# AN ABSTRACT OF THE DISSERTATION OF

James Franklin Willis for the degree of Doctor of Education in Education presented on March 25, 1996. Title: An Investigation Into The Characteristics, Perceptions, and Expectations of High School Students Involved In A Pilot Statewide Tech Prep in Agriculture Program in Washington State

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The purpose of the investigation was to develop a profile of characteristics, perceptions and expectations of high school students involved in the Washington Tech Prep in Agriculture Statewide Articulation Program (TPAG). The investigation involved nine individual interviews, the responses of 165 students to a forced response survey instrument, and a concluding group interview of a group of students who had previously responded to the survey instrument. The criterion for inclusion in the study was involvement with the Tech Prep in Agriculture Articulation program. Thus, participation was purposeful.

The subject students, who were involved in a career cluster-specific program, displayed a rich range of career aspirations and educational characteristics. Career aspirations were not limited to the agricultural career cluster and ranged from accountant to x-ray technician. The subject students came from all four quartiles of the high school population and their future educational aspirations included apprenticeship, community/technical college, four year college, and post-graduate

programs. Most students aspired to post-secondary education at a community, technical, or four year college. Of those aspiring to a post-secondary education, most aspired to a community/technical college education.

Surveyed students rated the importance of 24 skills. Workplace skills such as working with others, communications, and the ability to learn rated highest. Foundation skills such as basic mathematics, creativity, and computer usage rated well. Skills related to specific careers fell lower on the composite ratings. Rated lowest were the appreciation of art, music, literature, plays, movies, and TV.

Students rated parents, high school teachers, and young people working in the student's area of career interest the highest as providers of information on education and careers. Individuals such as media journalists and politicians whom society might consider good advisors were not trusted by nearly one of three studied students.

The investigation led to almost immediate improvements in the TPAG Program, including modification of a core course to better reflect student career interests, publication of program literature in Spanish, and gender balancing of images used in brochures. Recommendations for further research into student characteristics, the dynamics of student career selection, and high school career cluster educational models were presented.

An Investigation Into The Characteristics, Perceptions, and Expectations of High School Students Involved In A Pilot Statewide Tech Prep In Agriculture Program in Washington State

by

James Franklin Willis

A DISSERTATION

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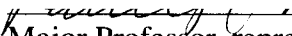Commencement June 1996

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# ACKNOWLEDGMENTS

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# DEDICATION

To Dot, Monte, and Carrie

# PREFACE

In the Spring of 1994 Walla Walla Community College of Walla Walla, Washington submitted a grant proposal to form a statewide Tech Prep program in agriculture. Even though formal funding could not be expected for months, the Walla Walla Community College administration and staff began working with other community college agriculture instructors, high school agriculture teachers, and Washington State University professors to create a limited articulated curriculum in agriculture that was to be piloted during academic year 1994-95. The task force decided that:

- the program had to support career educational options that led to family wage employment,

- the curriculum had to be driven by the needs of business, and

- the curriculum had to prepare students for college level work.

The task force decided to develop competency based curriculum in four areas:

- Agricultural Orientation and Careers,

- Agricultural Health and Safety,

- AgriBusiness, and

- Plant Science.

An action team was formed for each subject area. To gather input the task force conducted a series meetings with panels of business experts using the Developing a Curriculum (DACUM) format. The product of the DACUM meetings

became a primary resource for the individual action teams that were assembled for each of the four targeted subject areas. The action teams consisted of teachers from high school agriculture education departments, community college agriculture instructors, and Washington State University agriculture professors.

On September 15, 1994 the investigator joined the Walla Walla Community College staff as Coordinator, Tech Prep in Agriculture Statewide Articulation Program (TPAG Program). The first task was the drafting and negotiating of articulation agreements. Using the knowledge gained from his Ed.D. program, plus his accumulated business experience, the investigator set about the task of the general administration of the State of Washington's first statewide consortium dealing with Tech Prep articulation from high school agriculture education programs to community and technical college programs.

In addressing these new responsibilities, the investigator reflected that critical to the success of new ventures he had assisted during his business career was an understanding of consumer needs, perceptions and expectations. The general lack of *local* customer research in education was troubling. While the facts that the TPAG Program used the DACUM procedure output as the primary source of design information and the Tech Prep model was based on a solid foundation laid by outstanding educators was reassuring, the local customer base of students had not been studied to determine their interests and needs.

When asked, local school administrators could state what they thought *should* motivate and interest high school students, but it was clear that little effort had been

made to gain knowledge of the local students participating in district Tech Prep programs.

To draw upon a parallel business example from the automotive sector, the investigator feared that failure to do basic local consumer research may result in the creation of an educational "Edsel", rather than a Mustang.

# Chapter One
## Introduction and Background

The objective of this chapter was to provide background information on the

investigation into the characteristics, perceptions, and expectations of high school

students involved in the Tech Prep in Agriculture Statewide Articulation Program

(TPAG Program).  The chapter includes the following subsections: Background, The

Problem, Purpose of the Study, Significance of the Study, Economic Justification,

Summary of Purpose and Significance, Scope of the Investigation, Theoretical

Framework, and Definition of Key Terms.


## <u>Background</u>

Dynamic economic and social pressures often are a prelude to educational

reforms that go beyond the fine tuning of existing curriculum and the regrouping of the

grade structure within the public elementary, middle school, and high school

framework.  An emerging challenge to the public educational system appears to be:

"How can the system be made more efficient and effective for both the individual and

society?"

Fiscal pressures, an aging electorate, and public perceptions of wasteful

governmental institutions are among factors creating pressure for change.  Published

declarations of failure of the public educational system such as <u>Public education: An</u>

<u>autopsy</u> (Lieberman, M., 1993) and <u>The closing of the American mind</u> (Bloom, A.,

1987) increase pressures for change in the public education system. Events such as the passage of Oregon's Ballot Measure 5, a property tax limitation initiative, give new significance and immediacy to demands that public education operate at a lower cost. Furthermore, the rapidly rising cost of tuition and fees at four year colleges and universities places increasing financial burdens upon students and parents, limiting access to post-secondary education at many public institutions.

Simultaneously, the nature of the economy and of the workplace has changed such that an increasing proportion of the workforce needed, or would need, formal training beyond high school. However, within the public educational system there has been conflict between increasing needs for improvement in the quality of programs at all levels, and decreasing public resources devoted to education.

Among the solutions proposed were increased levels of articulation among and between the vertical components of the system. Elementary schools, intermediate schools, high schools, community/technical/junior colleges, colleges/universities, and graduate schools made up the vertical components of the public education system.

Proposals for improved educational articulation have taken on several dimensions. Two dimensions of articulation were of primary interest to this investigation.

In the first, articulation referred to greater coordination of curriculum between the vertical components of the system. The general objective of such articulation models was to have the students better prepared for each successive step in the educational process and to see that they were presented with a seamless curriculum

that reduced or eliminated redundancy. Within this first dimension of articulation the boundaries between the vertical components of the system were not violated: students made discrete movements between vertical components and occupied only one vertical component of the system at any instance in time.

In the second dimension, articulation referred to the easing or blurring of boundaries between the vertical components of the educational system. The most common form of this second dimension of articulation was the advanced placement program (AP Program), where secondary students took post-secondary level courses at their high schools, passed a standardized national test, and then claimed AP Program credits at participating post-secondary institutions. A variation within this second dimension of articulation was the dual enrollment, dual credit, system where secondary students attended a post-secondary institution on either a full or part time basis while the student remained enrolled in the secondary system and continued working toward high school graduation. In such systems a student may have occupied more than one vertical component of the system at an instance in time.

Another variation within the second dimension of articulation involved articulation agreements between specific secondary and post-secondary institutions. These articulation agreements typically covered specific courses, presented at a college level of rigor, that were taught at the secondary institutions. These courses were accepted for college credit at participating post-secondary institution. Such agreements were usually local in nature, extending from one post-secondary institution to one or a very limited number of secondary institutions. These arrangements,

especially when not formalized by contractual agreements, could have been highly dependent upon personal and professional relationships between individual high school teachers and post-secondary instructors or professors. A major limitation of these arrangements was a failure to provide student mobility within the post-secondary system. The lack of horizontal mobility within the system, the lack of the ability to move credit from a high school to numerous post-secondary institutions, denied students access to the full spectrum of post-secondary career training programs.

The Tech Prep concept in public education was relatively new. Thomas A. Shannon, Executive Director of the National School Boards Association, described Tech Prep when he wrote the Foreword for Dale Parnell's book,The neglected majority (Parnell, 1985). Shannon suggested that the Tech Prep concept addressed a critical weakness in our educational program: the lack of a rigorous program of study focused on preparing the sixty to seventy percent of our high school students who would not likely pursue a baccalaureate degree program as their entry point to meaningful employment and participatory citizenship. Shannon further suggested that Dr. Parnell's tech prep associate degree four-year program was intended to combine the last two years of high school with the freshman and sophomore year in a community, technical or junior college and result in an Associate's Degree. The Tech Prep program was intended as a program of excellence consisting of vocational, applied academics, and liberal arts course work that ran parallel to prep programs for four year colleges. According to Shannon, the Tech Prep Associate Degree program was intended to rest on a solid foundation of mathematics, science, communications,

and technology that was taught in an applied, or contextual, setting. The high school portion of the Tech Prep program was intended to be as highly focused as the parallel high school college prep program, but serve a much larger and more diverse customer group. (Parnell, 1985)

Previous to the formation of the TPAG Program the Tech Prep consortiums in the State of Washington had been formed as area consortiums serving participating schools within one community or technical college's service district. This may have resulted in numerous consortia dealing with the same subject areas. Potentially as many as 24 community and technical colleges may have developed different articulation agreements and curriculum covering the same areas of study. The local consortium articulation agreements typically covered the advanced placement form of articulation for a group of high schools articulating credit to one community or technical college. To take advantage of such credits a student must attend one, and only one, post-secondary institution.

Local articulation agreements would have serviced the needs of most, if not all, students if all community and technical colleges offered all programs -- and if all community and technical college students desired to remain within their local community. However, it was not economically feasible to duplicate every program at every post-secondary institution. Also, the State of Washington employment market could not have absorbed the potential output of 32 duplicate career training programs in specialized career fields such as tree fruit horticulture, irrigation technology, or farrier. If each institution offered each course the potential annual graduating class

could have exceeded 600 and could have quickly saturated the market for several

specialized career fields.

The staff at Walla Walla Community College successfully argued that

agriculture was a case calling for a statewide consortium because numerous and

widely dispersed high school agriculture programs feed into a limited number of post-

secondary programs at community colleges, technical colleges, and four year

institutions in the State of Washington . Furthermore, many Washington community

and technical college agriculture programs had become specialized. Individual

community and technical colleges had developed specialties in fields such as tree fruit

horticulture, landscape design, turf management, turf equipment repair and

management, irrigation technology, pen acquaculture, tank acquaculture, farrier,

greenhouse horticulture, dairy science, soil science, agricultural mechanics, fresh fruit

and vegetable storage, fresh fruit and vegetable processing, tree fruit pest control, row

crop pest control, interior landscape design and maintenance, floristry, forestry, stream

restoration, diary animal management, agricultural chemicals, water quality, and

agribusiness sales. If students were to have access to seamless education for the full

spectrum of agricultural programs, then, argued the Walla Walla Community College

staff, a statewide program was necessary. In August of 1994 funding for the project

was formally approved.

## The Problem

The challenge faced by the creators of the TPAG Program was to better coordinate high school, community college, technical college, and Washington State University programs in agriculture. In addition to improving the coordination of programs, the objectives of the TPAG Program included increasing student mobility within the public post-secondary system and increasing student awareness of career and educational opportunities in agriculture.

However, for the TPAG Program to serve society and business community, it had to first serve the student. The problem faced by the investigator was to create and administer a program without the benefit of knowing much about the program's primary consumers, the high school students. If the TPAG Program was to follow proven business practices familiar to the investigator, then knowledge of customers and their needs was essential.

## Purpose of the Study

The purpose of the study was to build a profile of the students enrolled in the TPAG Program pilot courses that included information and data about how and why the students became involved in the TPAG Program, what their perceptions were of the program, and what they expected from the program. By delving into student characteristics, perceptions, and expectations it was hoped that information could be

uncovered that would allow the TPAG Program to be modified to better serve the students' needs.

## Significance of the Study

The significance of the study was related to changes in the domestic labor market. The proportion of the labor force that will need post-secondary education was rapidly expanding while the percentage of workers who will not need post-secondary training was shrinking dramatically. According to the 1995 State of Washington Governor's Council on school-to-work transition final report, the proportion the labor force classified as unskilled shrank to 35% in 1991 from 60% in 1950 and is expected to shrink to 15% by the year 2000. Correspondingly, the proportion of the labor force that is classified as skilled is expected to grow to 65% by the year 2000, from 45% in 1991 and 20% in 1950. According to the same source, the percentage of the labor force that is classified as professional has remained stable at 20% since 1950 and is expected to remain stable at 20% into the year 2000.

As the statistics indicated, the market for unskilled labor was rapidly disappearing. The labor market was demanding increasingly higher levels of skill, and continuing education. According to The Secretary's Commission on achieving necessary skills report (SCANS Report), "New workers must be creative and responsible problem solvers and have the skills and attitudes on which employers can build. Traditional jobs are changing and new jobs are created everyday. High paying but unskilled jobs are disappearing." (US. Department of Labor, 1991, page v.)

According to the SCANS Report the qualities needed by workers could be summarized in five competencies and three foundations skills as follows:

> COMPETENCIES-effective workers can productively use:
>> **Resources**-allocating time, money, materials, space and staff;
>> **Interpersonal Skills**-working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds;
>> **Information**-acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information;
>> **Systems**-understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems;
>> **Technology**-selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies.
>
> THE FOUNDATION-competency requires:
>> **Basic Skills**- reading, writing, arithmetic and mathematics, speaking and listening;
>> **Thinking Skills**-thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning;
>> **Personal Qualities**-individual responsibility, self-esteem, sociability, self-management, and integrity. (US. Department of Labor, 1991, p. vii)

Those students, and current workers, who were to become the skilled labor force needed to be prepared to enter post-secondary programs and emerge with the competencies outlined in the SCANS Report. If students did not chose to flow into post-secondary training programs then the domestic skilled labor force would not be

created, the skilled jobs would have to be filled with imported labor, and/or the skilled

jobs would have to be exported. Furthermore, without the earning and spending power

of the skill labor force, the vitality of the economy would suffer.

## Economic Justification

The negative financial impact of unrealized educational potential could be

significant for both the student and society. Even in the case where the student

delayed completion of his/her post-secondary training the impact could be significant.

When students required additional time in a post-secondary institution the impact upon

the student and society could be costly. The financial penalties for additional time in

school could be approximated. For example:

- The State of Washington's average cost per full time equivalent student

  at community and technical colleges was $3,930 in academic year

  1993-94 (State of Washington State Board for Community &

  Technical Colleges, 1994, p. 53):

- The student paid 16 percent of the average cost per full time equivalent

  student (State of Washington State Board for Community & Technical

  Colleges, 1994, p.49):

- The student cost for textbooks and supplies was assumed at $750 per

  year.

- The lost earning for students ranged from $10,000 to $30,000 per year.

Given the foregoing factors, the total cost of unnecessary time spent in a community or technical college to an in-state student attending a State of Washington community or technical college was approximately $11,400 to $31,400 per year when both the out-of-pocket expenses and lost wages were considered. The cost to the State of Washington was about $3,300 per year, plus the lost tax revenues.

If students did not complete their post-secondary career training the total cost to the student and society was difficult to estimate because factors that should have been included in a comprehensive analysis were missing. Factors such as the financial effects of limitations on the availability of health care, the cost of government social services, the cost of police and fire services, the cost of correctional facilities, the cost of increased insurance premiums, were difficult to accurately quantify.

However, a primitive analysis could start with the 1995 US. Census Bureau estimates of career earning by educational level:

| Educational Level | Lifetime Earnings | Incremental Earnings |
|---|---|---|
| Didn't Finish High School | $ 609,000 | |
| High School Graduate | $ 821,000 | $212,000 |
| Associate Degree | $ 1,062,000 | $241,000 |
| Bachelor's Degree | $ 1,421,000 | $359,000 |
| Master's Degree | $ 1,619,000 | $198,000 |

From the preceding table it was apparent that the cost of premature termination of an individual's education could be significant for the individual. If the individual paid no taxes other than Social Security, the loss to society in the form of tax collections could be significant. However, most individuals also paid income, sales, property, and/or use taxes in addition to Social Security taxes.

In 1994 the investigator created an analytical model and personal computer Excel template that estimated the benefit to society of post-secondary education. The two measurements of societal benefits used in the model were the generation of new wages and the collection of new tax revenues by federal, state and local bodies. For the analysis the Federal and Oregon tax structures and codes then in effect were assumed. Individuals were assumed to earn the average starting wage for the career field for the first year and work up to the average wage for the career during a seven year period. The analysis assumed the post-secondary education had only a seven year life. Furthermore, all financial figures were reduced to present values using a five percent discount rate. These assumptions were made in order to take a highly conservative economic position on the value of post-secondary education.

The analysis was run using classes of 36 hypothetical individuals: 12 single individuals claiming one allowance on their Federal and Oregon Income Taxes, 12 individuals filing joint returns and claiming an average of 3.5 allowances, and 12 individuals filing as heads of households and claiming an average of 2.5 allowances.

When a hypothetical class of Scientific Technicians having an assumed starting wage of $13,700 and an average wage of $25,000 was analyzed the present value of

the first seven years of earnings for the group totaled $3.959 million. The present

value of the Federal income taxes, State of Oregon income taxes, social security taxes,

and local Oregon property taxes generated by this income was $1.293 million. The

preceding assumed that the hypothetical students had no earning power without the

post-secondary education. When it was assumed that each individual had an earning

power of $9,700 per year without the post-secondary education then the present value

of the incremental earnings over the first seven years of their new careers was $1.939

million and the present value of the incremental tax revenues was $886,000. At the

time of the analysis the annual cost per full time equivalent student for Oregon

Community Colleges was $4,082 and the average recovery of costs via tuition and fees

was $857, thus leaving the state with a net annual cost per full time equivalent student

of $3,225. Assuming a Scientific Technician needed two years to complete their post-

secondary education, the cost to the State of Oregon for the class of 36 hypothetical

students was $232,200. Again, the present value of the incremental seven years of

combined federal, state and local tax revenues was $1.293 million when the class was

assumed to have no earning power without the post-secondary education and the

present value of the combined taxes was $886,000 when the hypothetical students had

an earning power of $9,700 per year without the post-secondary training. Under these

assumptions an investment of $232,000 in the education of 36 students appeared a

sound one by the collective taxpayer. (Willis, J.F., 1994)

From the preceding data it is clear that education had economic value. It was

important to the economic, social, and cultural future of the United States that students

become the skilled workforce. Historically the value of education to the individual has been stressed when motivating individuals and families to invest in education -- in the future it will become increasingly important to stress the economic value of education to society in order to motivate society to invest in education.

## Summary of Purpose and Significance

The investigator sought to develop a profile of high school students involved in pilot courses offered by the State of Washington Tech Prep in Agriculture Statewide Articulation Program. In addition the investigator delved into student perceptions and expectations of the TPAG Program. It was anticipated that the investigation would yield information that would allow the program to be modified to better serve the needs of both students and society.

The significance of the investigation was associated with the value of creating more effective educational systems and with attracting students into effective alternatives such as the Tech Prep Associate Degree Program.

## Scope of the Investigation

The body of students interviewed and/or surveyed was limited to students involved in the TPAG Program. Three methodologies were used to profile students and investigate their perceptions and expectations. The investigator used personal interviews, a group interview, and a forced response survey instrument. The emphasis

was on the use of the forced response survey instrument, with the individual interviews and the group interview being used as supportive methodologies.

Although insights gained into student perceptions of the Program may be of value to other educators, the scope of the investigation was limited to the TPAG Program and due caution must be used in the application of the investigation's results to other situations.

