q. is not a fair estimate of psychomotor ability	4.34	.75
I.Q. is not an estimate of industrial arts ability	4.20	.86
The gifted and talented are best described as being more intelligent than the norm	3.68	.83
I.Q. is not an estimate of cognitive ability	3.11	.92

1. The gifted and talented are problem solvers, capable and willing to use unique or novel methods to solve problems which confront them. As indicated by one respondent, gifted and talented students in industrial arts are able to combine ideas and performance in a variety of ways, resulting in unique solutions to problems. In addition, it was mentioned that gifted and talented students in industrial arts are capable of finding new answers to old problems.

2. The second most mentioned trait which was used to define or describe the gifted and talented in Industrial Arts was above average mental or physical ability in one or more areas of endeavor. Conversely, the same student who performs well in given areas may perform poorly or below average in others. The gifted and talented possess a variety of abilities and liabilities, according to the respondents.

3. Suggested by several respondents was the concept of self-motivation and the ability to delay gratification. This motivation and gratification persists no matter what complications impede progress in the endeavor the student is engaged in.

4. Several of the respondents indicated that the gifted and talented in industrial arts can be identified or defined as being creative thinkers, or creative with physical skills. This creativity may be associated with the most often mentioned trait, problem solving ability. The difference is, however, between the ability to solve problems, and the ability to be creative in solving problems.

5. Mentioned often by respondents was curiousity as a trait for defining the gifted and talented in industrial arts. The concept of

curiousity also has been likened to the power of observation; that is, the gifted or talented student may be as observant as he/she is curious, with the two concepts overlapping. As one respondent suggested, the gifted or talented in industrial arts may be interested in the unknown and different.

Research question three. Research question number three asked how do Industrial Arts teachers feel about the ability for specific industrial arts content areas to provide a relevant educational experience for the gifted and talented. For this question, the respondents were asked to rate twelve identified industrial arts content areas. Table 6 shows that respondents responded favorably to each of the content areas, across content area ratings obtained a group mean being 4.25 and standard deviation .94.

Content areas deemed most appropriate for gifted and talented students were reported by the respondents as drafting, communications, and power energy. The least favored, yet still rated highly, are autos/ small engines, metals, woods, and photography.

Research question four. Research question four asked how do industrial arts teachers feel about the ability for industrial arts to provide a relevant educational experience for the gifted and talented.

Examination of Table 7 indicates that the respondents seemed to have a favorable opinion of the ability for industrial arts to provide for the educational needs of gifted and talented students. The respondents indicated that industrial arts is beneficial to the education of the gifted and talented student and industrial arts content

TABLE 6

Teachers' Opinions of the Ability of Industrial Arts Content to Provide Meaningful Experiences for the Gifted and Talented

Industrial Arts Content Area	Teacher Rating	
	Mean	Standard Deviation
Drafting	4.49	.87
Communications	4.47	.88
Power and Energy	4.40	.96
Graphic Arts	4.31	.75
Electricity	4.31	.95
Manufacturing	4.29	.94
Production	4.20	.89
Construction	4.14	.90
Autos/Small Engines	4.11	.98
Metals	4.11	1.01
Woods	4.09	.97
Photography	4.09	1.05

TABLE 7

Teachers Opinions of the Ability of the School Subject of Industrial Arts to Provide Meaningful Experiences for the Gifted and Talented

Survey Item	Teacher Rating	
	Mean	Standard Deviation
Industrial arts is beneficial to the education of the gifted or talented student.	4.49	.65
Industrial arts content and methodology has a good deal to offer gifted and talented students.	4.34	.47
Industrial arts helps bring the "real world" to the educational experiences of the gifted and talented.	4.31	.62
The gifted and talented have little to gain by taking industrial arts.	1.31	.71

and methodology has a good deal to offer gifted and talented students. In addition, the respondents felt that industrial arts can bring real world experience to the gifted and talented, and in so doing, the gifted and talented have much to gain.

Research question five. Research question five asked what do industrial arts teachers feel about their own ability to provide an appropriate education for the gifted and talented.

Table 8 shows that this group of industrial arts teachers seem to feel they are able to provide an appropriate education for gifted and talented students. Teachers responding to the opinionnaire appear to agree that they are adequately prepared and competent to teach gifted and talented students. Conversely, the respondents indicated some disagreement regarding the need for special qualifications to teach gifted and talented students, and teacher selection on the basis of personality as well as knowledge for teaching gifted and talented students.