## Theoretical Framework

Systems are networks of dependent components working together to achieve a common target (Deming, W.E., 1993). Parnell advocated the systems approach to education through the coordination of the last two years of high school with community college associate degree programs, which themselves may have been coordinated with bachelor degree programs (Parnell, 1985).

The TPAG Program was based upon the theoretical concept that education needs to be relevant to the needs of students and their anticipated career paths. The TPAG Program assumed that it may be possible to hold students' attention for short periods with irrelevant material, but attention usually could not be sustained without relevance (Dick, W. and Carey, L. 1990).

Also, if students were to be attracted to the TPAG Program it was desirable to know about the student, their preferences and expectations. Furthermore, it was not advisable to depend upon historical consumer preferences because if students were to be attracted to educational products through positive appeals, then the marketing

approach had to vary depending upon what was popular at the time the appeal was being made (Bandura, A., 1986).

## Definition of Key Terms

For the purpose of this study key terms were defined by the Washington State Board for Community and Technical Colleges as follows:

1.    Articulation - the generic term referring to the process of moving students inter-institutionally throughout the secondary and post-secondary educational system. Such movement may involve the transfer of credit from one institution to another or may involve the coordination of study to facilitate student movement through the educational system.

2.    Vertical Articulation - is the term referring to the process of moving students inter institutionally between vertical levels of the system where vertical levels consist of families of secondary and post-secondary institutions.

3.    Horizontal Articulation - the term referring to the process of moving students inter institutionally between horizontal levels of the system. Where an articulated movement consists of both a vertical movement and a horizontal movement the articulation will be referred to as full articulation. An example of such a movement would be the articulation from

secondary institutions to any of a number of post-secondary institutions.

4.    Articulation Agreement - a formal or informal agreement that sets out the conditions under which articulation may take place.

5.    Articulated Credit - transcripted credits that may be articulated from one institution to another institution.

6.    Competency Based Curriculum - a method of education whereby skill and knowledge standards essential for employment and further education are determined by task analysis and have been validated by business, labor, and other technical experts.

7.    Consortium - a group of institutions that are part of an formal organization involved with the planning and operation of a Tech Prep program.

8.    Post-Secondary Institution - an institution legally authorized to provide post-secondary education within a State, Bureau of Indian Affairs controlled post-secondary institution, or any post-secondary educational institution operated by or on behalf of any Indian tribe which is eligible to contract with the Secretary of Interior for administration of programs under the Indian Self-Determination Act or under the Act of April 16, 1934. In general terms, an accredited community college,

technical college, junior college, college, university, or graduate school.

9.      Tech Prep Education - a combined secondary and post-secondary program which:

- leads to an associate degree or two-year certificate;

- provides technical preparation in at least one field of engineering technology; applied science; mechanical; industrial; or practical art or trade; agriculture; health; or business;

- builds student competence in mathematics, science, and communications through a sequential course of study to include the applied academics;

- technical content is provided in a competency-based format based on business and industrial standards.

## Chapter Two
## Review of the Literature

The purpose of this chapter was to review the literature related to high school

Tech Prep student characteristics, program perceptions, and program expectations.

Supporting literature concerning the Tech Prep Associate Degree concept, agricultural

education, and selected theoretical concepts was also reviewed.

## The Tech Prep Associate Degree Concept

The Tech Prep Associate Degree, TPAD, program simultaneously addresses

the needs of two interdependent markets. Specifically, TPAD addresses "(1) the

middle quartiles of the typical high-school student body in terms of academic talent

and interest, and (2) the mid-range of occupations requiring some beyond-high-school

education and training, but not necessarily a baccalaureate degree (Parnell, D., 1985,

pg. 140). Thus, TPAD addresses an immediate consumer market composed of

students and an end user market made up of employers who seek to hire qualified

employees.

With the passage of Public Law 101-392, The Carl D. Perkins Vocational and

Applied Technology Education Act of 1990 in September of 1990 the Tech Prep

educational program gained a formal definition including four components which may

be summarized as follows: 1. leads to an associate degree or two-year certificate: 2.

provides technical preparation in at least one field of engineering technology, applied

science, mechanical art, industrial art, practical art, trade, agriculture, health, or

business: 3. builds student competence in mathematics, science, and communications

through a sequential course of study: and 4. leads to placement in employment (Hull,

D. & Parnell, P., 1991).

Accordingly, supporting curriculum for the TPAD program was intended to be

targeted at the middle fifty percent of the high school population. However, some

curriculum may have been aimed at the lower segments of the assumed targeted

population.

> Applied Mathematics is especially helpful for students
> who are not necessarily baccalaureate-bound and who
> may feel a certain anxiety about mathematics. It has
> been prepared for learners who have an eight-grade pre-
> algebra mathematics competency level and is written at
> the sixth-grade or seventh-grade reading level.
> Consequently, it may be used effectively -- even if at a
> slower pace -- with traditionally under-served students.
> (Hull, D. & Parnell, D, 1991, pg. 75).

Although the objectives of the Tech Prep Associate Degree program are

intended to offer an alternative path to educational excellence that parallels the college

prep path, there appears to be a bias toward establishing a second, lessor track by some

of the suppliers of TPAD high school curriculum materials. This approach is not

consistent with the intentions of the creators of the TPAD option, nor is it consistent

with the current domestic economic transition.

> The United States is now experiencing another
> economic transition between the industrial and
> technological age. There is speculation that the next
> word to describe the largest block of the workforce will
> be "technician." Between now and the year 2000 most

new jobs created will be in the technology-related and
service parts of the economy. This does not mean that
manufacturing jobs will disappear, it means that many
manufacturing jobs will change. Even though
manufacturing jobs dropped from 25 to 20 percent of the
workforce, the actual numbers of manufacturing jobs
increased by 343,000 over the past ten years. The
goods-producing sector of the economy continues to
grow at a slow pace, but the technology-service sector
has become the major job creation machine, and will
continue to be for the decade of the 1990s.

Between now and the year 2000 the US.
Department of Labor projects a significant increase in
higher-skilled, better paying occupations that will
require some form of post-secondary education for entry.
Occupations such as "professional workers" are
projected to increase 22 percent over the 1990s; the
number of executive, administrative, and managerial
jobs will also likely increase 22 percent; jobs for
technicians and related support workers will increase
nearly 29 percent. The need for better-educated workers
will be great (Parnell, D., 1990, pg.. 39-40).

While it may be tempting to think of TPAD as a narrowly focused and targeted

vocational education program that serves only a limited sub-population of both the

high school population and the workforce, the changing nature of the workplace

demands a more holistic approach to the student. "Because TPAD programs should

produce graduates capable of dealing with a wide range of job challenges, not a narrow

grouping of technical skills, a holistic approach to determining outcomes should be a

primary goal of TPAD programs" (Tech Prep Roundtable, 1994, pg. 14). It is the

more holistic approach that established TPAD as a parallel path to college prep.

There appeared to have been conflict between TPAD program creators' intent

to serve a broad spectrum of students by providing a high quality alternative career

prep educational option, and the application of the TPAD concept in the high school environment.

## Agricultural Education

In 1860 sixty percent of the workforce was involved in production agriculture. By 1960 the percent of the workforce associated with farming had decreased to ten percent. In 1990 less than two percent of the workforce identified themselves as farmers (University of Minnesota, 1995). While the importance of an available, safe, and wholesome food supply has not diminished, the portion of the workforce devoted to production agriculture has significantly lessened. Even when the sector is defined to include the food and fiber processing and distribution functions, agriculture does not hold the dominate position it once did in the domestic economy.

William Maclure (1763-1840) proposed an approach to education that resembled what was to become the land-grant college system. A Scotsman who had amassed a fortune from trade, Maclure migrated to the United States in 1796. He retired from business in 1800 and pursued personal interests in science, economic development, and education. In his educational design he saw scientific and industrial education playing a significant role in the economic and political development of the United States (Gutek, G.L., 1991).

During the 1850s and 1860 farm and labor interests found the existing liberal arts colleges unresponsive and irrelevant to their needs. Initially agricultural and industrial organizations lobbied for the establishment of a new type of industrial

college. Vermont Congressman Justin S. Morill sought federal financial support for agricultural and mechanical education that also included scientific and classical studies. Morill's first land grant act was vetoed by President Buchanan. In 1862 President Lincoln signed the Morill Act which granted 30,000 acres of public land to each state for each congressional representative. The intention was that the income from the land was to support at least one college with the primary mission of agricultural and mechanical education (Gutek, G.L., 1991). Texas A and M, Oregon Agricultural College, and the Alaska Agricultural College and School of Mines grew from the land grants provided through the Morill Act.

## Student Characteristics and Perceptions

The search of the literature indicated that a great deal of effort has been expended in the study of the articulation maze, but that very little effort has been put forth to study the student who must negotiate the maze. Furthermore, most of the literature about the perceptions of Tech Prep and TPAD articulation was concerned with the perceptions of non-students.

W.K Hurley (1994) investigated the attitudes of horticultural educators toward Tech Prep in Texas. The attitudes of secondary science teachers toward Tech Prep in South Carolina was investigated by C.M. Lindsey (1994). J.D. Lloyd (1994) investigated state legislator's perceptions of secondary and post-secondary vocational education in Pennsylvania. The perceptions of faculty and employers toward Tech Prep and traditional manufacturing technology courses was investigated by M. Siu

(1994). The perceptions of South Carolina applied communications teachers

concerning applied communications courses was investigated by J.A. Kelly (1993).

The factors affecting secondary teacher attitudes toward Tech Prep programs was

investigated in Indiana and Illinois (Hunter, G.D., 1994). M. Orton (1986)

investigated the attitudes and change in attitudes concerning a high school to

community college articulation programs in Texas. Curriculum articulation practices

in Florida were investigated by M.M. Knight (1982). D.J. Sadler (1992) investigated

parental influences on the high school to college articulation process. The perceptions

of secondary and post-secondary administrators concerning Tech Prep articulation

agreements was investigated by S.S. Knazze (1991).

As indicated above, there appeared to be a major body of literature on the

perceptions of teachers, administrators, and even legislators concerning Tech Prep

articulation. However, very little literature was discovered that concerned the

perceptions of the students who were involved in the Tech Prep articulation program.

## Literature Concerning Student Perceptions

In November of 1992 the Articulation Committee of the South Carolina

Council on Vocational and Technical Education in its capacity as the State

Occupational Training Advisory Committee issued a Report of an articulation study.

The committee surveyed technical colleges, school districts, and vocational centers.

The study reported that:

> Responses suggest that there is no shortage of printed
> material regarding procedures for applying for advanced
> placement or credit and the course listings students can
> review. There appears to be no clear understanding,
> however, of the need for coordination between
> secondary and post-secondary institutions in "getting the
> word out" to students about how to access the written
> procedures to their benefit. Guidance counselors are
> mentioned frequently as the "communicator" of
> career/articulation options, and responses indicate a
> belief that career guidance counseling is being done.
> But too few students apply for advanced standing, which
> may be an indicator that there is not enough direct
> contact with students or that students do not partake of
> the brochures, handbooks, mail-outs, and other printed
> materials which outline the procedures for them. (South
> Carolina Council on Vocational and Technical
> Education, 1992, p. 7)

In a 1991 Indiana State Department of Education study of pilot Tech Prep

programs student data were collected and analyzed that concerned achievement,

absenteeism, grade point average, gender, career maturity, and attitude toward school

and technology (Wentling, T. L., Leach, J. A., and Galloway, J. R., 1991). Student

factors were investigated through the collection of student data and the administration

of various testing instruments. Data collection included achievement test results,

absentee rates, and grade point averages that were acquired from student files. Career

maturity and attitude toward a variety of educational and technological issues were

assessed through the administration of the Career Maturity Inventory and the Attitude

Scale. A special instrument, the Student Reaction Form, was developed to measure

the student's attitude's toward teachers, courses, school, schedule, further education,

technological careers and technology (Wentling, T. L., Leach, J. A., and Galloway, J.

R., 1991, page 59.).

In 1993 Northeast Wisconsin Technical College (NWTC) Instructor Janet

Hermes Schoenebeck surveyed 62 Office Technology Students who had articulated

176 courses completed in high school to NWTC's Green Bay Campus (Schoenebeck,

J. H., 1993). Each student was sent a mixed forced response and open response survey

form and asked to sign a release form that enabled NWTC to evaluate student

transcripts. Fifty students responded, 23 of whom had taken related courses at NWTC,

27 of whom had not. Sixty eight percent of the respondents felt that the merits of the

articulation agreement were a positive influence on their participation.

Several students volunteered comments. Susan stated that, "With the advanced

standing I was able to graduate in 1.5 years instead of 2 years. Jacqueline stated that,

"With my advanced credit, I had many classes out of the way that allowed me to work

with my extra time." (Schoenebeck, J. H., 1993, p. 22)

In 1994 Mhora Newsom-Stewart and Dean Sutphin from Cornell University

interviewed two counselors, five teachers, four administrators, and seven tenth and

eleventh grade students at three New York schools offering a pilot Tech Prep in agriculture program. (Newsom-Stewart, M. and Sutphin, D., 1994) The student interviews focused on student perceptions of the school environment, the role of education, and sources of information for career and educational planning.

## Summary, Student Perceptions of Tech Prep

The few studies concerned with student perceptions are of limited value because of their failure to profile the students. The lack of knowledge about the student characteristics gives no contextual setting for the information presented by the researchers.

Nowhere in the South Carolina Council report on Vocational and Technical Education was there any mention of asking the students about their perceptions of the system. Particular attention should be paid to the statement, "responses indicate a belief that career guidance is being done." The responses referenced were from institutions, not students. These researchers do not know if career counseling was actually being done.

When articulation agreements were discussed in the report the following recommendations were made:

> The State Council recommends that each technical
> college take a leadership role in improving articulation.
> In order for articulation agreements to be effectively
> implemented:
>> -        each college president should be
>> thoroughly familiar with and understand

the written articulation agreement to
which the institution is a partner;
-    each college president should
believe in the concept of articulation and
its power to assist students achieve their
educational goals;
-    each college president should
endorse articulation by making it a
priority issue at his or her institution.
In addition, the Council recommends that the State
Department of Education, the technical colleges, and the
school districts collaborate on a "model" articulation
agreement which has more structure and guidelines
concerning such elements as committees and sub-
committees, composition of their membership, and
frequency of meetings. (South Carolina Council on
Vocational and Technical Education, 1992, p. 9)

Again, the recommended actions were concerned with the administrative

system and avoided meaningful interaction with students.  While the perceptions of

technical college, school district, and vocational center administrators were of value, it

was the students who accepted or rejected the system and, as the primary consumer of

educational services, the students were the involved parties who's perceptions may also

have been of value to the administrators  (South Carolina Council on Vocational and

Technical Education, 1992).

Unfortunately in the 1991 Indiana State Department of Education study the

authors presented only numerical data concerning average number of days absent,

grade point averages, a scalar representation of career maturity, and a scalar

representations attitudes.  The investigators failed to convey meaningful descriptive

information about the students, historic perspective that would have informed the

reader of how the students became involved in the program, and descriptive

information about the survey instruments used. Student perceptions are boiled down to sterile pages of numeric data and tests of significance that say this scalar representation of Tech Prep student attitude was, or was not, significantly different from this scalar representation of non-Tech Prep student attitude. No real information about student attitudes and perceptions was conveyed. It is as though we were told that two automobiles were not significantly different -- we are left knowing absolutely nothing about the two automobiles other than they *may* have some features that are similar. As a result of this approach the reader cannot draw up an image of the students or of how they became involved in the Tech Prep program (Wentling, T. L., Leach, J. A., and Galloway, J. R., 1991).

With the Schoenebeck study the Tech Prep students start taking on some dimension. The students are not reduced to single points in a scalar space that is devoid of other information. The limited number of quotes in the Schoenebeck article gives substance to the statistical summary information. However, the investigation still lacks depth because the reader has no descriptive data on the students nor any insight into how or why the students migrated into the Tech Prep program (Schoenebeck, J. H., 1993).

In the 1994 Mhora Newsom-Stewart and Dean Sutphin study the researchers interviewed students and delved into their perceptions of the system. This study failed to realize it potential because it appears that the researchers were more interested in experimenting with their methodology than they were in extracting and conveying information on the perceptions of students. Also, like in the other studies, there was a

lack of descriptive information on the students and on how they migrated into the Tech

Prep program.

In the Newsom-Stewart and Sutpin study the summarization of student

attitudes toward school was especially disturbing:

> School. School is unanimously disliked by students in
> this study. One girl described her feeling toward school
> as:
> "It is there, just something you do." A number of
> students described school as "boring". As one boy said:
> "There is so much home work, so much
> lecturing. In school time is wasted. In one period you
> get twenty minutes of knowledge and 30 minutes of
> waste!"
> Most participants feel school is not worthwhile.
> The lack of interest is due to the perceived lack of
> relevance for the future. As one student mentioned:
> "It doesn't help you better yourself for the future,
> which is the real world. There has to be cooperation
> between people, not like in school."
> Criticisms included boring classes, too much homework,
> not enough productive time, too many lectures, and in
> and out of school drug and alcohol use. The availability
> and use of drugs in school is problematic. Students feel
> that the real world requires cooperation not modeled or
> taught within the school system. (Newsom-Stewart, M.
> and Sutphin, D., 1994, pg. 47)

The lack of data about student characteristics, the lack of history concerning

how the students migrated into the Tech Prep program, and the fact that all of the

students disliked school cast doubt upon how applicable the results of the study are in

other situations. While the Newsom-Stewart and Sutphin study appears to give more

data about the students, the limited image of the student perceptions exists in a void.

The reader was given no information on the environment and little information on the characteristics of student who's perceptions are being studied.

## Related Theoretical Areas

"A system is a network of interdependent components that work together to try to accomplish the aim of the system." (Deming, W. E.., 1993, p. 50) A system can only make things better for everyone if the interdependencies of the system are recognized and components are rewarded for bettering the aim of the system and not rewarded for local optimization that may be harmful to the aims of the system. The public education system has several components, ranging from the sub systems contained within the K-12 system to research universities. Ideally each component acts unselfishly, as though it was a part of a greater system dedicated to serving the student and society. The concept of articulation between and among the vertical components of the public education system is consistent with Deming's concept of effective and efficient systems acting in concert to achieve the aim of the system. In the case of the TPAG Program a network consisting of high schools, community colleges, technical colleges, and Washington State University recognizes the interdependencies of the system and is working to provide a seamless agriculture education for students.

However, the public education system not only includes the components of delivery system, but it also includes immediate customers and the end-users. The

delivery system consists of the institutions and their staffs, the immediate customers

are the students, and the end-users are society and the employers who hire graduates of

the system .

In the American public education system students are given options.

Furthermore, the components of the system have the opportunity to motivate students

to participate in those options that benefit both the student and society.

> ..., the second aspect of motivation is relevance. While
> you may be able to gain learners' attention for a short
> period of time, it will be difficult to sustain when they
> do not perceive the subsequent instruction as relevant to
> them. When instruction is thought irrelevant, learners
> ask, "Why do we have to study this?," and employees
> question the relationship between training and their job.
> If learners understand the relevance of the skills
> included in instruction, you will have their attention, if
> not, you undoubtedly will lose them. In other words,
> instruction must be related to important goals in the
> learner's life. (Dick, W. and Carey, L., 1990, pg. 173)

The literature appears to indicate that if instruction is to be related to important

goals in the learner's life then it stands to reason that the system must have knowledge

of the important goals in the learner's life. Furthermore, it could be logically

concluded that the system should have knowledge of who the learner is and how the

learner sees themselves. With such information it may be possible to modify the

educational system such that more students are motivated to pursue options that bring

greater benefits to both individual students and society.

While it may seem out of place to refer to advertising theory, Bandura's

statements concerning the promotion of hair coloring products are also relevant to

attracting students to products such as educational programs. To know more about the student, their perceptions and expectations is not sufficient. It will also be necessary to know whom the students look to for counsel concerning their educational and career options. If this fuller characterization of students is constructed, then the probability creating superior educational programs is enhanced. In a free society where students and parents have educational options, we must include within the program the elements of promotion.

> Acculturation to consumer habits is heavily promoted through commercial advertising. When promoters cannot directly elicit and reinforce the behavior they desire, as in the case in persuasion through the mass media, they seek to encourage it by altering viewers' evaluations, preferences, and outcome expectations. Advertisers cannot personally instruct and reward a brunette for dyeing her hair blond, but they can increase the likelihood of their hair dyes being purchased by creating the impression that blondness increases social attractiveness. Since the potency of vicarious influences can be increased by showing modeled acts bring rewards, vicarious outcomes figure prominently in advertising campaigns.
> In the positive appeal, buying what the advertisers suggest produces any number of benefits. The types of vicarious outcomes, model characteristics, and modeling formats that are selected vary depending on what happens to be in vogue at the time. (Bandura, A., 1986, pg. 325)

Who do the students seek to model their educational behavior after? Who's experience do they seek to learn from?

The review of the literature for this study indicates that in order to create efficient and effective local educational alternatives it will be necessary to periodically

conduct research into the characteristics of student populations, their perceptions and

expectations. It will also be necessary to conduct research into whom it is that the

students seek advice and information from concerning their educational and career

alternatives.

**Chapter Three**
**Research Methodology**

## Introduction

The investigation was conducted by an involved participant who has been

charged with the formation of a statewide program for Tech Prep in Agriculture in the

State of Washington.

The population studied consisted solely of high school students who were

actively participating in the TPAG Program by taking one or more of the competency

based courses offered by the program.  Other than their participation in the TPAG

Program, and the underlying Agriculture Education Program, nothing was known

about the students.  The lack of preliminary knowledge was intentional: no

misinformation or prejudices about these students was to be carried into the

investigation.  The profile of these students developed by the study is presented and

discussed in Chapters 4 and 5.

All the high schools participating in the TPAG Program at the beginning of the

study were invited to participate in the study.  Administrators at three of the 15 TPAG

Program high schools decided to exclude their schools from participation in the study.

Other than the administrators' decision not to participate, there were no apparent

differences between the schools that participated and the schools that did not

participate.  Some individual students also decided not to participate.  No information

was gathered on students who did not to participate.  To gather such information

would have violated their confidentiality that would have involved identifying which students did not participate. Nonparticipating students returned a blank forced response survey form. Neither schools nor individual students were adversely impacted because of their non-participation.

The intent of the investigation was to develop information about the students involved in the TPAG Program. Although the findings from the study will add to the base of knowledge about high school students, there was no intent to make inferences about students others than those studied. While the knowledge created by this investigation may cause citizens, parents, teachers, and administrators to ask if their students are like the studied students, all parties should exercise caution in making any assumptions about other populations of students that are based upon the findings of this study.

## Study Limitations

The study was limited by the following factors:

- The investigation was limited to high school students in the TPAG Program in the state of Washington during the academic years 1994-96.
- The investigator was an involved participant.

## Student Profile

To determine the student characteristics, perceptions and expectations the investigator used a three part approach: 1. Individual student interviews. 2. A forced response survey instrument. 3. A group interview

## Individual Interviews and Pilot Forced Response Survey

The investigator conducted a limited number of individual interviews during the late Spring term of 1995 with high school students who were involved in the TPAG Program. The interviews involved nine students from one high school. The purpose of the individual high school student interviews was to create information that would be used in creating the forced response survey instrument. Thus, the individual interviews were used to investigate and verify what questions the investigator should be asking and what response options might be appropriate for the forced response survey questions. The investigator was open to new areas of investigation that were suggested by the student responses.

The interviews consisted of the following seven open-ended questions:

- How did you become interested in the Tech Prep in Agriculture Program?

- What benefits does the program have for you?

- What do you like best about the program?

- If you were in charge, what might you change?

- Have you decided upon a career area or a specific career?

- Would you recommend this program to someone else? Why or why not?

- If you were me what question would you be asking?

The students were interviewed at the high school. The interviews were conducted during the Agriculture Education period in a small office near the Agriculture Education classroom. Individual students were excused from class to participate. Since all students in the class volunteered to be interviewed, over a period of several days they individually excused themselves from class and went to the interview room. The only persons present in the room were the interviewer and the student. The interview room was large and contained several desks. The interviewer and the students sat beside a large desk, facing each other, but free to move their chairs to a positions and distances most comfortable to each. There were windows onto an adjoining shop area where class was being held. The room appeared to present a secure environment to the students.

Confidentiality was maintained. The results of the individual interviews were not shared with the instructor. After each interview students were asked if specific quotes may be used in the dissertation. There were no refusals. Notes from the interviews were not specific to individual students and were not shared with anyone.

The students who were interviewed were also asked to anonymously fill out a pilot survey instrument giving descriptive data about themselves, a series of questions concerning the cost of post-secondary education, and a set of questions about what knowledge and skills the students perceive as important in their future. The pilot survey instrument was created by the investigator and was not knowingly derived from

any existing instrument. The construction of the instrument started with the general questions that were of interest to the investigation.

The students took the survey instruments with them and returned them, in a sealed envelope, to the teacher who forwarded them to the investigator.

Concerning the set of questions about what knowledge and skills the students were asked to state if they perceived the skill as:

- Very Important
- Important
- Nice to Know
- Not Important
- I do not know.

The list of knowledge and skills the students were asked about included:

- Basic Mathematical Computations
- Algebra
- Math Beyond Algebra
- Statistics
- Physics
- Chemistry
- Life Sciences
- Computer Literacy
- Writing, Non-technical
- Technical Writing
- Reading
- Personal Hygiene
- Oral Communications
- Ability to Work With Others
- Second Language Skills
- Listening Skills
- Ability to Continue to Learn
- Understanding Cultural Differences
- Artistic Skills
- Creativity
- Accounting
- Economics.

The data gained from the first set of individual student interviews and the limited forced response survey was used to write the forced response survey instrument. The investigator studied the responses from the interviews and the pilot forced response survey instrument. After this study a new forced response survey instrument was drafted. The new instrument was then reviewed with agriculture education teachers, community college counselors, a community college institutional researcher who routinely built forced response survey instruments, fellow doctoral candidates, the investigator's major professor, a limited number of high school agriculture education students, and selected State of Washington education administrators.

The instrument was revised and reviewed several times. For the final review the investigator administered the instrument to two high school classes. The classes were asked to raise questions about the instrument as they completed the instrument. As a result of the students' questions a few of the questions and response options were modified.

## The Forced Response Survey Instrument

In the Fall of 1995 the forced response survey instrument was distributed to the high schools participating in the TPAG Program. The schools were asked to administer the survey instrument in the classroom environment and to have the students place the completed instruments in an envelope that was to be sealed and then forwarded to the investigator. All students who had declared an interest in the TPAG

Program were invited to participate in the study. Not all the schools administered the instrument in the classroom environment. Although the investigator requested that steps be taken to insure student confidentiality, a third party was not used to insure that instructors did not see the individual instruments. All the teachers stated that they respected student confidentiality. No student identification was attached to the completed survey instruments. While it was possible to tell which school an individual survey came from, it was not possible to identify the student.

The forced response survey instrument was used to profile the students currently involved in the TPAG Program. The primary purpose of the forced response survey was to gather a self-description of the students. Secondary objectives of the survey included gathering information on parental educational levels, student career choices, student perceptions of who was in control of their educational and career choices, student perceptions of how they learned best, student perceptions of what they most enjoyed learning about, student perceptions of what knowledge and skills will be important in their future, and student perceptions of whom they trusted to give them career and educational advice. The survey was seven pages in length and contained 36 numbered questions, many of which required multiple responses. The instrument was constructed and read using the SCANTRON system.

The investigator processed the forced response survey instruments by individual schools and then as a total group. For schools having six or more responding students a statistical summary was returned to the school's agriculture teachers. The purpose of providing the teachers with a statistical summary was to

offer feedback about the accuracy of the results without violating student confidentiality. The participating agriculture education teachers were called by the investigator and asked if the results accurately reflected their students, if they shared the information with anyone, and if they thought the information was useful.

## Group Interview

In February of 1996 a group interview of students was conducted. The purpose of the group interview was to achieve a sense of closure with the students and the project. Although it was anticipated that the findings from the investigation would suggest further research topics, before closing the investigation the investigator felt a need to reinforce the survey findings by going back to some of the students on a face-to-face basis. The group interview was designed to be a relatively minor component of the investigation.

Due to extreme circumstances, including a major flood and communications outages, the location of the group interview was changed to a school that was physically accessible. The senior agriculture education class at an Eastern Washington high school was interviewed as a group, in their classroom, with only the class and the investigator present. All the students in the class had participated in the forced response survey instrument portion of the investigation.

The atmosphere was casual, with the students spread around the large classroom. Two of the students had to leave during part of the interview time and returned before the conclusion of the interview. The investigator opened by

summarizing the results of the forced response survey instrument and asked how the students felt about the results. Then the investigator asked the four questions listed below. The discussion was open, with both the investigator and the students asking additional questions during the 35 minute discussion.

- Besides the subject being agriculture, what, if anything, is unique and attractive about your high school agriculture education program?

- The study has found that many of the students in the Tech Prep in Agriculture Program are not planning on careers in production agriculture or in the direct agriculture support sectors of the economy. How do you feel about that? Do you feel that this is something that politicians should be upset about?

- Forty percent of the surveyed Tech Prep in Agriculture students had not decided upon a career area of interest. What is your reaction to that fact?

- Eighty percent of the surveyed students identified themselves as learning best from "doing". Does your high school education respect this learning style?

## Analysis

Because the purpose of the investigation was to create a profile of the TPAG

Program students, the use of statistical methods was limited to descriptive statistics

and their graphical presentation. Although the survey questionnaire included a

collection of descriptive data, the discussion of population sub-categories contained in

the survey sample was limited to descriptive passages and graphical representations of

the responses to the survey items. There was no attempt to test for significant

differences between population sub-categories. In this research the investigator was

not seeking to establish the existence of "significant" differences between groups.

Rather, the investigator was seeking to describe the group via a profile of the student

population and to illuminate student perceptions and expectations.

This approach extended to the relationships between the components of the

investigation. The primary purpose of the individual interviews and the pilot forced

response survey instrument was to gather information that would allow the

investigator to build a forced response survey instrument that addressed the creation of

a profile of the TPAG students. The interviews and the pilot survey results raised

questions that were addressed by the forced response survey and discussed in Chapter

4. Also, comparing results from the components of the investigation was done very

carefully because the proper conditions were not present to make statistical

comparisons. The population for the interviews was nine students from one high

school whom were not selected randomly. The concluding group interview also used a

small population of

students from one school. The participants were not randomly selected. Similar to the discussions with the participating agriculture education teachers, the group interview was a reality check.

## Chapter Four
## Findings

## Introduction

This chapter presents the findings from student interviews and the forced

response survey instrument. It includes the following major subsections: Preliminary

Interviews, Forced Response Survey Instrument, Follow-up Interviews, Teacher

Evaluations of Survey Findings, and The Potential Existence of a Cohort Effect. The

three investigative initiatives used in this study created a large data base and the analysis

of the data led to several findings. Many of the findings are illustrated in a graphical

format. To prevent the volume of graphics from interfering with the flow of findings,

two series of graphics are presented in appendices.

## Preliminary Student Interviews

During May of 1995 nine high school students involved in the Tech Prep in

Agriculture Statewide Articulation Program (TPAG Program) were interviewed by the

investigator. The students' junior and senior vocational agriculture classes had been

formatted to include two TPAG Program competency based courses, Agricultural

Orientation and Careers, and AgriBusiness. The students were from an Eastern

Washington high school located in a community with a population of approximately

28,000. The high school drew its students from two adjacent towns and adjacent

unincorporated areas. The two towns have a combined population of approximately 35,000.

The selection of students was purposeful, rather than random. All students from the school's senior vocational agricultural class were invited to, and chose to, participate in the interviews.

The intent of the preliminary interviews was to gather information that would be useful in creating the forced response survey instrument. There was no intent to collect data for the purpose of making generalizations to either the common high school population, or to the population of TPAG Program students at other high schools.

In the one-on-one interviews the students were asked if they could tell the interviewer a little about themselves and then asked:

- How did you become interested in the program?

- What benefits does the program have for you?

- What do you like best about the program?

- If you were in charge, what might you change?

- Have you decided upon a career area or specific career?

- Would you recommend this program to someone else? Why or why not?

- If you were me, what question would you ask?

The students were also asked to respond to a pilot forced response survey instrument. (Appendix A.) The instrument addressed creating a self-description and self-evaluation of how important specific skills would be in the student's future.

## Student Characteristics

The group of students interviewed was characterized by the following descriptive factors:

- five girls and four boys;

- two of Asian decent, seven of Caucasian decent;

- eight high school seniors and one high school junior;

- four were age 17, four age 18, and one age 19;

- grade point averages ranged from approximately 2.5 to 4.0;

- student career plans included,

    - veterinary technician,

    - machinist (2),

    - educator (2),

    - Doctor of Veterinary Medicine,

    - accountant,

    - agricultural sales and service representative, and

    - one student undecided;

- one lived with a single parent, seven with two parents, and one with other family.

## Source of Student Interest in TPAG Program

All the students attributed their interest in the TPAG Program to the

encouragement and nurturing of the Agriculture Program Instructor at their high school.

Most of the students also attributed their initial interest in the TPAG Program to the

advice of an older sibling or older friend. Only some of the students attributed their

initial interest to the availability of college credit.

All students interviewed were highly complimentary of the agriculture teacher's

instructional techniques and counseling abilities. However, when the students were

asked "How did you become interested in the program?", most of the students

immediately responded that what brought them into the program was the advice of an

older sibling or an older friend. The siblings and friends were clearly described by the

students as "older". Most of the students stated that they did not consider their same-

age peers as a good source of career information.

When the students mentioned the siblings and friends they were asked how old

the siblings and friends were. The students responded that they were two to five years

older. However, some students volunteered that age was not the critical issue. A senior

student stated that he "got equally good advice from his older sister and from his

grandmother", both of whom had attended the local community college. The same

student pointed out that when the investigator graduated from high school the

investigator could have gotten a good job with no further education, but that today's

students no longer had that option. This student, and other students, discussed how

older people faced different circumstances when they began their careers. These interviewed students seemed acutely aware of how the economy and the employment market had changed.

After the group of students was interviewed, the results were used to create the forced response survey instrument. The results were also discussed with several interested parties, including high school agriculture teachers who repeatedly cautioned that the characteristics of vocational agriculture classes in the secondary educational system could vary dramatically between high schools, and even between years within the same high school. These cautions reinforced the need to deal appropriately with the data gathered via a purposeful sample.

It was decided that the forced response survey instrument would include a significant section about who it is that students perceive as good sources of career and educational information. It was also decided that the forced response survey should address the issue of the age of the advisor.

## Students' Educational and Career Goals

The second cluster of findings from the preliminary student interviews concerned the students' educational and career goals.

First, although the high school students were participating in a program specific to agriculture, five of the nine students were preparing for careers outside of traditional production agriculture. When asked about this apparent inconsistency the students replied with a variety of reasons for their participation in the program. For example, the

student interested in becoming an accountant responded that she wanted to work for an agricultural company. Several other students, including the two interested in careers in education, responded that they preferred to live in a rural community.

Second, the target market for Tech Prep has been described as the middle two quartiles of the high school population, especially those students interested in "technical" careers. While a number of the students who took part in the preliminary interviews were interested in "technical careers" such as machinist and veterinary technician, several were not. Furthermore, Grade Point Averages ranged from solid C to straight A's. These students came from the top three quartiles.

When asked what level of education they intended to achieve the students replied as follows:

- High School Diploma, 1;

- Some College, 1;

- Two Year Terminal Degree, 2;

- Baccalaureate Degree, 3;

- Master's Degree, 1;

- Doctorate Degree, 1.

These data reinforce the fact that the students in the vocational agriculture program at the subject high school were drawn from the top three quartiles of the high school population, as opposed to the middle two quartiles to which Tech Prep programs are directed.

## Students' Perceptions of Needed Skills

Another critical issue the investigator hoped to explore through the administration of the pilot survey instrument was: Would the students discriminate when presented with a list of options? For example, when presented with a list of skills students might need in their future, would students differentiate among the skills?

When presented a list of 22 skills and asked, "How important do you think the following skills will be in your future?" the students demonstrated that they would discriminate between choices. For example, when asked about the importance of various quantitative skills the students responded as shown in Table 1 below:

Table 1.
The evaluation by nine State of Washington TPAG Program high school students of the importance of specific skills in their futures

| Skill | Very Imp. | Imp. | Nice To Know | Not Imp. | I Do Not Know |
|---|---|---|---|---|---|
| Basic Mathematical Computations | 7 | 1 | 1 | | |
| Algebra | 4 | 3 | 1 | 1 | |
| Math Beyond Algebra | 2 | 3 | 3 | 1 | |
| Statistics | 1 | 1 | 5 | 1 | 1 |
| Accounting | 1 | 2 | 4 | 1 | 1 |
| Economics | 1 | 3 | 4 | 0 | 1 |

The ability to discriminate between skills was illustrated by the drift of the data points to the right. While the relevance of Basic Mathematical Calculations was

apparent to the students, the more specialized skills were not considered as important to their future. None of the students listed their career choice as mathematician, statistician, operations research analyst, financial analyst, engineer, etc.. Considering their stated career choices, the students' responses appeared appropriate.

## The Forced Response Survey Instrument

The purpose of the forced response survey instrument was to create, from the students' perspective, a profile of the TPAG Program students' characteristics, perceptions, and expectations.

The forced response survey instrument was created by the investigator. The process of creating the instrument is outlined in Chapter Three. The instrument was seven pages in length and contained 36 numbered queries. Many of the queries contained multiple response items. The forced response survey instrument is contained in Appendix B.

## Basic Characteristics of TPAG Students

As illustrated by Figures 1 - 5, the typical Tech Prep in Agriculture Statewide Articulation Program student was a Caucasian male, age 16 to 18, who lived with two parents in a small town or rural environment.

As show by Figures 1 and 2, the strong majority of TPAG students were Caucasian males.