Research question six. Research question six asked what do industrial arts teachers feel about their own willingness to provide an appropriate education for the gifted and talented.

The respondents appeared willing to teach gifted and talented students. Table 9 shows a general agreement to being receptive to teaching gifted and talented students. Additionally, responses indicate that this population did, or would, like to teach gifted and talented students.

TABLE 8

Teachers Opinions Regarding Their Own Ability to Provide an Appropriate Education for the Gifted and Talented

Survey Item	Teacher Rating	
	Mean	Standard Deviation
I feel adequately prepared to effectively teach gifted and talented students.	3.89	.75
I feel competent in being able to identify and utilize appropriate teaching methods that will be beneficial to gifted and talented students.	3.86	.68
Teachers should be selected on the basis of personality in addition to knowledge for instructing the gifted and talented.	3.59	.97
Teachers should have special qualifications if they are to teach gifted and talented students.	2.63	.86

TABLE 9

Teachers Opinions Regarding Their Willingness to Provide an Appropriate Education for the Gifted and Talented

Survey Item	Teacher Rating	
	Mean	Standard Deviation
I am receptive to teaching gifted and talented students.	4.28	.70
I did, or would, like to teach a class of gifted and talented students.	3.63	.90
I would like to have an in-service program, college course, or workshop to help further prepare me to teach gifted and talented students.	3.31	1.04
I would rather not teach gifted and talented students.	1.97	.70

Conversely, responses indicate a general unwillingness to participate in an inservice program, college course, or workshop, to help further prepare teachers to teach gifted and talented students.

Research question seven. Research question seven asked how do Industrial Arts teachers feel about integrating the gifted and talented into industrial arts classes with other students.

Table 10 reveals that the respondents indicated general agreement to the positive opinion of having gifted and talented students integrated into regular industrial arts classes. Some variance in opinion was in evidence when the respondents were asked if gifted and talented students should be placed in regular classes because they will spend their lives with a variety of people. With regard to the gifted and talented students' ability to achieve on their own, regardless of educational programming, the respondents indicated substantial diversity of opinion.

Research question eight. Research question eight asked what do Industrial Arts teachers feel about providing special industrial arts classes for gifted and talented students. Examination of Table 11 indicates slight disagreement to statements regarding the importance of providing special gifted and talented industrial arts classes, and of providing for the unique abilities of gifted and talented students through special industrial arts classes.

In addition, responses indicate some preference toward providing special educational services for the handicapped, versus a lack of preference toward providing special educational services for gifted and talented students.

TABLE 10

Teachers' Opinions About Integrating the Gifted and Talented Into Industrial Arts Classes With Other Students

Survey Item	Teacher Rating	
	Mean	Standard Deviation
I am receptive to having gifted and talented students in my classes.	4.48	.50
Gifted and talented students should be placed in regular classes because they will spend their lives with a variety of people.	3.80	.95
Gifted and talented students would be best served by integrating them into regular industrial arts classes.	3.54	.87
The gifted and talented will achieve on their own, regardless of educational programming.	2.91	1.02

TABLE 11

Teachers' Opinions About Providing Special Industrial Arts Classes for Gifted and Talented Students

Survey Item	Teacher Ratings	
	Mean	Standard Deviation
Given the choice between providing special educational services for the gifted and talented, or the handicapped, I prefer providing for the handicapped.	3.29	1.00
It is important that special classes be provided for gifted and talented students.	2.74	1.02
Gifted and talented students should be grouped into a single industrial arts class to provide for their unique abilities.	2.51	1.05
Given the choice between providing special educational services for the gifted and talented, or the handicapped, I prefer providing for the gifted and talented.	2.46	1.15

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The ways in which industrial arts teachers perceive and react to gifted and talented students may be especially influential in the students' learning. In addition, it has been stated that oftentimes the teacher, and not the curriculum, has the greater educational impact on gifted and talented students (Passow, 1978).

This study was conducted in order to describe those opinions which Black Hawk County, Iowa, industrial arts teachers have of gifted and talented students. These opinions may serve as the first step in discovering appropriate educational approaches for industrial arts teachers to take in respect to gifted and talented students.