Figure 1.
The ethnic origin of 165 State of Washington TPAG Program students



| | |
|---|---|
| Other | 2.4% |
| Caribbean Islander | 0.0% |
| Mixed Ethnic Origin | 1.2% |
| Hispanic/Chicano | 2.4% |
| Black/African | 0.6% |
| White/Caucasian | 88.5% |
| Native American | 0.6% |
| Asian/Pacific Islander | 0.6% |

0.0%  10.0%  20.0%  30.0%  40.0%  50.0%  60.0%  70.0%  80.0%  90.0%
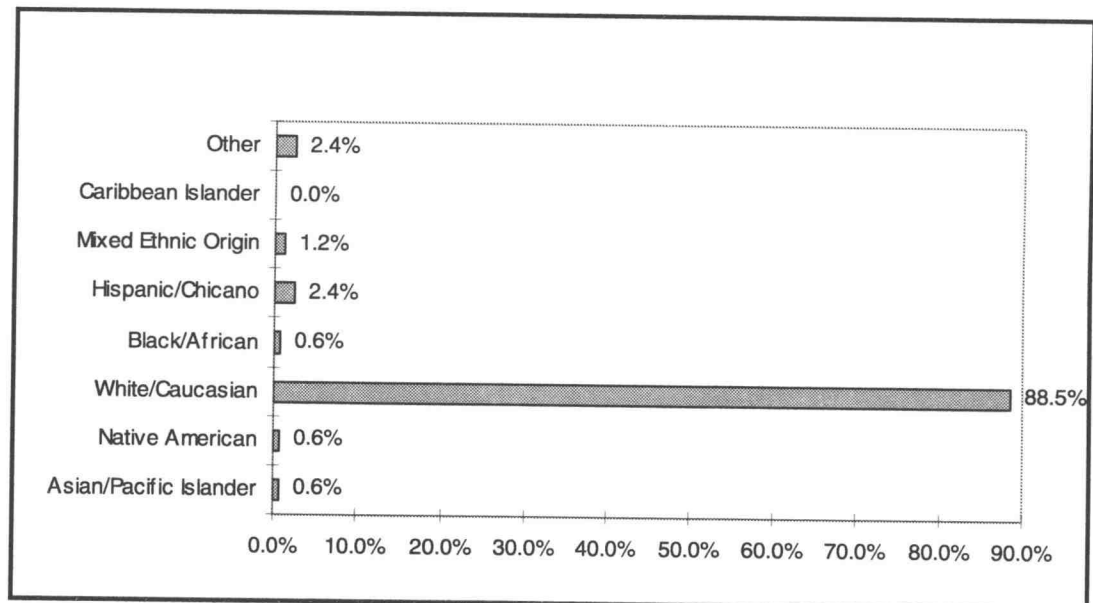
Figure 2.
The gender of 165 State of Washington TPAG Program students



Non-Respondents
2%

Female
24%

Male
74%
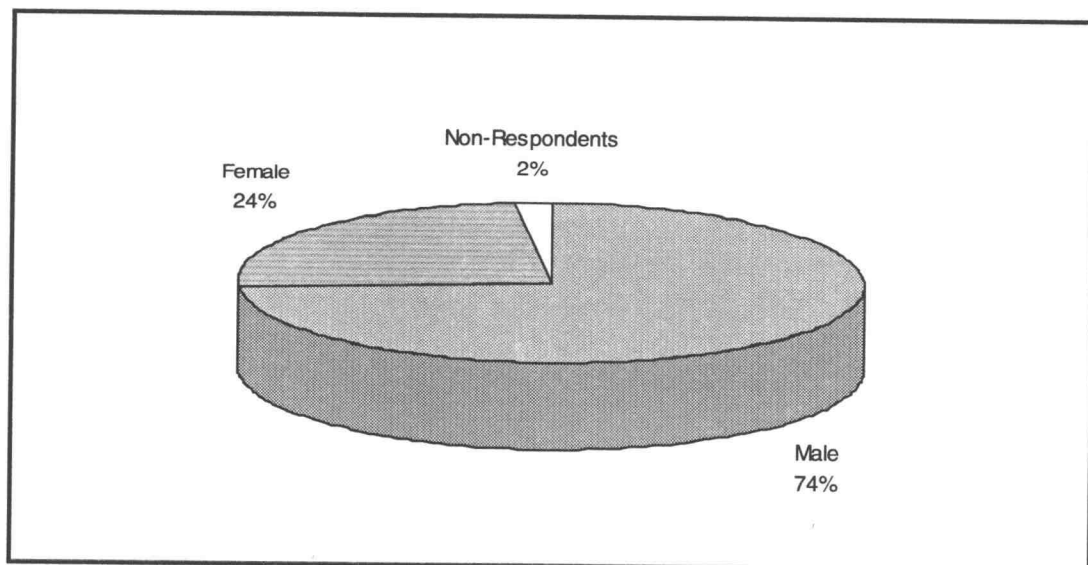
Figure 3.
The age of 165 State of Washington TPAG Program students
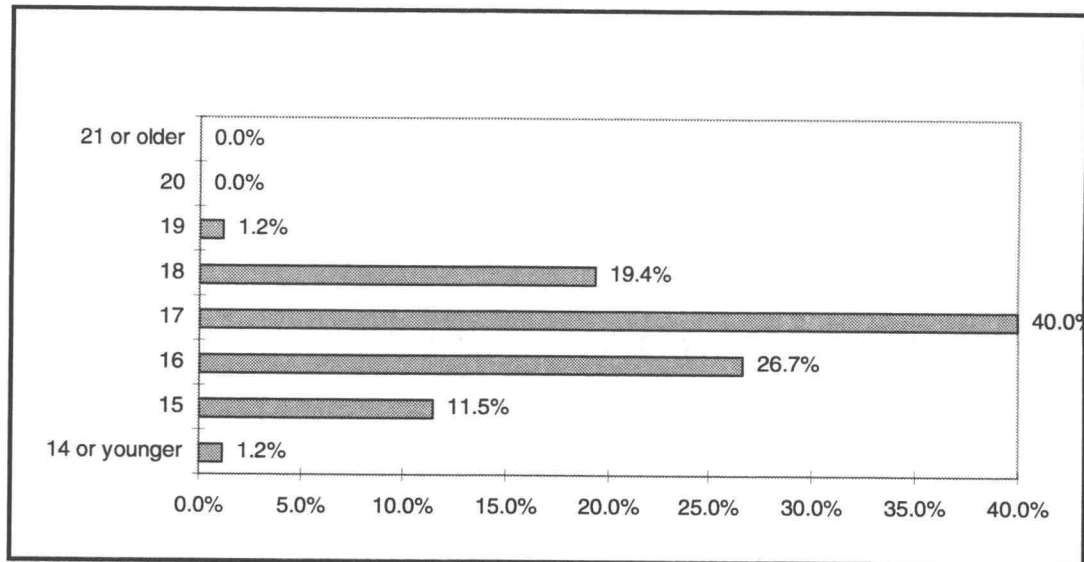


Figure 4.
With whom did 165 State of Washington TPAG Program students live?
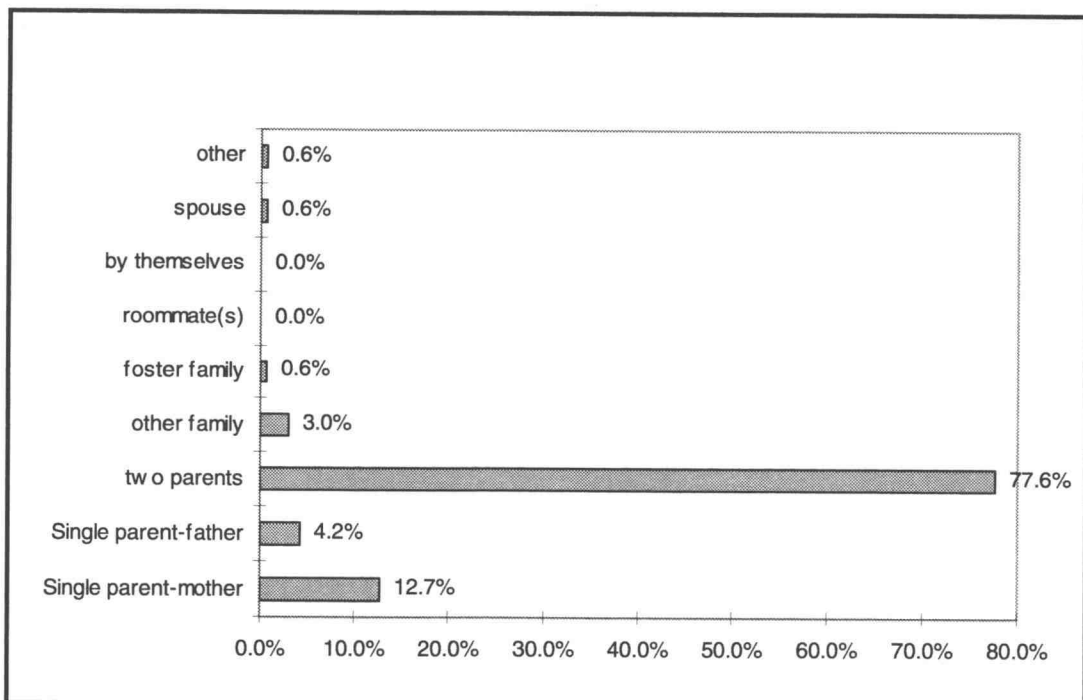
Figures 5.
In what environment did 165 State of Washington TPAG Program students live?
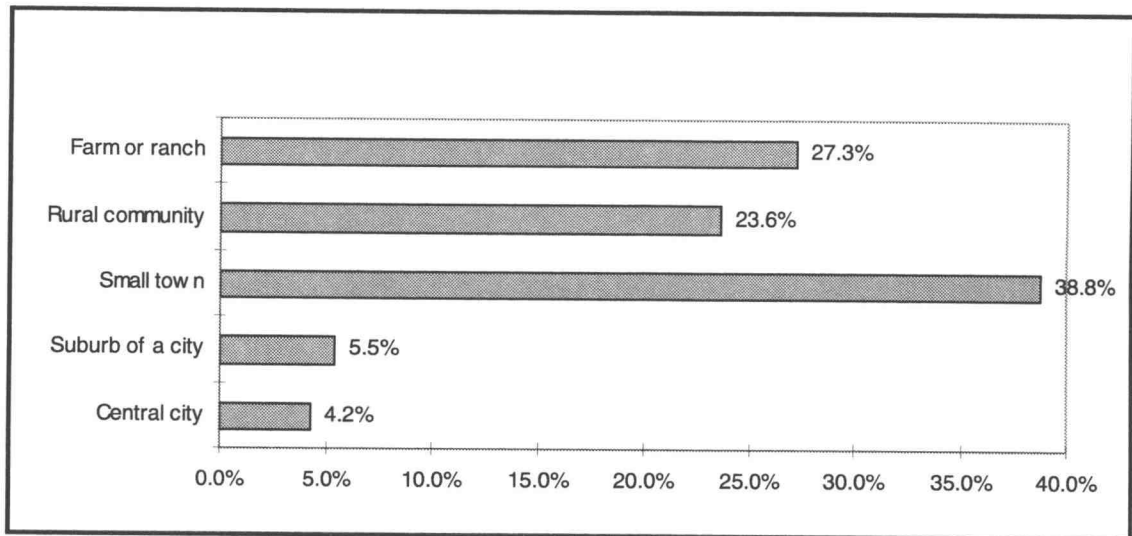


## Course Participation

Most of the participating high schools offered only one or two of the seven

TPAG Program courses available. Very few schools offered more than two. A number

of the schools participating in the forced response survey offered only the TPAG

Program Welding and Shop Fundamentals courses.

The proportion of female students who participated in the forced response

survey study ranged from zero to 55 percent at participating high schools. (Figure 2.)

The high school having 55 percent female participation offered the Agricultural Careers

and Orientation, and the AgriBusiness TPAG Program courses. Two of the high

schools that offered only the Welding and Shop Fundamentals TPAG Program courses

had zero participation by female students.

As illustrated by Figure 6, Welding and Shop Fundamentals showed the highest percentage of student participation in the TPAG Program.

Figure 6.
Participation of 165 State of Washington high school students in TPAG Program courses
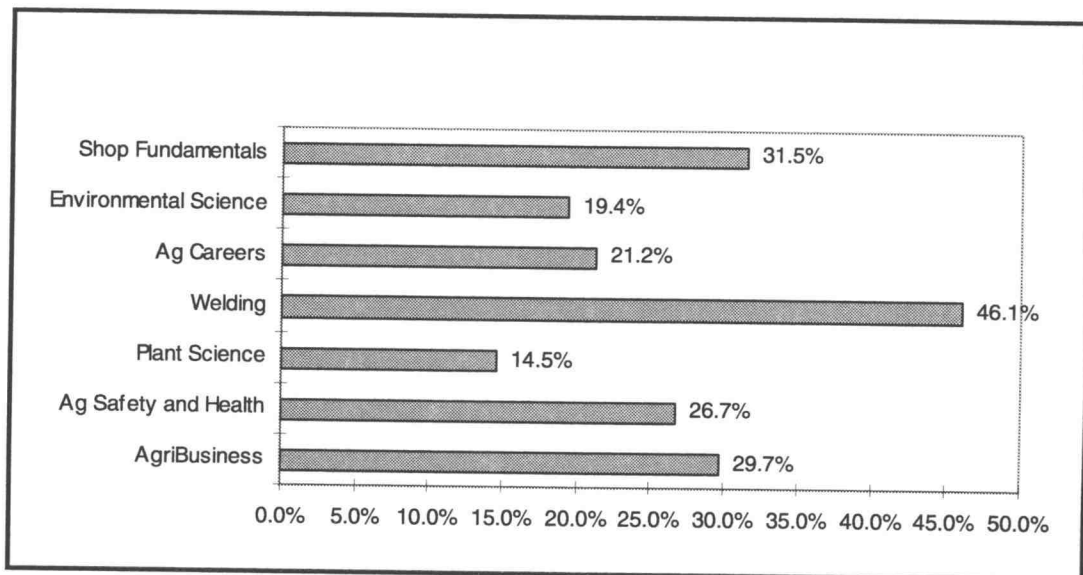
## Educational Characteristics

Student Grade Point Averages ranged from below 1.5 to 4.0 on a scale where an A is equal to 4.0. Nearly 60 percent of the students reported high school Grade Point Averages between 2.5 and 3.5. Approximately 16 percent reported a GPA of 2.0 to 2.49, with about 13 percent reporting a GPA of 3.5 to 4.0. About 5 percent of the students chose not to report their GPA.

Figure 7.
The Grade Point Averages of 165 State of Washington TPAG Program students
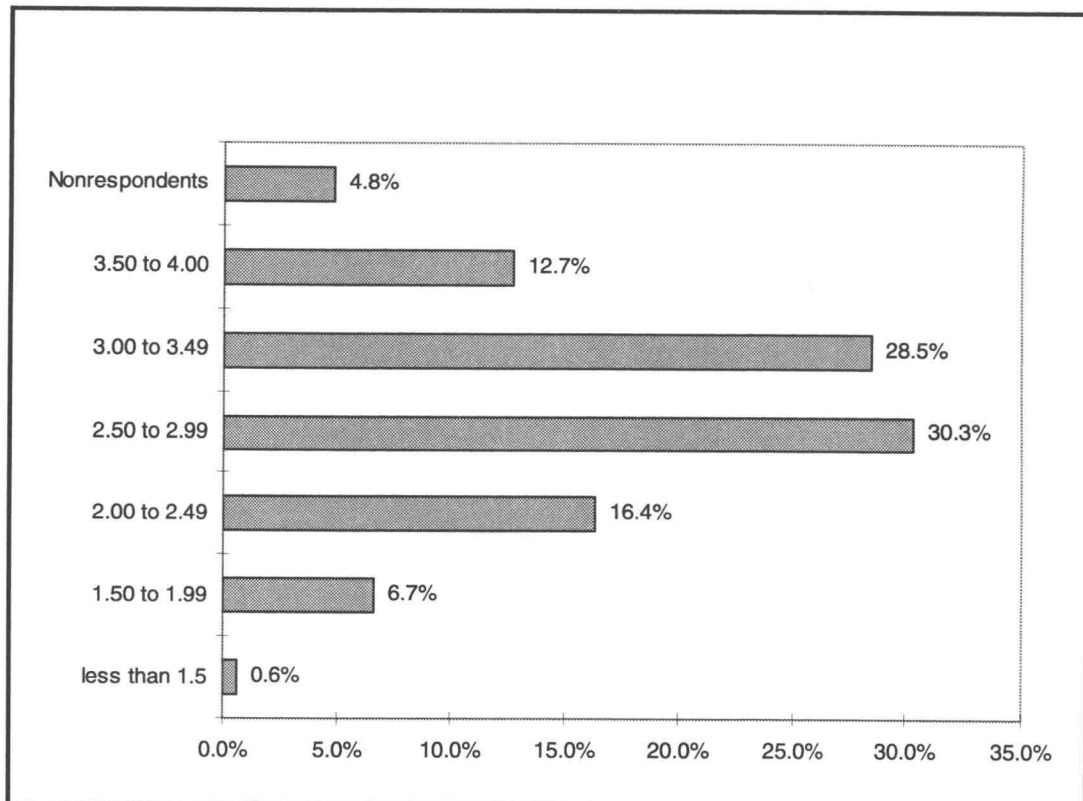
## Education: TPAG Program Student Aspirations and Family Backgrounds

The educational goals of TPAG Program students were diverse. The largest

concentration of students, only 25 percent, aspired to an Associate Degree. About 25

percent aspired to at least a baccalaureate degree. Less than 20 percent planned on

terminating their education with a high school diploma or less. About six percent

planned on entering an apprenticeship and about 11 percent planned on further training

through military or naval service. Nearly 20 percent were undecided. (These figures

totaled more than 100 percent to allow for multiple training options.) (Figure 8.)

Figure 8.
The educational aspirations of 165 State of Washington TPAG Program students
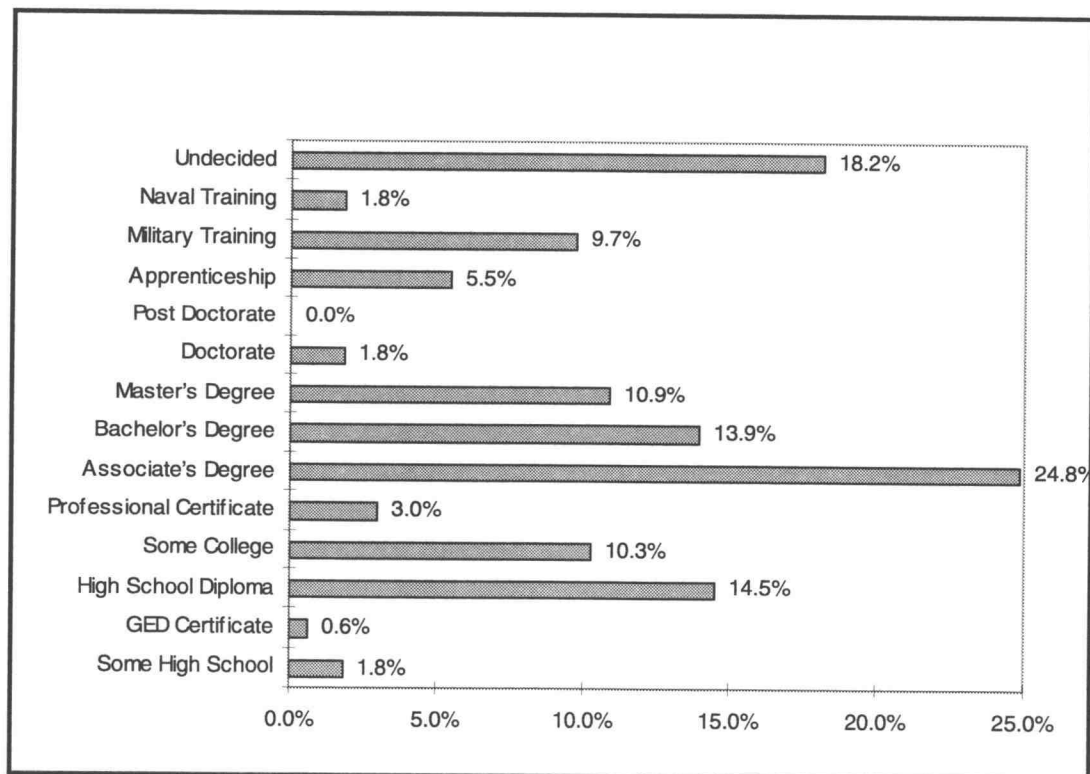
Demographic information on the parents of the TPAG Program students was intentionally limited. It was decided that information on family income, socio-economic status, and parental professions would not be collected because a number of the high school vocational agriculture teachers felt that the inclusion of these data would limit student participation due to parental sensitivities. Since most of the TPAG Program students were not of the age of majority parental permission was required for the students to participate in the study. (A copy of the Informed Consent form is included in Appendix B.) It was also the investigator's opinion that much of this type of data would be inaccurate because of Americans' tendency to classify themselves as middle class and because of the difficulty of quantifying family farm income.

However, data were collected on the educational level of the parents of TPAG Program students. Parental educational levels were very diverse. The most common educational background was a high school diploma. Nearly 30 percent of the mothers and just over 25 percent of the fathers had a high school diploma. The second most common educational experience of the parents was "some college". Nearly 20 percent of the mothers and about 15 percent of the fathers had had "some college". The third most common background was a bachelor's degree, with almost 15 percent of the mothers and about ten percent of the fathers having a bachelor's degree. (Figures 9 and 10.) On average it appeared that mothers had achieved a higher educational level than had fathers. Nearly 80 percent of mothers had completed high school and attended college, while just over 70 percent of the fathers had completed high school and attended college. However, while about six percent of the mothers had achieved a

master's or doctor's degree as their terminal degree, over eight percent of the fathers had

achieved a master's or doctor's degree as their terminal degree.

Figure 9.
The educational levels of the mothers of 165 State of Washington TPAG Program
students
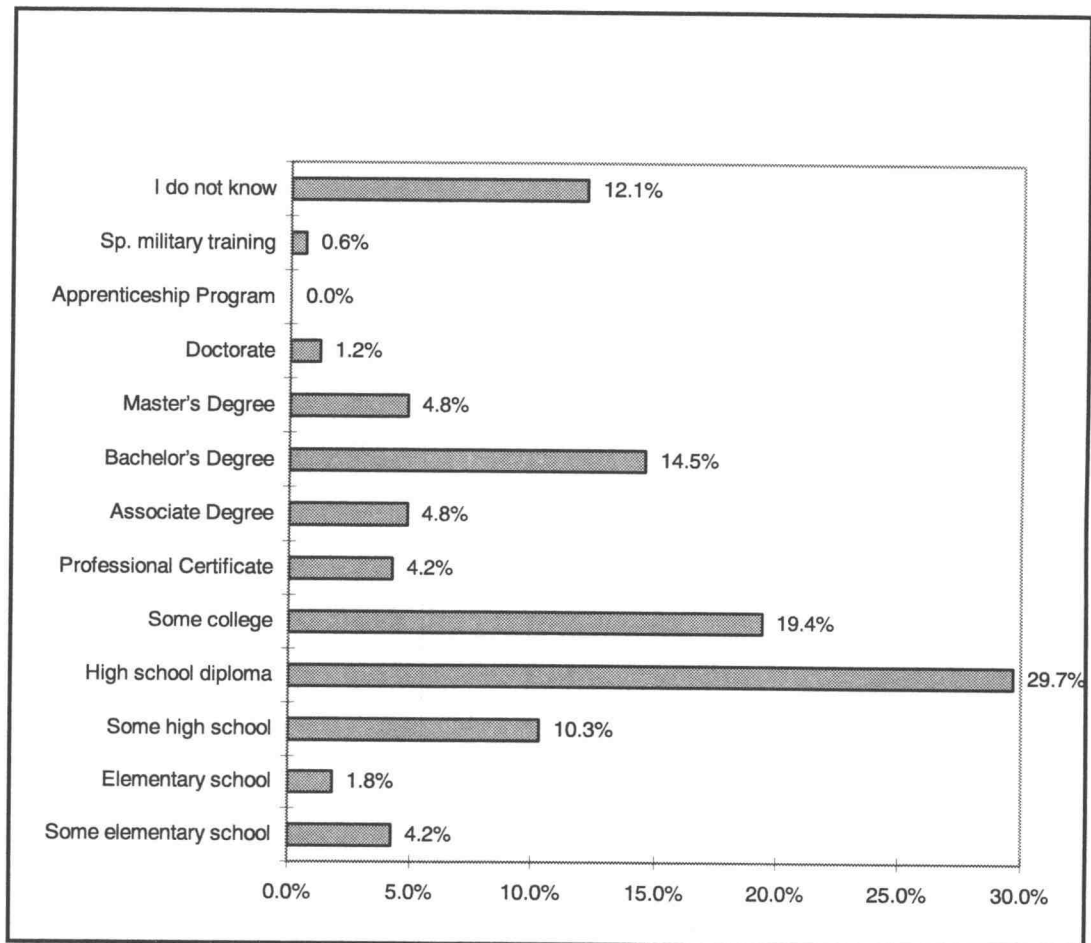
Figure 10.

The educational levels of the fathers of 165 State of Washington TPAG Program students
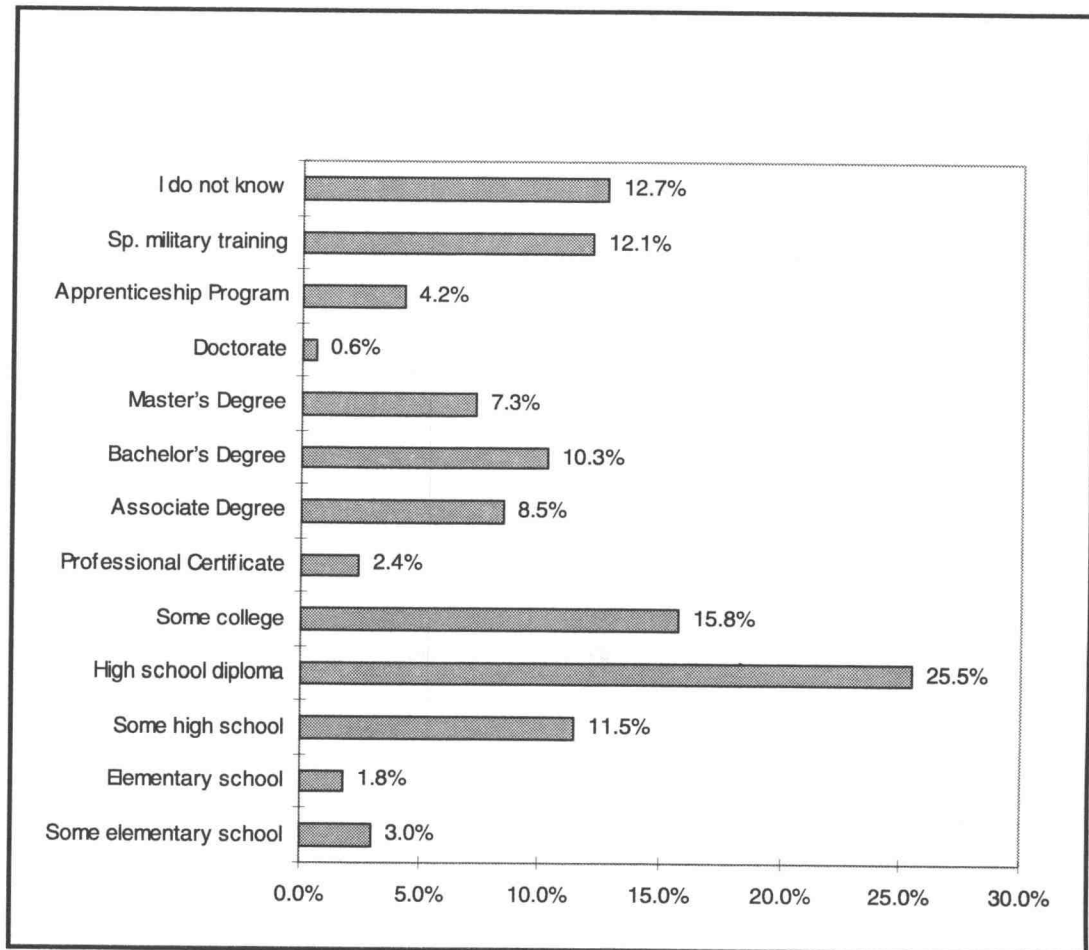


Students were also asked a series of questions about their educational plans and desires.

When asked what level of education they would aspire to if education were free and if they had the time to pursue education the TPAG Program students showed a strong propensity to seek a college education. Nearly 95 percent desired to attend college and complete a certificate or degree. Over 22 percent aspired to an associate's degree. In excess of 65 percent of the students would seek a bachelor's degree or higher. Almost 25 percent would prefer to achieve a doctorate. (Figure 11.)

Figure 11.
The uninhibited educational desires of 165 State of Washington TPAG Program students
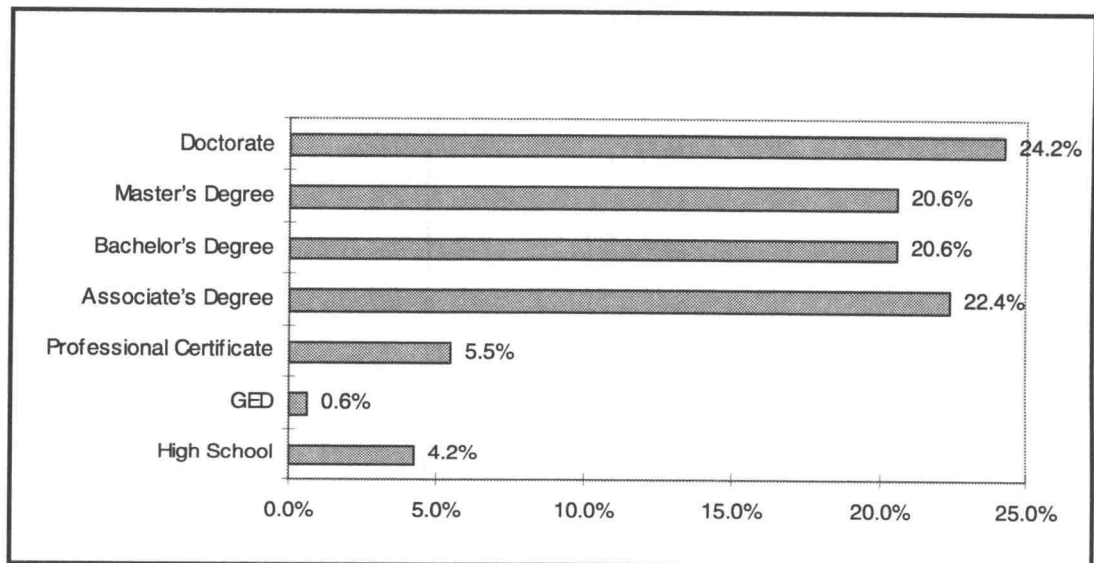
However, when students were asked what education the students needed to be successful in their careers and have a comfortable life style the profile changed dramatically. The point of concentration was at the associate's degree with nearly 35 percent of the students indicating that level of education. The next most popular level of education was the bachelor's degree with nearly 25 percent of the students indicating that level. (Figure 12.)

Figure 12.
<u>What level of education did 165 State of Washington TPAG Program students feel they needed to be successful and have a comfortable life style?</u>
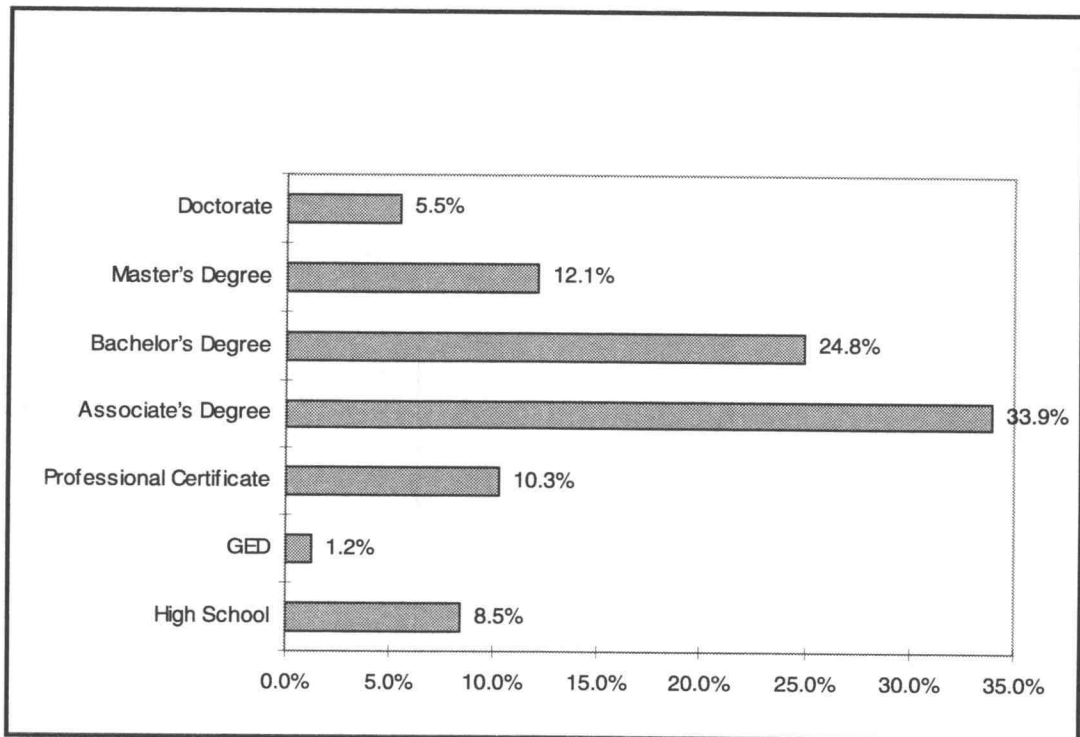
When the students were asked about their educational plans the profile of their responses closely resembled what they felt they needed to be successful and have a comfortable lifestyle. (Figure 13.)

Figure 13.
The educational goals of 165 State of Washington TPAG Program students
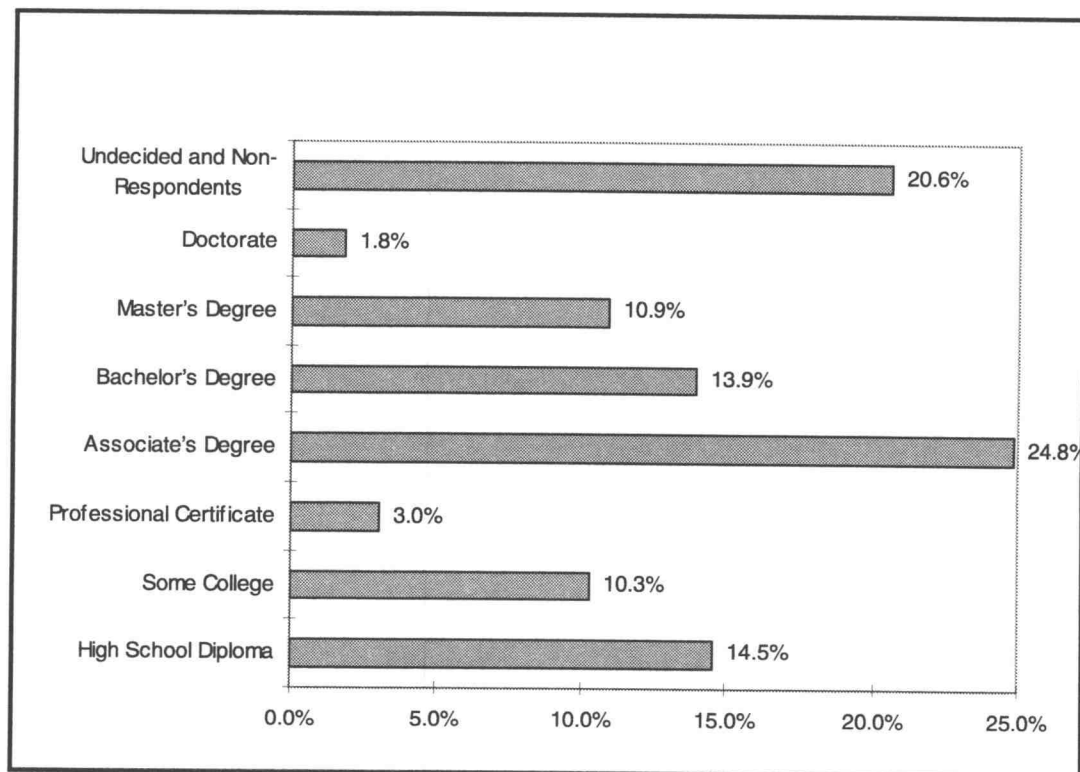
## Student Career Aspirations

Sixty percent of the studied students had selected a career field. (Figure 14.)
When the results are broken out by class standing, 63 percent of the seniors, 53 percent
of the juniors, 59 percent of the sophomores, and 44 percent of the freshmen had
selected a career field. The sub-population sizes (nine freshmen verses 81 seniors) limit
the inferences that may be drawn.

Figure 14.
What proportion of the 165 State of Washington TPAG Program students had made a
career selection?
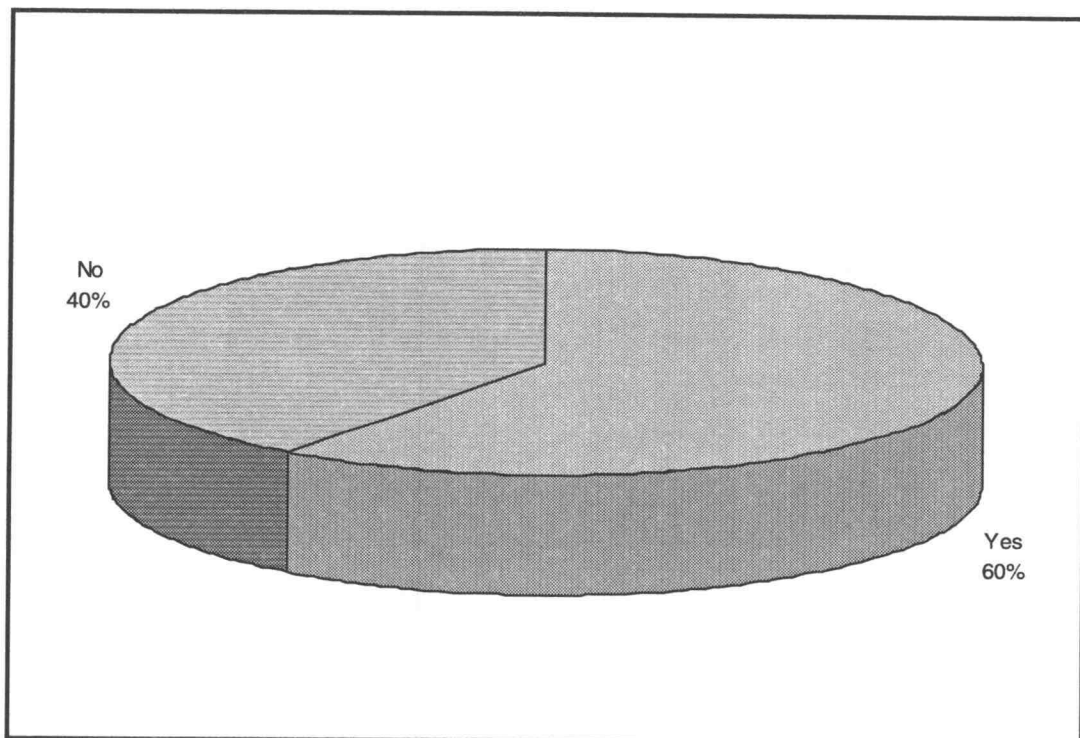
The careers selected by TPAG Program students were diverse and not limited to careers in production agriculture. Careers literally spanned the careers alphabet and ranged from accountant to x-ray technician. Careers in the "trades", such as carpenter and auto body repair, were represented. Students also stated they were aspiring to "professional" careers in fields such as medicine and education. (Table 2.)

TPAG Program students stated their career objectives in varying levels of specificity. For example, one student specified "automotive" as the student's are of interests. Three students specified " John Deere Technician" as their area of career interest.

Table 2
The career choices of 174 State of Washington TPAG Program students

| Career Choice | Number of Students |
| --- | --- |
| Accountant | 1 |
| AgriBusiness | 2 |
| Agriculture | 3 |
| Agricultural Sales and Service | 1 |
| Agricultural Marketing | 2 |
| Aluminum Boat Worker | 1 |
| Animal Trainer | 1 |
| Automotive | 1 |
| Auto Body | 1 |

Table 2 (continued)
The career choices of 174 State of Washington TPAG Program students

| Career Choice | Number of Students |
| --- | --- |
| Auto Wrecker | 1 |
| Business | 3 |
| Carpenter | 1 |
| Computers | 1 |
| Construction | 1 |
| Cosmetology | 2 |
| Counseling | 1 |
| Dietitian | 1 |
| Dirt Bike Racer | 1 |
| Doctor | 1 |
| Electrician | 4 |
| Electronics | 2 |
| Engineering, Agricultural | 1 |
| Farming | 5 |
| Farm Management | 1 |
| Fire Fighter | 3 |
| Forestry | 1 |
| Forester | 1 |
| Game Warden | 1 |

Table 2 (continued)
The career choices of 174 State of Washington TPAG Program students

| Career Choice | Number of Students |
|---|---|
| Heavy Machine Operator | 1 |
| Law Enforcement | 2 |
| Machinist | 2 |
| Marine Biology | 4 |
| Massage Therapy | 1 |
| Meat Cutter | 1 |
| Mechanic | |
| Auto | 6 |
| Diesel | 6 |
| Farm/Agriculture | 3 |
| General | 2 |
| John Deere Technician | 3 |
| Nursing | 2 |
| Paramedic | 1 |
| Powerline Person | 1 |
| Prison Guard | 1 |
| Psychology | |
| General Psychology | 2 |
| Criminal Psychology | 1 |

Table 2 (continued)

<u>The career choices of 174 State of Washington TPAG Program students</u>

| Career Choice | Number of Students |
|---|---|
| Ranching | 1 |
| Rodeo | 1 |
| Social Service | 1 |
| Sports Medicine | 1 |
| Teaching | 3 |
| Technology | 1 |
| Truck Driver | 1 |
| Turf Management | 1 |
| Veterinary Medicine | 4 |
| Vocational Agriculture Teacher | 2 |
| Water Technician | 1 |
| Washington State Ferries | 1 |
| Welder | 11 |
| X-Ray Technician | 1 |
| No Career Selected | 66 |

When the TPAG Program students were asked about their progress in making a career decision over 90 percent indicated that they were at least exploring career options, nearly 75 percent had at least defined an area of interest, and nearly 50 percent had formed an attachment to a specific career. Only four percent were not involved in making a career decision, and less than three percent chose not to respond to the question. (Figure 15.)