The analysis of the data suggests that the respondents agree that gifted and talented students are inquisitive, creative, capable of working with abstract concepts, and are problem solvers. The data indicated that the industrial arts teachers surveyed for this study seem to hold a similar opinion, and identified these characteristics as most important when describing gifted and talented students. In addition, each of these characteristics were mentioned by respondents in an open-ended survey question. These characteristics may have been displayed and appear to be useful in the industrial arts laboratory. These characteristics, or abilities, may be utilized and developed further by guiding gifted and talented students toward such areas as

power and energy, drafting, graphic arts, and communications. These areas tend to be those rated as most appropriate for providing meaningful experiences for gifted and talented students.

The industrial arts teachers in this study tended to agree that gifted and talented students are inquisitive, creative, capable of working with abstract concepts, and are problem solvers. However, the variance in these responses pointed out that the teachers had a wide range of disagreement as to the characteristics of gifted and talented students with respect to superior aptitude, ambition, skills, or the notion that they may be potential leaders. This serves to illustrate that gifted and talented students are diverse in their characteristics or it may also support the evidence (Neumann, 1978) that teachers' opinions of giftedness or talent are not accurate indicators of the characteristics of gifted and talented students.

The respondents reported that I.Q. is not an indicator of psychomotor or industrial arts ability. As the data indicates, characteristics such as curiousity, creativity, inquisitiveness, and ability for working with abstract concepts were the reported best indicators for identifying gifted and talented students in industrial arts. As a result, it may be that I.Q. is a poor indicator of gifted and talented characteristics for industrial arts ability.

The respondents generally agree that most of the identified specific industrial arts content areas can provide meaningful experiences for gifted and talented students. Most notably, drafting, production, communications, and graphic arts received generally

high mean scores, with consensus of the rating. Considering the fact that three out of four of these areas may be classified as "communications" areas, it would be appropriate to emphasize those areas which could be used in providing for the unique needs of gifted and talented students.

Conversely, metals and photography received rather high variance and low mean scores. This may reflect the diverse ways in which these subjects are taught in the schools, rather than their lack of relevance for gifted and talented students. In the case of photography it may also be a reflection of its absence in the schools due to cost, space availability, tradition, or lack of teachers' preparation.

The respondents expressed a generally positive opinion of industrial arts' ability to provide meaningful experiences for gifted and talented students. It was generally agreed that industrial arts can be beneficial, has a good deal to offer, provides real world experiences, and that gifted and talented students have much to gain from industrial arts. This is an indication of the positive stance that these teachers of industrial arts have regarding their subject matter for providing beneficial experiences for gifted and talented students.

Respondents appear to agree that they feel adequately prepared to teach gifted and talented students, and are competent to do so. Conversely, some disagreement emerged regarding selection of teachers for gifted and talented students, when based upon the teachers' knowledge as well as personality. The variability with which the teachers

responded indicated some disagreement about the need for special qualifications to teach gifted and talented students. These responses indicated that the teachers' opinions regarding their adequacy of preparation for teaching gifted and talented students is somewhat uncertain. The offering of supplemental training concerning gifted and talented students would be appropriate for at least some industrial arts teachers. Moreover, an explanation of the types of experience or training that the teachers have had in regards to gifted and talented students may indicate that an already adequate delivery system has been established for this information, awareness, and expertise.

The respondents indicated that they have a general willingness to teach gifted and talented students. This willingness and their feeling of competence indicate a commitment to students as well as the desire to provide students with an education which will allow them to reach their fullest potential.

The industrial arts teachers in this population were in support of integrating the gifted and talented student into their regular industrial arts classes. Although they generally agree to this concept, they indicated rather neutral and highly varied responses towards gifted and talented students achieving regardless of educational programming. Conversely, when asked about their opinion regarding special classes for gifted and talented students, the respondents were neutral and extremely diverse in their responses. This finding indicates a lack of consensus regarding the best method of educating

gifted and talented students, and perhaps a need for more knowledge of their educational needs and programming alternatives. Although respondents responded favorably to the diversity of characteristics that gifted and talented students possess or display, this diversity is not being considered when evaluating the educational needs of students. It may be valuable for industrial arts teachers to learn more about gifted and talented students, through workshops, college courses, or inservice programs.

Recommendations for Further Study

This study was conducted in order to discover industrial arts teachers' opinions of gifted and talented students in Black Hawk County, Iowa. The findings in this study will be of use to industrial arts teachers and teacher educators, who are concerned about providing for the unique educational needs of gifted and talented students. The following recommendations are presented to serve as a point of departure for further study, or to be used by researchers to continue searching for knowledge concerning the education of gifted and talented students.