Figure 15.
The career certainty of 165 State of Washington TPAG Program students
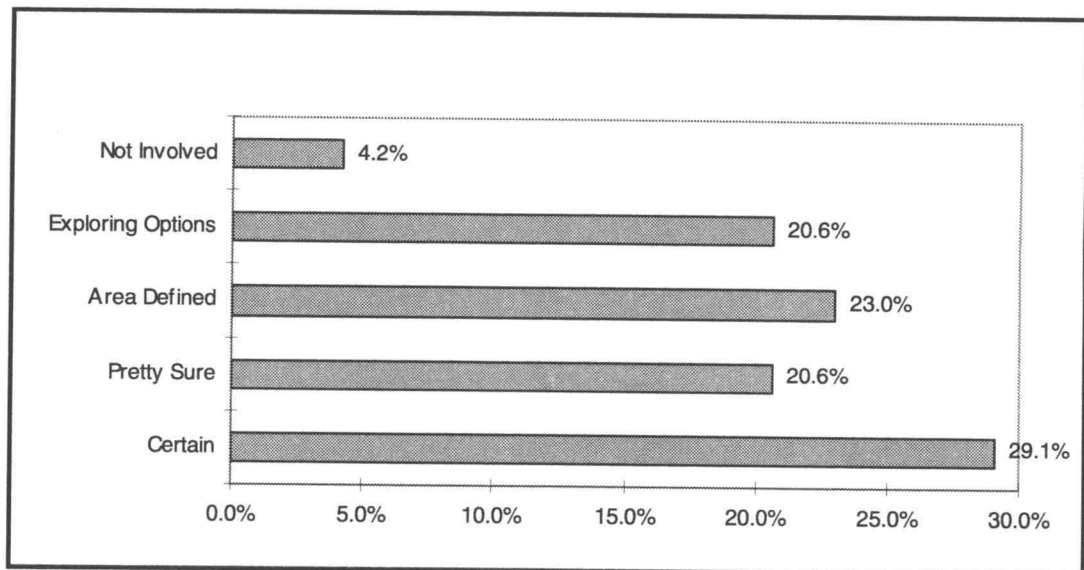
When the TPAG Program students were asked to describe how they felt about making a career decision nearly 30 percent replied that they felt ready to make a decision. About 40 percent felt that they had the choices narrowed down, and about 17 percent felt that they were ready to start exploring career options. Only about eight percent felt they were not ready to start career exploration and less than four percent chose not to respond to the question. (Figure 16.)

Figure 16.
The self perceived readiness of 165 State of Washington TPAG Program students to make career decisions
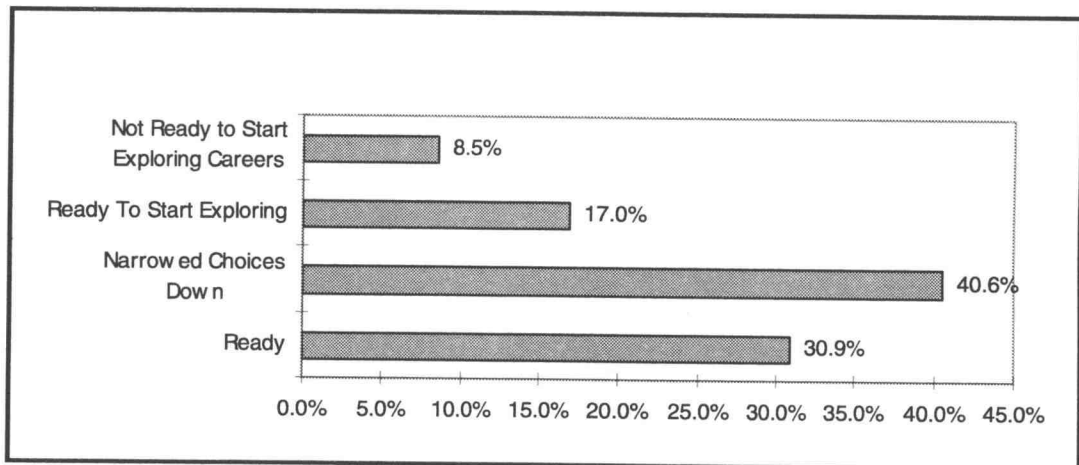


The consistency between how the students described their career certainty and their readiness to make career decisions was considered a favorable indication that the students were thoughtful and consistent in their responses to the forced response survey.

## Student Grade Status

One of the requirements for the students to claim community college or technical college credit for the TPAG Program courses completed at the student's high school was that the course must be completed during the student's junior or senior year in high school. The TPAG Program encourages the high schools to integrate the TPAG competency based courses into the existing high school curriculum. This is especially critical for small rural schools that do not have the resources or student numbers to create new courses or special sections of existing courses in order to accommodate programs such as Tech Prep in Agriculture. In some cases this means that the TPAG Program courses were integrated into four year vocational agriculture education programs that started in the ninth grade. It was considered critical to the success of the TPAG Program that juniors and seniors represent the strong majority of the students.

About 82 percent of the students reported their academic status as juniors and

seniors, with about 13 percent claiming sophomore status and only 6 percent claiming

freshman status. (Figure 17.)

Figure 17.
Academic grade status of 165 State of Washington TPAG Program students
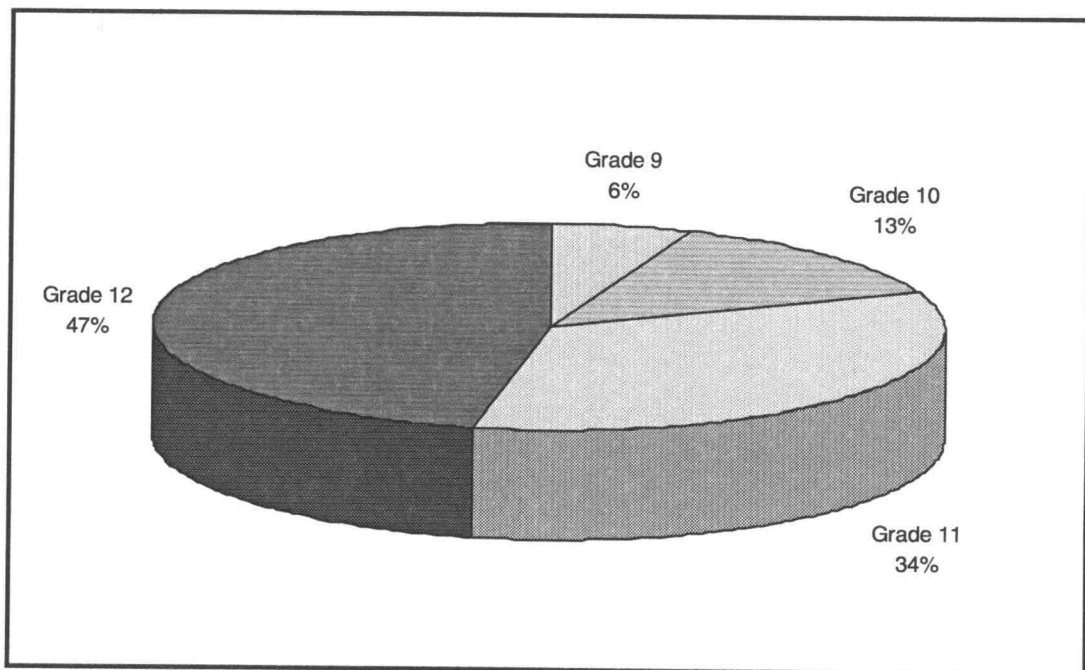
## Student Extracurricular Activities

The TPAG Program students were involved in a wide variety of extra curricular activities, including work. Over 90 percent of the students were involved in at least one non-work extra curricular activity. The leading non-work extra curricular activity was sports at nearly 50 percent, followed by service clubs and church activities with between 20 and 25 percent each. (Figure 18.)

Figure 18.
Participation in non-work extra curricular activities by 165 State of Washington TPAG Program students
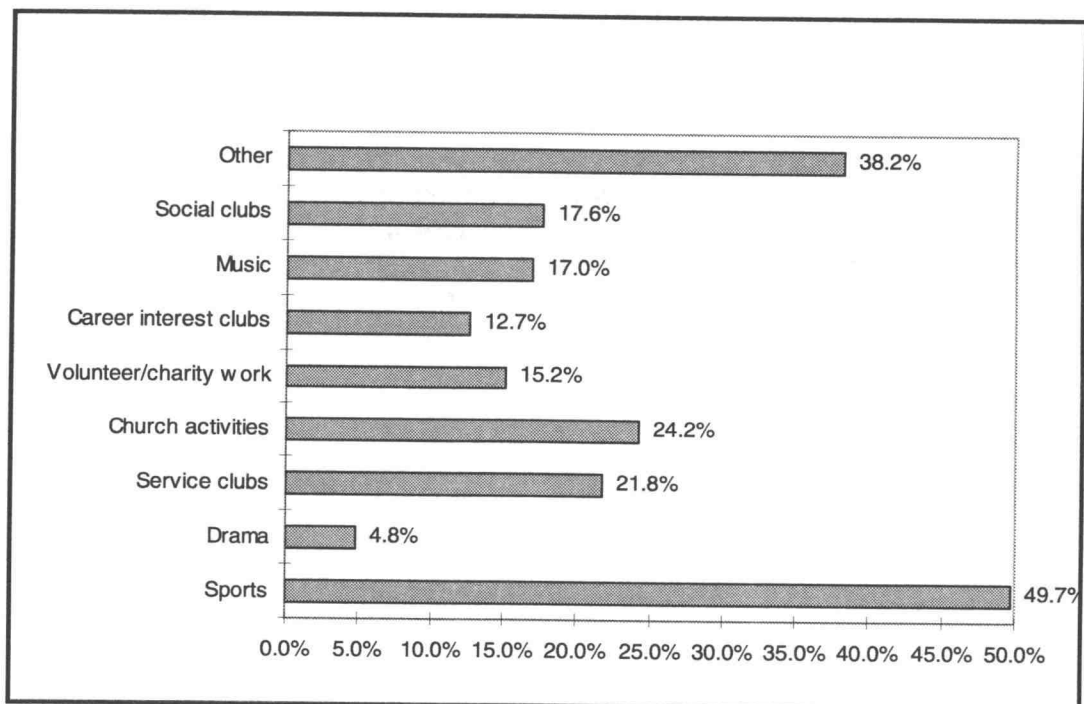
Slightly less than ten percent of the TPAG Program students did not participate in non-work extra curricular activities. Nearly 60 percent participated in one or two activities, while 17 percent participated in three activities, and 15 percent participated in four or more activities. The survey did not restrict the activities to school related programs. As noted above, nearly 25 percent of the students were active in church related activities. (Figure 19.)

Figure 19.
Participation of 165 State of Washington TPAG Program students in non-work extra curricular activities
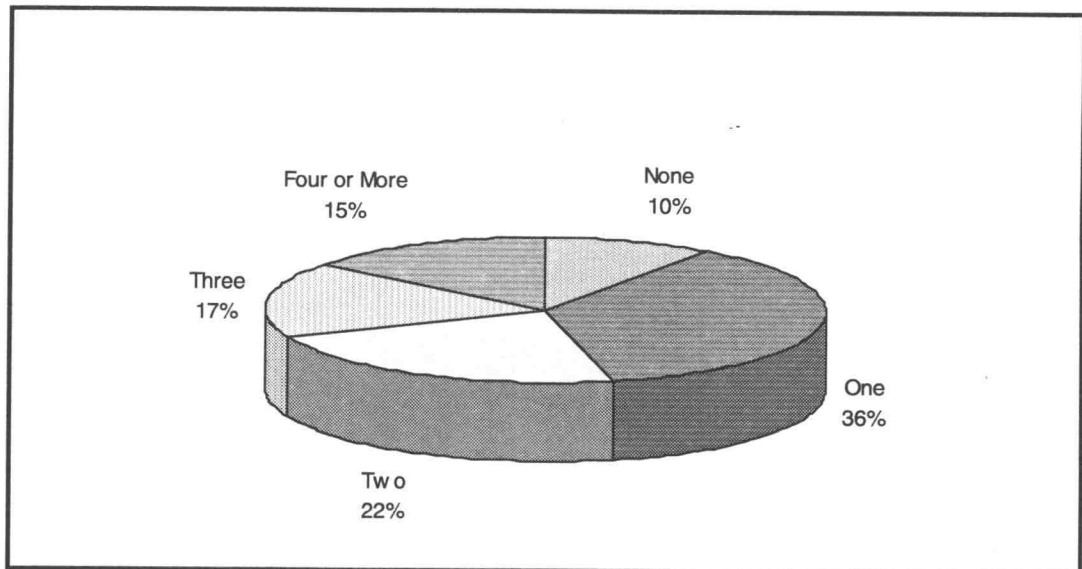
## Student Employment

Over 80 percent of the students responding were employed. Work loads varied from under ten hours per week to over 40 hours per week during the school year. Over 50 percent of the students worked 20 hours per week or less, about 25 percent worked in excess of 20 hours per week, and under ten percent reported working in excess of 30 hours per week. (Figure 20.)

Figure 20.
Employment during the school year of 165 State of Washington TPAG Program students (hours worked per week)
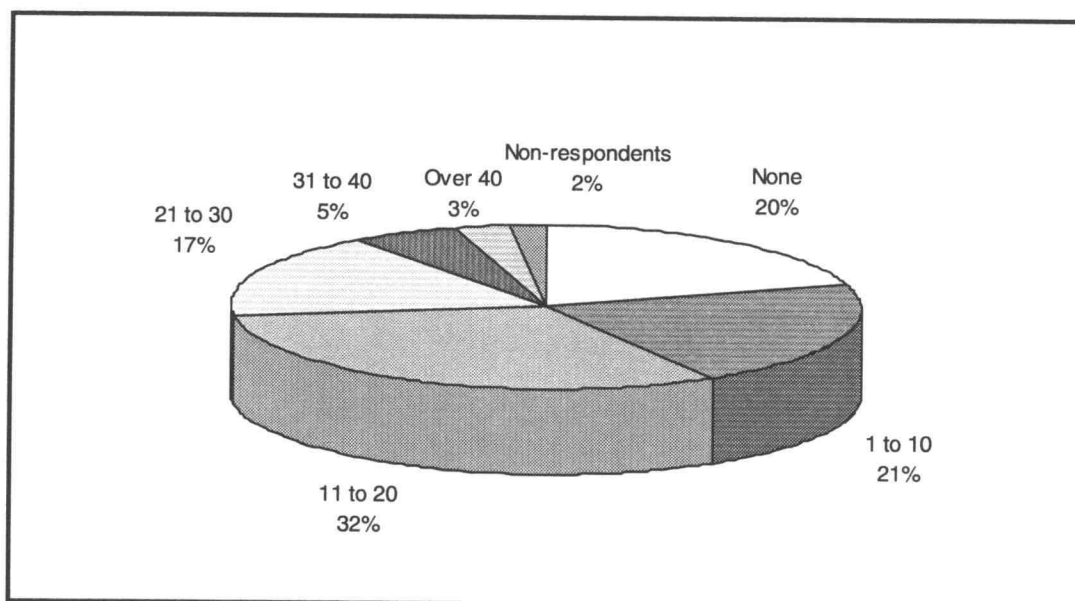
However, while 80 percent of the TPAG Program students were employed during the school year, less than 25 percent reported that their work was related to their career objectives. (Figure 21.)

Figure 21.
<u>Did the 165 State of Washington TPAG Program students work in fields related to their career plans?</u>
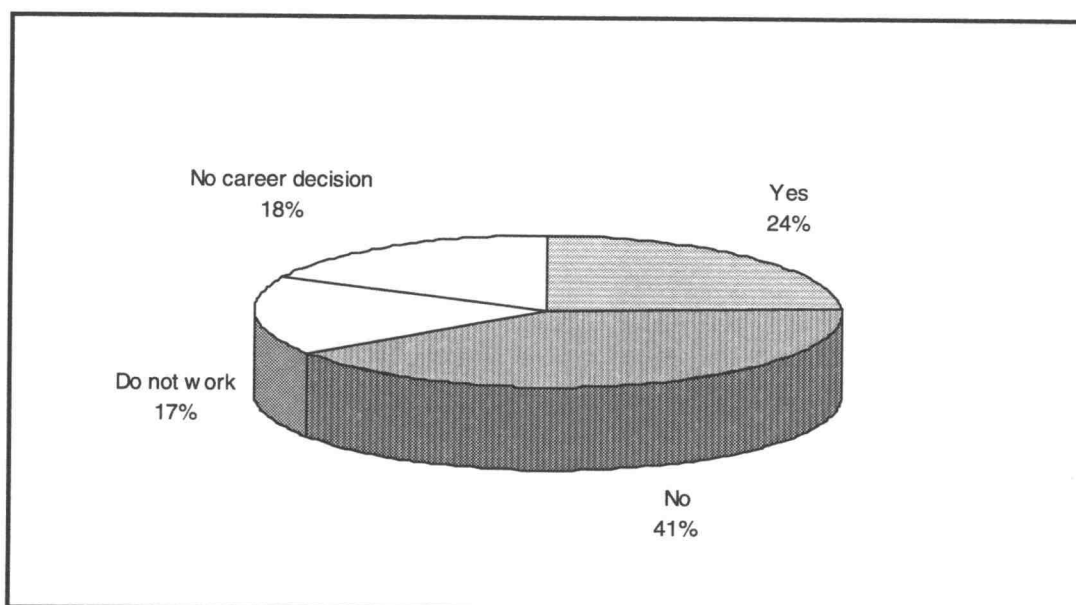
## Student Migration Into The TPAG Program

How TPAG Program students entered the program was addressed by a series of questions. Over 75 percent of the students stated that their agriculture teacher interested them in the TPAG Program. Parents were mentioned ten percent of the time as the persons who interested the students in the program. Siblings, who the preliminary interview students mentioned as a significant influence, were mentioned less than seven percent of the time. (Figure 22.)

Figure 22.
<u>Who interested the 165 State of Washington students in the TPAG Program?</u>
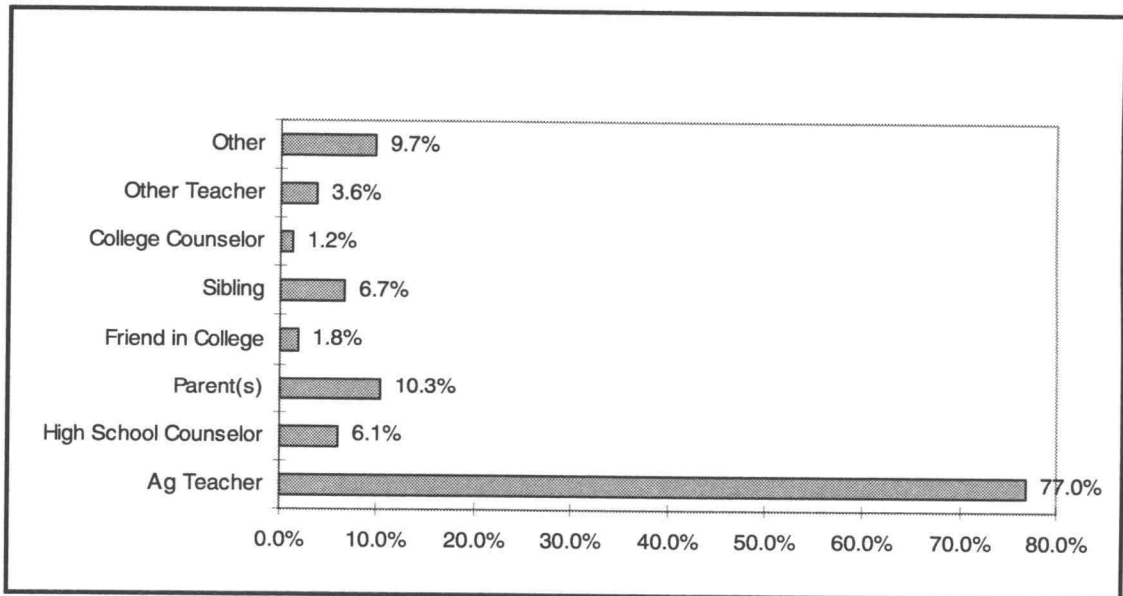
Approximately 70 percent of the TPAG Program students were members of their high school FFA Chapter. Almost 45 percent participated in chapter competitions. Nearly 36 percent participated in district competitions and nearly 30 percent advanced to participate in state contests. A little over four percent went on to participate in the national FFA competitions. (Figure 23.)

Figure 23.
What was the involvement of 165 State of Washington TPAG Program students in the FFA program at their high school?
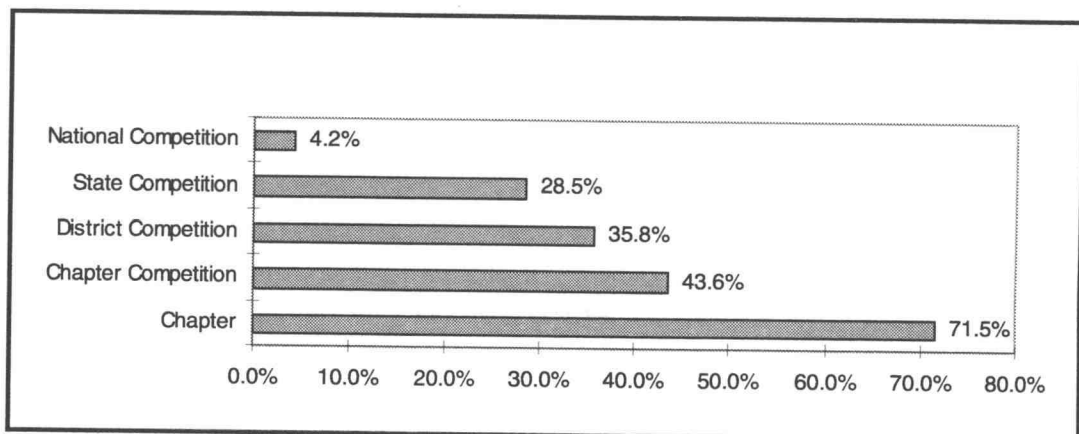
Who or what controlled students' migration into the TPAG Program was also investigated. The survey instrument attempted to address the subtle difference between who influenced the students' choice to participate in the program and who the student perceived as making the decision that the student would participate in the program. Over 60 percent of the students stated that it was their decision to participate in the TPAG Program. Almost ten percent of the students said it was a counselor's decision to place them in the TPAG Program and nearly five percent attributed the decision to their parents. Three percent of the students felt it was an accident that they ended up in the program. A little over 30 percent of the students felt that the TPAG Program was a natural extension of the secondary agriculture education program. (Figure 24.)

Figure 24.
How did the 165 State of Washington students become involved in the TPAG Program?
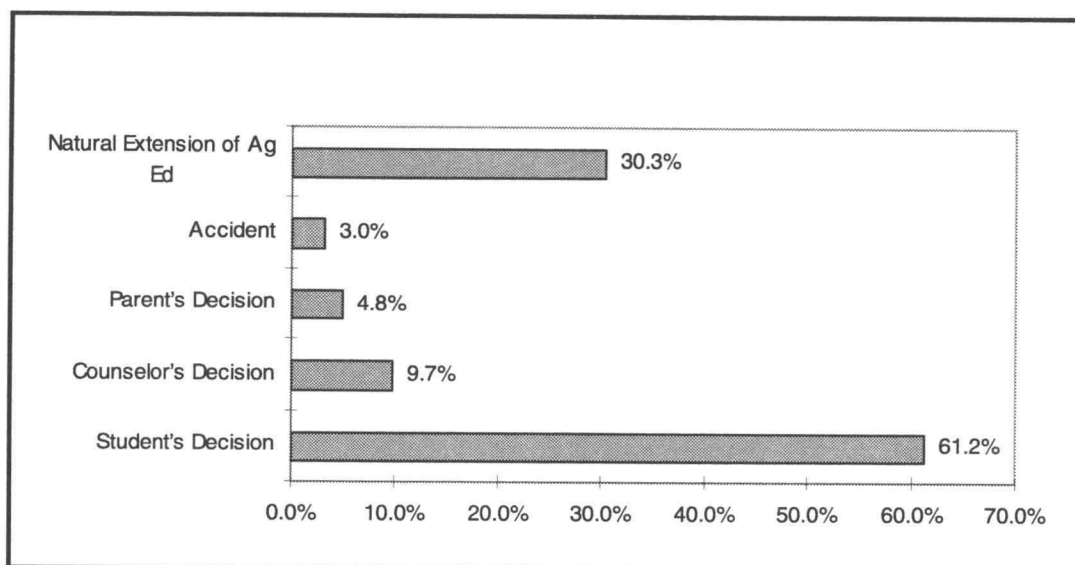
When students were asked to specify how long they had been involved in the TPAG Program almost 12 percent indicated three years. This was not possible since the TPAG Program was only in its second year of existence. (Figure 26.) Through the preliminary interviews and the administration of the pilot survey instrument, to administration the forced response survey instrument to the two test classes students exhibited a persistent confusion between the TPAG Program and the FFA Program. Evidence of this confusion also was found in student responses to questions about which TPAG Program courses students were engaged in. TPAG Program students at some participating high schools indicated that they were taking TPAG Program courses that their high school were not offering.

Figure 25.
How long had the 165 State of Washington students been involved in the TPAG Program?
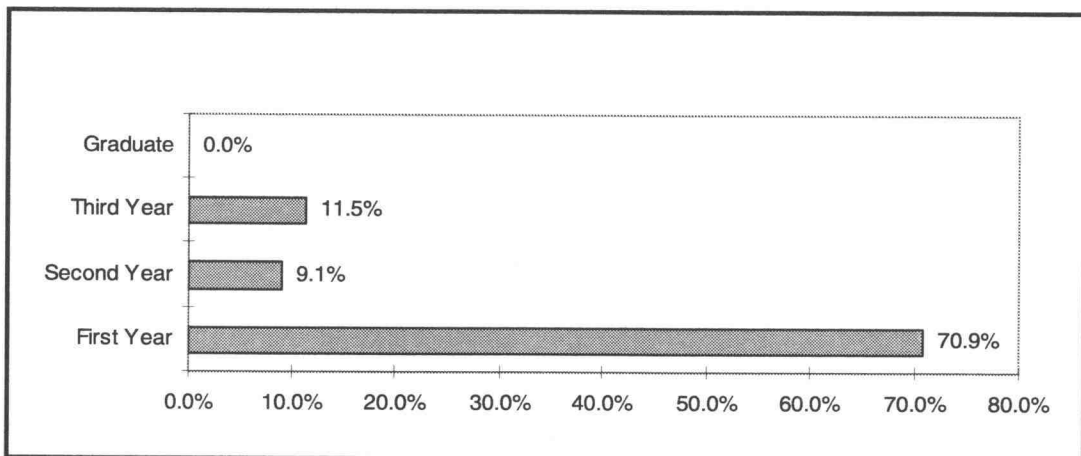
## Student Perceptions

Students' perceptions of reality influence the students' actions. Thus, an investigation to determine the students' perceptions of certain factors was attempted.

### Learning Style and Learning Preferences

For the purpose of planning the TPAG Program and curriculum some of the most important inquiries concerned student perceptions of their learning styles and learning preferences. The TPAG Program students were asked to specify how they felt they learned best. The students were asked to select up to two items from a list of four learning styles. The titles for the learning styles were put in language that would be familiar to the students, rather than educational jargon.

Over 80 percent of the TPAG Program students identified themselves as learning best from "doing", while over 40 percent identified themselves as learning best from "seeing". Only ten percent identified themselves as learning best from "reading" and less than ten percent identified themselves as learning best from "hearing". (Figure 26.)

Figure 26.
How did 165 State of Washington TPAG Program students feel that they learned best?
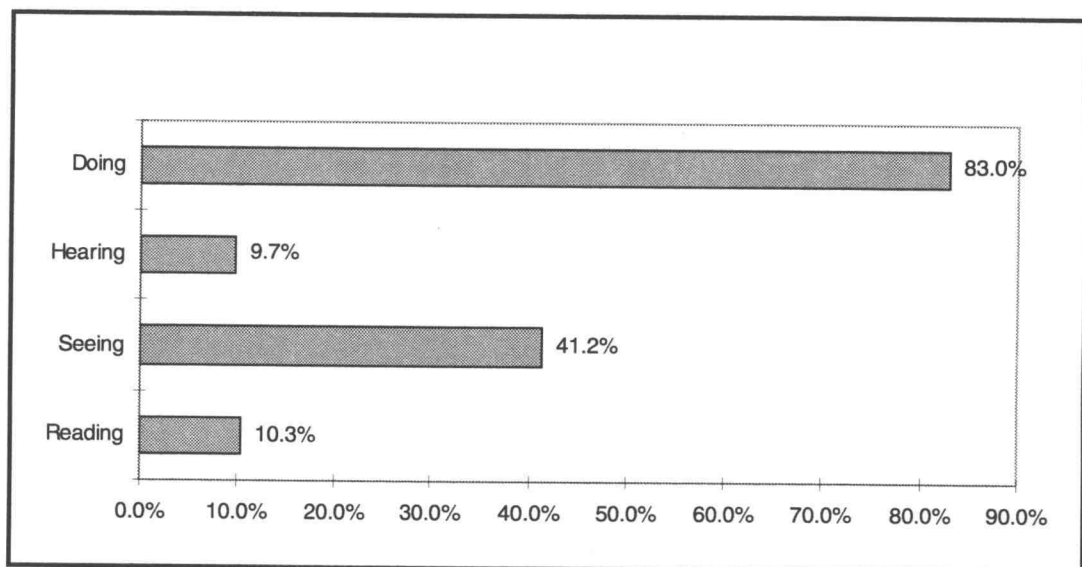
When asked what they liked learning about, students showed a definite distaste for learning about artificial problems, abstract theory, applications of theory, and working strictly with the mind. They preferred to learn about working with their hands and mind together, their hands, about real problems, and about technology. (Figure 27.)

Figure 27.
<u>What did the 165 State of Washington TPAG Program students like learning about?</u>
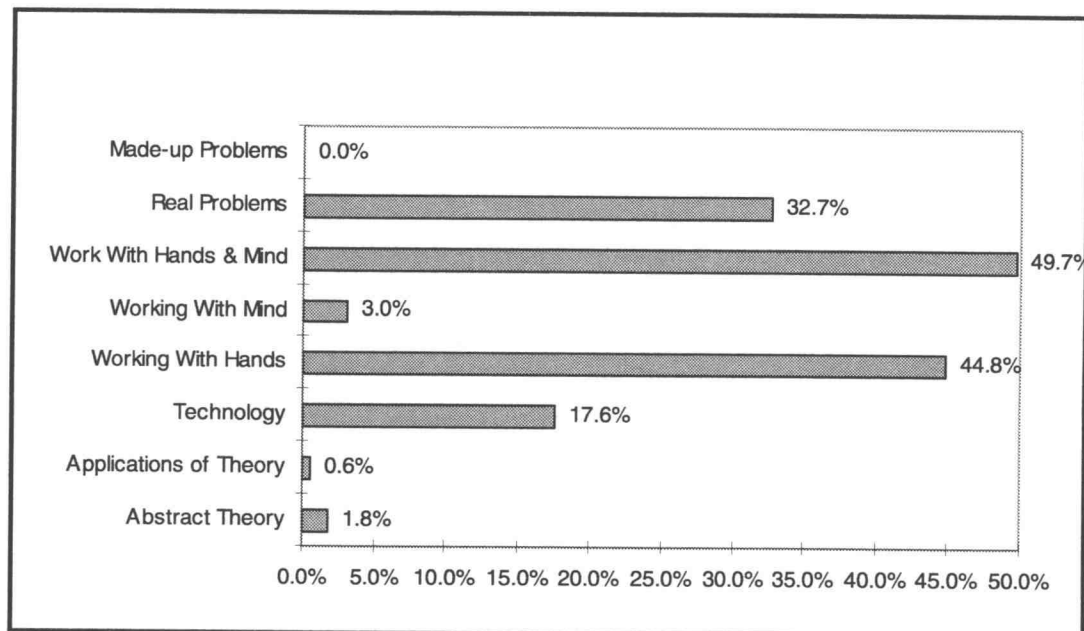
**How Students Felt About The Future**

When asked about how they felt about their future nearly 80 percent of the student respondents had a positive outlook.

When asked about how they felt about their education beyond high school about 45 percent of the TPAG Program students felt good and about 35 percent felt "OK". Only 13 percent expressed concern, with less than one percent stating they felt depressed, and about five percent said they didn't think about it. (Figure 28.)

Figure 28.
How did 165 State of Washington TPAG Program students feel about education beyond high school?
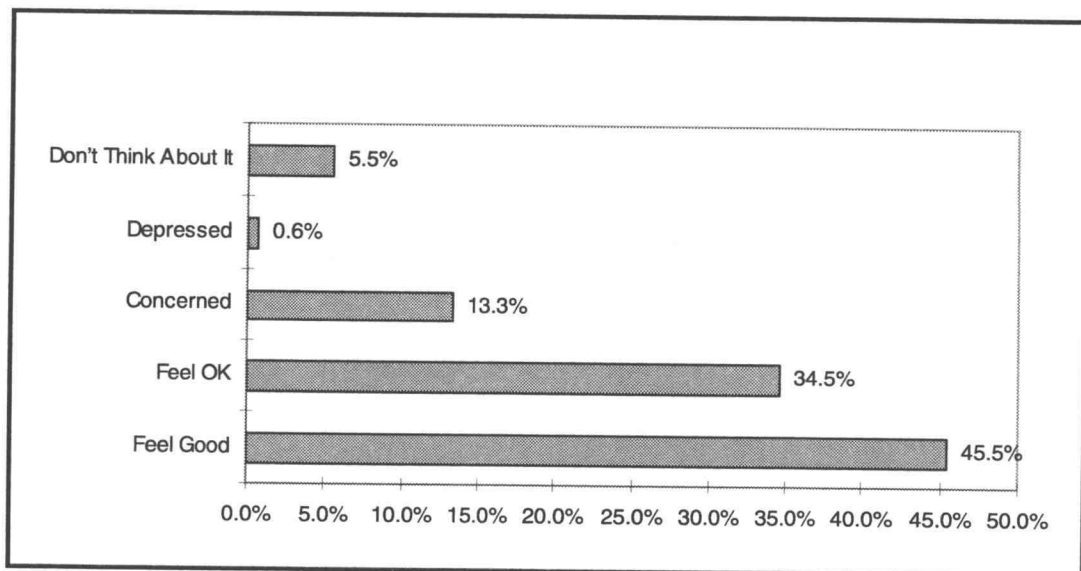
When asked about how they felt about finishing school and going to work nearly 45 percent stated they felt good and just over 33 percent stated they felt "OK". Only 12 percent felt they were concerned and three percent indicated they felt depressed. About five percent of the students indicated that they didn't think about finishing school and going to work. (Figure 29)

Figure 29.
How did 165 State of Washington TPAG Program students feel about finishing school and going to work?
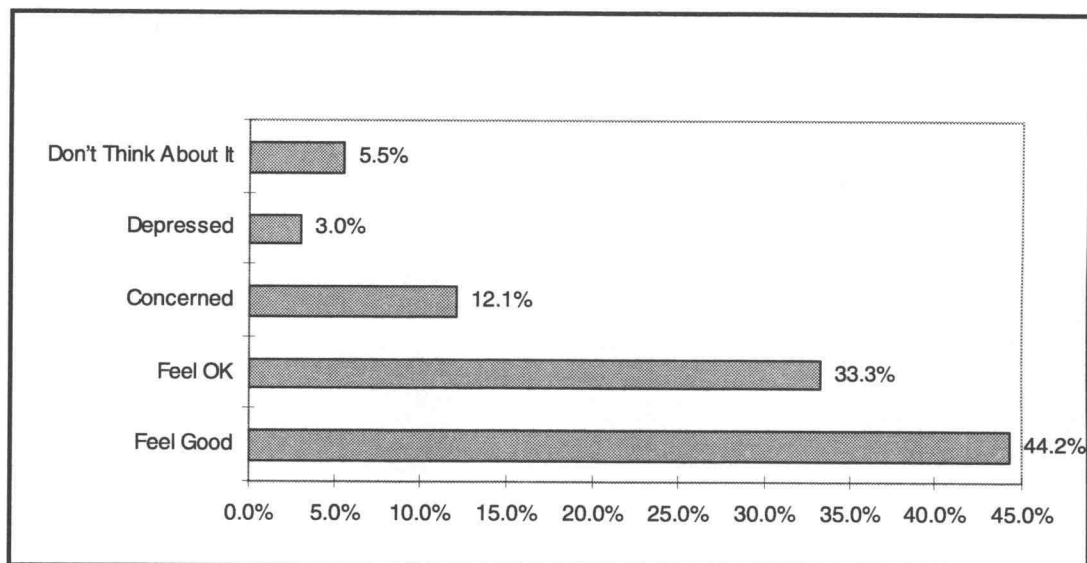
**Student Feelings About Career Selection**

When students were asked to indicate the locus of control over their career choices over 80 percent indicated that they felt their career selection was their decision. Nearly 16 percent felt that teachers were dictating their career choices and just over four percent felt that they were following their parents' career choice. The same survey question also asked if the students felt they had many good career choices or no good career choices. Over 60 percent felt that they had many good career choices and under four percent felt that they had no good career options. (It is felt that combining these two items in one question was not a good option. In future work these two inquires will be separated into two distinct questions.) (Figure 30.)

Figure 30
How did 165 State of Washington TPAG Program students feel about their career decisions and choices?
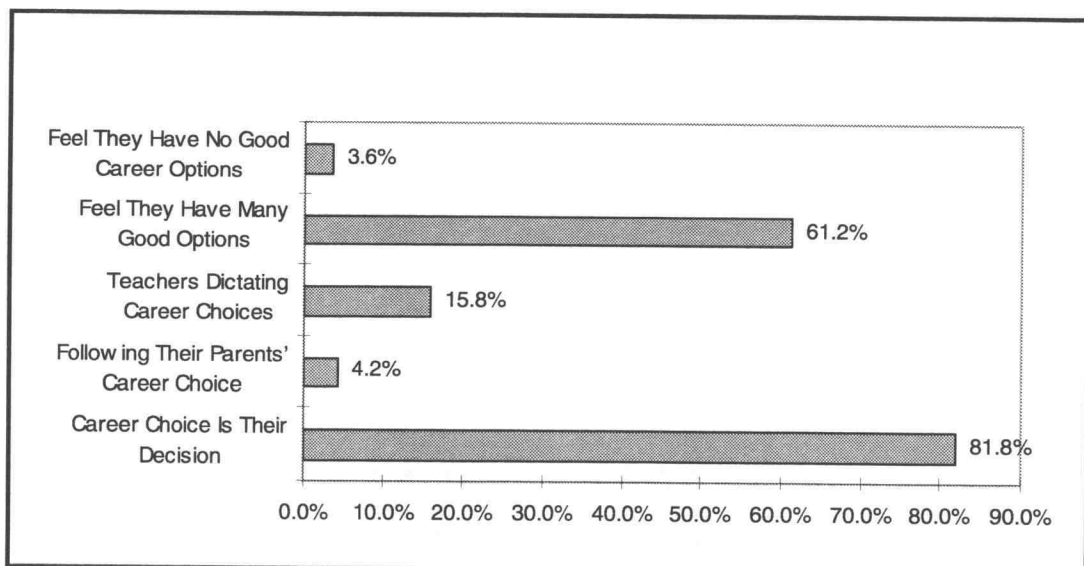
**Student Feelings About Career Counseling at Their High School**

TPAG Program students described career counseling and exploration resources at their high schools as mixed. Only about 46 percent described their high school as having provided a full program. Nearly 68 percent stated that at least one class provided a meaningful experience, while just over 32 percent described their guidance and exploration experience as superficial. Nearly 50 percent stated that their high school had resources available, while nearly five percent stated that their high school had no meaningful career counseling and exploration resources available. (Figure 31.)