1. A survey of industrial arts teachers should be made to determine specifically what content is provided at various grade levels, in each identified industrial arts area. This study would help to verify the applicability of certain content areas for the educational needs of gifted and talented students.
2. A study of the opinions of experts in the field of gifted and talented education should be conducted to determine

how gifted and talented students could best be served through industrial arts. Industrial arts teachers could also be surveyed to determine their perceptions of the educational needs of gifted and talented students. These efforts could result in an identified, verified list of educational needs to be met by industrial arts teachers for gifted and talented students.

3. Teacher educators, special educators, and/or industrial arts teachers should be involved in a study to determine what should be taught in industrial arts teacher education programs to provide for gifted and talented students. This may serve to assist teacher education programs to prepare industrial arts teachers to effectively teach gifted and talented students.
4. A list of appropriate industrial arts activities for gifted and talented students should be compiled. This list may be based upon responses from teachers in industrial arts, special education, and science who have successfully dealt with gifted and talented students.
5. A list of recommended or suggested teaching activities could be developed for industrial arts teachers. A study could then be done that would serve as a base for evaluating these activities for gifted and talented students.
6. Special educators and/or the Office for the Gifted and Talented should be contacted to determine what should be taught industrial arts teachers, via workshops, inservice

programs, or college courses, to better prepare them to teach gifted and talented students.

7. An audiovisual program specifically directed towards industrial arts teachers should be developed in order to educate this group and dispel myths regarding gifted and talented students. This program could serve to make industrial arts teachers more aware of the educational needs and characteristics of gifted and talented students.

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APPENDIX A

RESEARCH QUESTION GROUP DATA

RESEARCH QUESTION GROUP DATA

Research Question Number	Mean	Standard Deviation	Percentage and Frequency (f) of Responses SD (1)	D (2)	N (3)	A (4)	SA (S)
1	3.64	.99	2.2% f=11	13.3% f=65	19.5% f=95	47.9% f=234	17.0% f=83
2	3.83	.97	0% f=0	14.4% f=20	13.7% f=19	46.0% f=64	25.9% f=36
3	4.25	.94	1.4% f=6	2.4% f=10	19.3% f=81	23.4% f=98	53.5% f=224
4	3.61	1.47	20.0% f=28	4.3% f=6	1.4% f=2	42.9% f=60	31.4% f=44
5	3.49	.97	2.2% f=3	15.8% f=22	25.2% f=35	44.6% f=62	12.2% f=17
6	3.30	1.19	6.4% f=9	24.3% f=34	19.3% f=27	32.9% f=46	17.1% f=24
7	3.69	.95	2.1% f=3	15.7% f=22	13.6% f-19	48.6% f=68	20.0% f-28
8	2.75	1.11	11.4% f=16	35.7% f=50	26.4% f=37	19.3% f=27	7.1% f=10

APPENDIX B

SURVEY QUESTION INDIVIDUAL DATA

SURVEY QUESTION INDIVIDUAL DATA

Survey Question Number	Mean	Standard Deviation	Percentage and Frequency (f) of Response Types 1	2	3	4	5
4	3.8	.95	2.9% f=1	8.6% f=3	14.3% f=5	54.3% f=19	20.0% f=7
5	2.46	1.15	20.0% f=7	40.0% f=14	22.9% f=8	8.6% f=3	8.6% f=3
6	4.20	.86	0% f=0	8.6% f=3	2.9% f=1	48.6% f=17	40.0% f=14
7	3.68	.84	0% f=0	10.7% f=41	24.5% f=94	50.6% f=194	14.1% f=54
8	2.51	1.05	17.1% f=6	37.1% f=13	25.7% f=9	17.1% f=6	2.9% f=1
9	3.89	.75	0% f=0	5.7% f=2	17.1% f=6	60.0% f=21	17.1% f=6
10	4.48	.50	0% f=0	0% f=0	0% f=0	51.4% f=18	48.6% f=17
11	4.34	.75	0% f=0	2.9% f=1	8.6% f=3	40.0% f=14	48.6% f=17
12	2.63	.86	5.7% f=2	42.8% f-15	37.1% f=13	11.4% f=4	2.9% f=1
13	1.31	.71	80.0% f=28	11.4% f=4	5.7% f=2	2.9% f=1	0% f=0
14*	3.68	.83	0% f=0	14.3% f=5	11.4% f=4	62.9% f=22	8.6% f=3
15	4.28	.70	0% f=0	2.9% f=1	5.7% f=2	51.4% f=18	40.0% f=14
16	4.28	.66	0% f=0	2.9% f=1	2.9% f=1	57.1% f=20	37.1% f=13
17	4.49	.65	0% f=0	2.9% f=1	0% f=0	42.9% f=15	54.3% f=19

SURVEY QUESTION INDIVIDUAL DATA

Survey Question Number	Mean	Standard Deviation	Percentage and Frequency (f) of Response Types 1	2	3	4	5
18	.86	.68	0% f=0	2.9% f=1	22.9% f=8	60.0% f=21	14.3% f=5
19	2.74	1.02	8.6% f=3	37.1% f=13	31.4% f=11	17.1% f=6	5.7% f=2
20	3.63	.90	0% f=0	14.3% f=5	22.9% f=8	48.6% f=17	14.3% f=5
21	4.34	.47	0% f=0	0% f=0	0% f=0	65.7% f=23	34.3% f=12
22	4.40	.64	0% f=0	2.9% f=1	0% f=0	51.4% f=18	45.7% f=16
23*	3.59	.97	2.9% f=1	11.4% f=4	22.9% f=8	45.7% f=16	14.3% f=5
24	3.31	1.04	2.9% f=1	20.0% f=7	34.3% f=12	28.6% f=10	14.3% f=5
25	4.31	.62	0% f=0	2.9% f=1	0% f=0	60.0% f=21	37.1% f=13
26	1.97	.70	22.9% f=8	60.0% f=21	14.3% f=5	2.9% f=1	0% f=0
27	3.51	.87	0% f=0	14.3% f=5	28.6% f=10	45.7% f=16	11.4% f=4
28	3.11	.92	0% f=0	31.4% f=11	31.4% f=11	31.4% f=11	5.7% f=2
29	2.71	1.00	11.4% f=4	34.3% f=12	25.7% f=9	28.6% f=10	0% f=0
30	2.91	1.02	5.7% f=2	40.0% f=14	11.4% f=4	42.9% f=15	0% f=0
31	1.8	.71	31.4% f=11	62.9% f=22	0% f=0	2.7% f=2	0% f=0

SURVEY QUESTION INDIVIDUAL DATA

Survey Question Number	Mean	Standard Deviation	Percentage and Frequency (f) of Response Types 1	2	3	4	5
32	4.25	.94	1.4% f=6	2.4% f=10	19.3% f=81	23.4% f=98	53.5% f=224
33							

*No Response: Survey Question Number 14, 2.9%, f=1; and Survey Question Number 23, 2.9%, f=1.

APPENDIX C

SURVEY INSTRUMENT COVER LETTER

UNIVERSITY OF NORTHERN IOWA · Cedar Falls, Iowa 50614

Department of Industrial Technology 319-273-2561

Dear Industrial Arts Teacher:

I am asking you, along with other Industrial Arts teachers in Black Hawk County, to participate in an opinion survey regarding gifted and talented students. The purpose of this study is to describe opinions teachers have of gifted and talented students, specifically in regard to their characteristics, means of identification, how appropriate industrial arts is to their education, how teachers perceive their own ability and willingness to teach the gifted and talented, and educational programming for the gifted and talented. Being an opinionnaire, there are no right or wrong answers, even though you may or may not have been exposed to any identified gifted or talented student.

Please take the approximately five minutes needed to complete the enclosed opinionnaire. While you're at it, have a cup of tea with my compliments and appreciation. A bag of Lipton Cinnamon, Orange & Spice, or Spicy Apple Tea has been enclosed for your enjoyment.

The results of this survey will be available, should you request them, in early August. Responses will be kept in confidence, and destroyed when the scientific data has been compiled.

Again, thank you for your time, and enjoy the cup of tea!

Sincerely,

James R. Wrona
Masters Degree Candidate
Department of Industrial Technology

Michael R. White, Ph.D.
Thesis Committee Chairman

APPENDIX D

SURVEY INSTRUMENT

Identification number, for follow up purposes only

Gifted and Talented Opinionnaire

This opinionnaire consists of three demographic questions, and thirty value statements or questions. It will take approximately five minutes to complete. Thank you in advance for your cooperation

Demographic Data: Please respond to the following questions by checking the most appropriate answer.

1. How many years of teaching experience do you have, including the current school year?
   0 3 years 4 7 years Over 7 years
2. What grade levels do you normally teach?
   Junior High Senior High Both

3. Your highest degree is best described as:
   Bachelors Masters Doctorate

Instructions: Please indicate your opinion of each statement by circling and appropriate response. Circle SD if you STRONGLY DISAGREE, D if you DISAGREE, N if you are NEUTRAL OR HAVE NO OPINION, A if you AGREE, and SA if you STRONGLY AGREE.

4. Gifted and talented students should be placed in regular classes because they will spend their lives with a variety of people. SD D N A SA
5. Given the choice between providing special educational services for the gifted and talented, or the handicapped, I prefer providing for the gifted and talented. SD D N A SA
6. The I.Q. of a student is not a fair estimate of Industrial Arts ability. SD D N A SA
7. My opinion of the gifted or talented is that they, as a group:

   a. are creative SD D N A SA
   b. posess superior intellegence SD D N A SA
   c. are skilled SD D N A SA
   d. are the potential leaders SD D N A SA
   e. are artistic SD D N A SA
   f. posess a specific superior aptitude SD D N A SA
   g. are problem solvers SD D N A SA
   h. are ambitious SD D N A SA
   i. are inquisitive SD D N A SA
   j. are optimistic SD D N A SA
   k. are capable of working with abstract concepts SD D N A SA

8. Gifted and talented students should be grouped into a single industrial arts class to provide for their unique abilities. SD D N A SA
9. I feel adequately prepared to effectively teach gifted and talented students. SD D N A SA
10. I am receptive to having gifted and talented students in my classes. SD D N A SA
11. The I.Q. of a student is not a fair estimate of psychomotor ability. SD D N A SA
12. Teachers should have special qualifications if they are to teach gifted and talented students. SD D N A SA
13. The gifted and talented have little to gain by taking industrial arts. SD D N A SA
14. The gifted and talented are best identified as being more intellegent than the norm. SD D N A SA
15. I am receptive to teaching gifted and talented students. SD D N A SA
16. I feel I have, or have had, students of the gifted and talented ability level in my classes. SD D N A SA
17. I feel that industrial arts is beneficial to the education of the gifted or talented student. SD D N A SA
18. I feel competent in being able to identify and utilize appropriate teaching methods that will be beneficial to gifted and talented students. SD D N A SA
19. It is important that special classes be provided for gifted and talented students. SD D N A SA
20. I did like to teach, or would like to teach, a class of gifted and talented students. SD D N A SA
21. Industrial arts content and methodology has a good deal to offer gifted and talented students. SD D N A SA
22. A student that is gifted or talented in one school subject may not be gifted or talented in other school subjects. SD D N A SA
23. Teachers should be selected on the basis of personality in addition to knowledge for instructing the gifted and talented. SD D N A SA
24. I would like to have an inservice program, college course, or workshop to help further prepare me to teach gifted and talented students. SD D N A SA
25. I feel industrial arts helps bring the "real world" to the educational experiences of the gifted and talented. SD D N A SA
26. I would rather not teach gifted and talented students. SD D N A SA
27. I feel that gifted and talented students would be best served by integrating them into regular industrial arts classes. SD D N A SA
28. The I.Q. of a student is not a fair estimate of cognitive ability. SD D N A SA
29. Given the choice between providing special educational services for the gifted and talented, or the handicapped, I prefer providing for the handicapped. SD D N A SA
30. The gifted and talented will achieve on their own, regardless of educational programming. SD D N A SA
31. A student who is gifted or talented in a particular school subject is gifted or talented in all school subjects. SD D N A SA

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For question thirty-two, please rate the following industrial arts content areas in terms of their relevance to the education of the gifted and talented. Respond by circling 5 for a high degree of relevance, down to 1 for little or no relevance to the gifted and talented.

32. Please rate each of the following industrial arts content areas in terms of their relevance to the education of the gifted and talented student.

	Very relevant				Little or no relevance
a. Woods	5	4	3	2	1
b. Metals	5	4	3	2	1
c. Drafting	5	4	3	2	1
d. Electricity	5	4	3	2	1
e. Autos/Small Engines	5	4	3	2	1
f. Graphic arts	5	4	3	2	1
g. Photography	5	4	3	2	1
h. Communications	5	4	3	2	1
i. Manufacturing	5	4	3	2	1
j. Power and Energy	5	4	3	2	1
k. Construction	5	4	3	2	1
l. Production	5	4	3	2	1

33. In your own words, briefly outline your definition of the gifted and talented, in terms of industrial arts. The additional paper has been furnished for your use and convenience.

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If you would like a copy of the results of this study, please provide the following information. By providing this information, you are in no way endangering the confidentiality of your responses.

Name

Street

City

Zip