Figure 31.
How did 165 State of Washington TPAG Program students describe career counseling and exploration resources at their high schools?
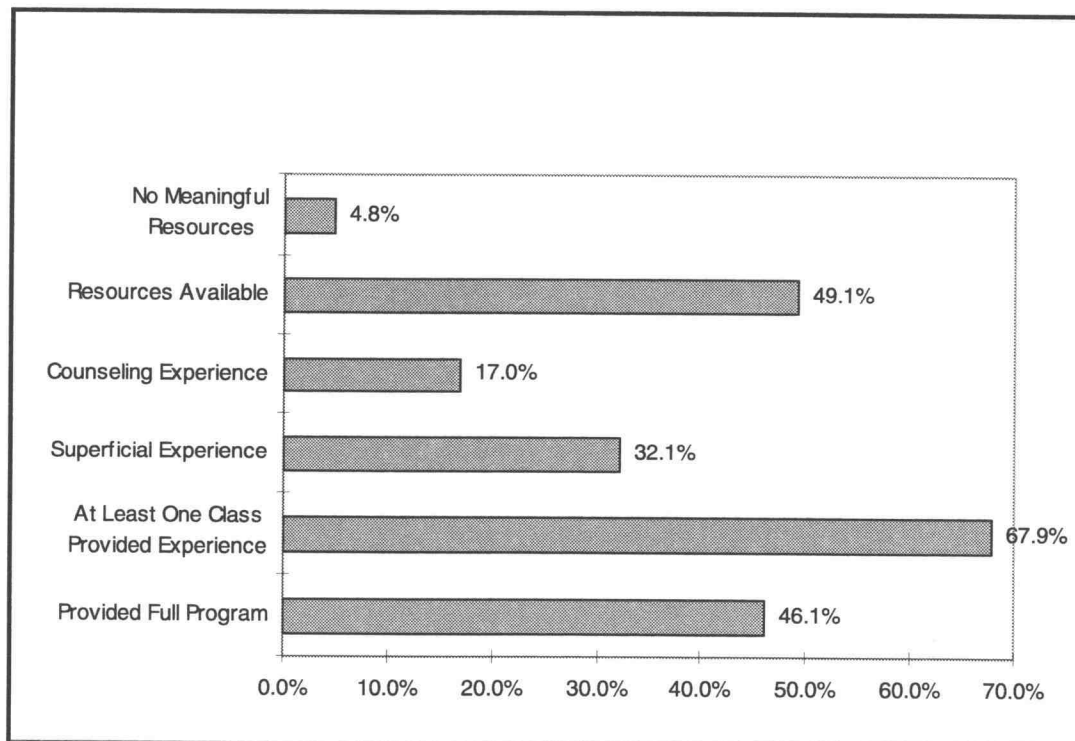
There appears to have been a great deal of variation in how students saw the availability of career counseling and exploration resources at their high schools. Furthermore, the differences were not necessarily between schools. Students who shared at least one class in common at the same high school had varying perceptions on what career counseling and exploration resources were available to them. During the preliminary student interviews this same phenomena was observed and the students were asked about it. The students who were involved in the preliminary interviews indicated that at their high school the agriculture instructor and one English teacher provided a meaningful career counseling and exploration experience. The students indicated that the school had a computer with a career exploration software package located in their library, but that they had not been trained in how to use the software, nor were teachers and counselors available to help them interpret the results. The students who were interviewed indicated that they were very pleased with the TPAG Program Agriculture Careers and Orientation course they had participated in, but they were very concerned about the lack of a meaningful career counseling and exploration experience for their peers.

## Who Do Students Trust To Give Good Advice On Careers and Education?

Students were asked to classify different groups of individuals as potential sources of information. The studied students rated the sources of information as very helpful, helpful, no value, or misleading. To rank the sources of information each response was given a numerical value. Very helpful had a value of 3, helpful had a value of 2, no value had a value of 1, and misleading had a value of 0. When the average rating was calculated by dividing the sum of the individual ratings by the number of students who responded for each source of information the scores ranged from a high of 2.29 for parents, 2.25 for high school teachers, and 2.24 for young men and women in the student's career field to a low of .88 for politicians and .87 for media journalists. The decline in value of the information was relatively gradual until the list reached politicians. At that point it dropped from 1.42 for Corporate Executives to .88 for politicians. (Table 3.)

Figures 55 through 75 (Appendix C) provide a graphic view of the data by individual advisor group. These graphs may be reviewed to gain a fuller understanding of the studied students' responses. To assist with understanding these data Table 3. includes a reference to the corresponding figure number and the page number for the figure.

Table 3.
Scalar representation of how 165 State of Washington TPAG Program students rated classes of individuals as sources of information about careers and career training

| Class of Advisor | Average Score | Figure/Page |
|---|---|---|
| Parents | 2.29 | 55/179 |
| High School Teachers | 2.25 | 56/179 |
| Young Men and Women Working in Your Career | 2.24 | 57/180 |
| Middle Aged Men and Women Working in Your Career | 2.18 | 58/180 |
| Teacher or Counselor Who Is A Personal Mentor | 2.12 | 59/181 |
| Men and Women Nearing Retirement in Your Career | 1.97 | 60/181 |
| High School Counselors | 1.86 | 61/182 |
| People About Your Parent's Age | 1.82 | 62/182 |
| People 5-15 years Older Than You | 1.81 | 63/183 |
| Recent Community College and University Graduates | 1.78 | 64/183 |
| Men and Women Retired From Your Career | 1.79 | 65/184 |
| College Instructors and Professors | 1.74 | 66/184 |
| People A Few Years Older Than You | 1.73 | 67/185 |
| Current Community College and University Students | 1.73 | 68/185 |
| Older Brothers and Sisters | 1.68 | 69/186 |
| College Counselors | 1.73 | 70/186 |
| High School Administrators | 1.64 | 71/187 |
| Recent High School Graduates | 1.56 | 72/187 |
| Corporate Executives | 1.42 | 73/188 |
| Politicians | .88 | 74/188 |
| Media Journalists | .87 | 75/189 |

While scalar representations may be useful in establishing a hierarchy, they may reduce the richness of data available to a one dimensional line. A scalar representation does not always provide a good picture of how student perceptions shift as we progress down the list. Graphic representations give a more complete illustration and allow the reader to better evaluate the relevance of the data to the reader's interests. (See Appendix C.)

In this case the scalar representation might lead us to assume that parents, who had the highest rating, would have the lowest incidence of being classified as giving misleading information. However, looking at the graphical representation of the data led one to question that assumption. When the data was re-sorted by the percentage of students classifying a source of information as giving misleading information "young people in the student's field of career interest" were classified as giving misleading information the least often. At the other end of the scale were politicians and media journalists who were classified as giving misleading information by nearly one in three of the TPAG Program students. High school counselors and corporate executives were the next most mis-trusted, with about one in eight of the students classifying them as giving misleading information. Parents ranked tenth, with about one in twenty of the students rating them as giving misleading information. (Table 4.)

Table 4.
TPAG Program student ratings of individuals as sources of mis-information about careers and career training

| Class of Advisor | Percentage of TPAG students who classified the potential advisors as giving misleading information |
|---|---|
| Media Journalists | 28.5 |
| Politicians | 28.5 |
| High School Counselors | 7.9 |
| Corporate Executives | 7.9 |
| Older Brothers and Sisters | 6.1 |
| People A Few Years Older Than You | 6.1 |
| High School Administrators | 6.1 |
| People 5-15 years Older Than You | 6.1 |
| Recent High School Graduates | 5.5 |
| Parents | 4.8 |
| College Counselors | 4.8 |
| Men and Women Retired From Your Career | 3.6 |
| College Instructors and Professors | 3.0 |
| People About Your Parent's Age | 2.4 |
| Men and Women Nearing Retirement in Your Career | 2.4 |
| Current Community College and University Students | 1.8 |
| High School Teachers | 1.8 |
| Recent Community College and University Graduates | 1.8 |
| Middle Aged Men and Women Working in Your Career | 1.2 |
| Teacher or Counselor Who Is A Personal Mentor | 1.2 |
| Young Men and Women Working in Your Career | .6 |

The students who participated in the preliminary interviews and survey indicated a strong bias for seeking career and educational guidance from younger people. The 165 State of Washington TPAG students indicated a different pattern of preferences. When age alone was considered the students favored older advisors. However, when age was combined with the advisor being in the student's field of career interest there was a strong preference for younger advisors. When the list was limited to age specific classes of advisors potential advisors who were currently active in the student's field of career interest ranked the highest. (Table 5.)

Table 5.
Scalar representation of how 165 State of Washington TPAG Program students rated classes of age specific individuals as sources of information about careers and career training

| Class of Advisor | Average Score |
| --- | --- |
| Young Men and Women Working in Your Career | 2.24 |
| Middle Aged Men and Women Working in Your Career | 2.18 |
| Men and Women Nearing Retirement in Your Career | 1.97 |
| People About Your Parent's Age | 1.82 |
| People 5-15 years Older Than You | 1.81 |
| Men and Women Retired From Your Career | 1.79 |
| People A Few Years Older Than You | 1.73 |

## Perceptions of How Important Skills Will Be In The Future

A very important question concerned how important students perceived various skills were in their futures.

The students were presented with a list of 24 skill areas and asked to classify these as being very important, important, nice to know, not important, or student doesn't know how important the skill area might be in the student's future. Again, a scalar representation was constructed. Very important was given a value of 4, important a value of 3, nice to know a value of 2, student doesn't know a value of 1, and not important a value of 0.

When the average value was calculated for each skill area the TPAG Program students placed a high value on general work and life skills such as the ability to work with others, listening, reading, oral communications, personal hygiene, and the ability to continue learning. The first academic skill area to be identified was algebra, it ranked twelfth. Algebra ranked just after using a computer to get information, using a computer to solve problems, and using a computer to communicate. Skill areas that historically seem to have been highly valued by the educational establishment (such as math beyond algebra, physics, chemistry, and the appreciation of art, music, literature) ranked at the bottom of the list.

It appeared that the TPAG Program students placed a higher value on skill areas related to how to work than they did on skill areas related to specific tasks or academic disciplines. In part this could be attributed to the career interest diversity of the TPAG Program students. If the students had been interested in a narrow selection of careers it would be expected that the academic and vocational skills associated with those careers would rate very highly. However, where physics and chemistry might be critical skill areas for a chemical engineer, life sciences typically would be considered more important by a wildlife biologist. Thus, it was expected that more specialized skill areas would receive lower scores. (Table 6.)

Figures 76 through 99 (Appendix D) provide a graphic view of the data by individual skill category. These graphs may be reviewed to gain a fuller understanding of the studied students' responses. To assist with understanding these data Table 6. includes a reference to the corresponding figure number and the page number for the figure.

Table 6.

TPAG Program student perceptions of how important specific skills will be in the student's future

| Skill | Average Score | Figure/Page |
|---|---|---|
| Ability To Work With Others | 3.69 | 76/191 |
| Listening Skills | 3.61 | 77/191 |
| Reading | 3.47 | 78/192 |
| Oral Communications | 3.43 | 79/192 |
| Personal Hygiene | 3.42 | 80/193 |
| Ability To Continue Learning | 3.36 | 81/193 |
| Basic Mathematical Computations | 3.34 | 82/194 |
| Creativity | 3.25 | 83/194 |
| Using A Computer To Get Information | 3.14 | 84/195 |
| Using A Computer To Solve Problems | 2.96 | 85/195 |
| Using A Computer to Communicate | 2.84 | 86/196 |
| Algebra | 2.75 | 87/196 |
| Technical Writing | 2.65 | 88/197 |
| Economics | 2.58 | 89/197 |
| Writing, Non-Technical | 2.50 | 90/198 |
| Child Rearing/Raising Skills | 2.47 | 91/198 |
| Life Sciences (Biology, Environment) | 2.45 | 92/199 |
| Accounting | 2.41 | 93/199 |
| Statistics | 2.36 | 94/200 |
| Second Language Skills | 2.28 | 95/200 |
| Math Beyond Algebra | 2.20 | 96/201 |
| Physics and Chemistry | 2.15 | 97/201 |
| Appreciation of Art, Music, and Literature | 1.71 | 98/202 |
| Appreciation of Plays, Movies, and TV | 1.69 | 99/202 |

## Students' Lack of Knowledge About Usefulness of Skills

Inspection of the graphics for all skill areas shows an interesting pattern. (Appendix D.) There existed a shift from skill areas being considered very important and important to being considered important and nice to know. However, there was no major shift to skill areas being considered not important. Listening skills, reading, and the ability to continue learning all earned a zero percentage score in the "not important" category. On the other end of the scale was statistics which almost eight percent of the students rated as not important.

The decline of the rating of skill importance was related to the number of students who stated they did not know if the skill would be important to them. All of the students rated the "ability to work with others". However, on the other end of the scale, over 30 percent of the students did not know about the importance in their futures of the appreciation of art, music, and literature, or the appreciation of plays, movies and television. Nearly 20 percent of the students could not state how important physics and chemistry, math beyond algebra, and child raising/raising skills would be in their futures. Nearly 15 percent of the students could not state how important second language skills and life sciences would be to their futures. (Table 7)

Table 7.
TPAG Program student lack of knowledge about importance of skill areas

| Skill | Percent of TPAG Program Students Who Didn't Know How Important A Skill Area Would Be In Their Future |
|---|---|
| Appreciation of Art, Music, and Literature | 31.5 |
| Appreciation of Plays, Movies, and TV | 30.3 |
| Physics and Chemistry | 19.4 |
| Math Beyond Algebra | 18.8 |
| Child Rearing/Raising Skills | 17.6 |
| Second Language Skills | 13.9 |
| Life Sciences (Biology, Environment) | 13.9 |
| Accounting | 11.5 |
| Writing, Non-Technical | 9.1 |
| Using A Computer to Communicate | 7.9 |
| Algebra | 6.7 |
| Technical Writing | 6.7 |
| Statistics | 6.7 |
| Economics | 6.7 |
| Using A Computer To Get Information | 4.2 |
| Using A Computer To Solve Problems | 5.5 |
| Ability To Continue Learning | 3.0 |
| Reading | 3.0 |
| Oral Communications | 1.8 |
| Personal Hygiene | 1.8 |
| Creativity | 1.2 |
| Basic Mathematical Computations | 1.2 |
| Listening Skills | .6 |
| Ability To Work With Others | .0 |

**Student Ratings of TPAG Program Functions**

Students were also asked to rate four aspects of the TPAG Program. However, the forced response survey instrument was administered at the first of the school year and most of the students involved in the study were in their first year in the TPAG Program. Thus, from 40 to 50 percent of the TPAG Program students chose not to respond to these questions. On the other hand, many of the students had been in the agricultural education program at their high schools for a number of years. While 40 to 50 percent chose not to respond or to select the no opinion response, 40 to 55 percent of the TPAG Program students said that TPAG Program advising, counseling, course selection, course content, and course instruction were good to excellent. (Figures 32, 33, 34, and 35.)

Figure 32.
The rating of TPAG Program advising and counseling by 165 State of Washington TPAG Program students
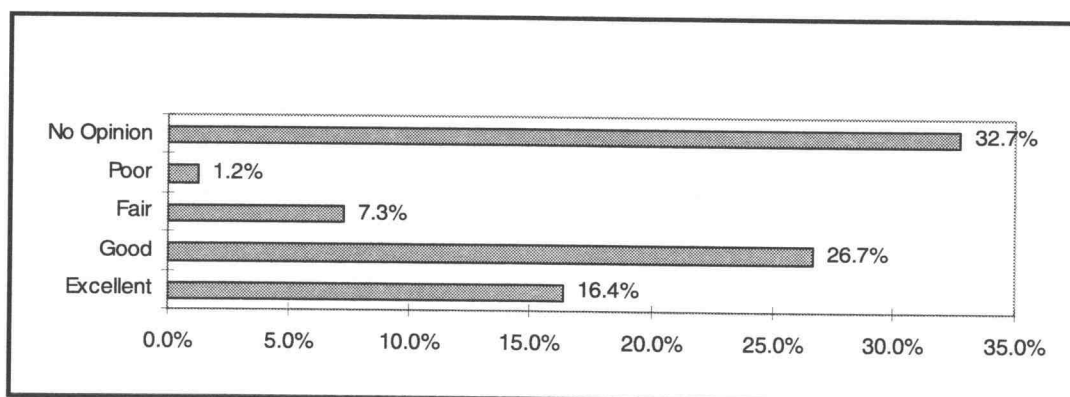
Figure 33.
The rating of TPAG Program course selection by 165 TPAG Program students
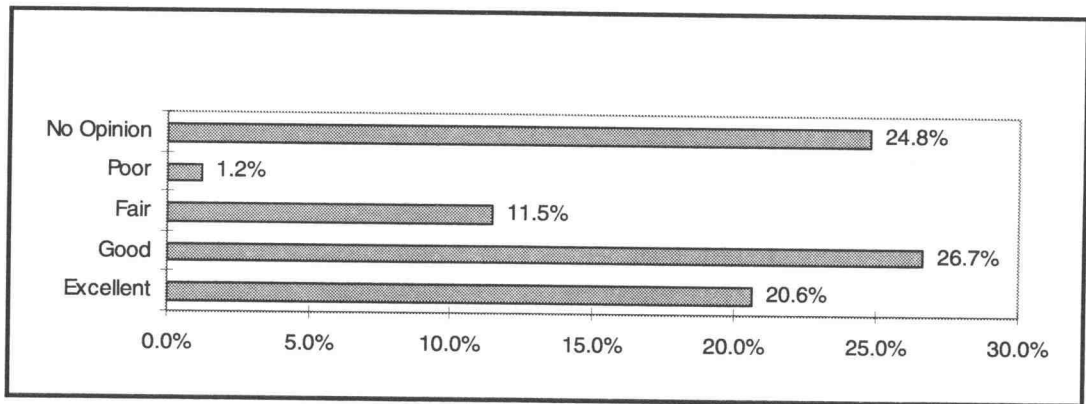


Figure 34.
The rating of TPAG Program course content by 165 State of Washington TPAG
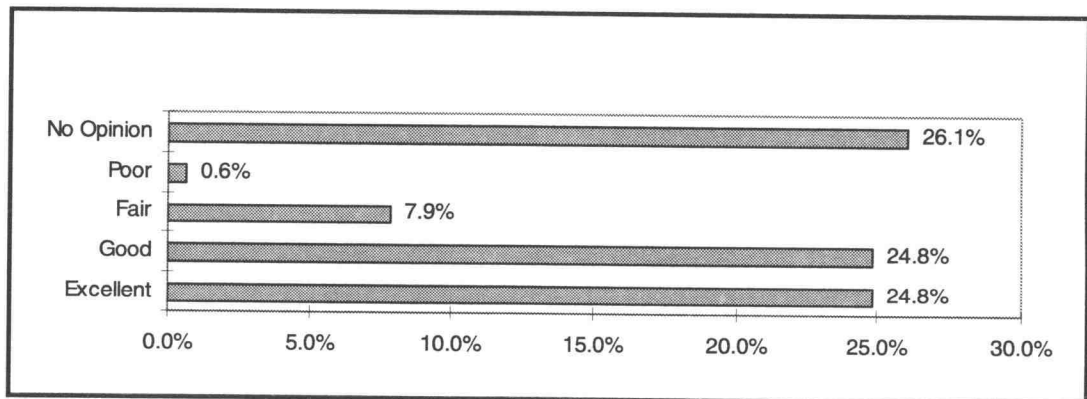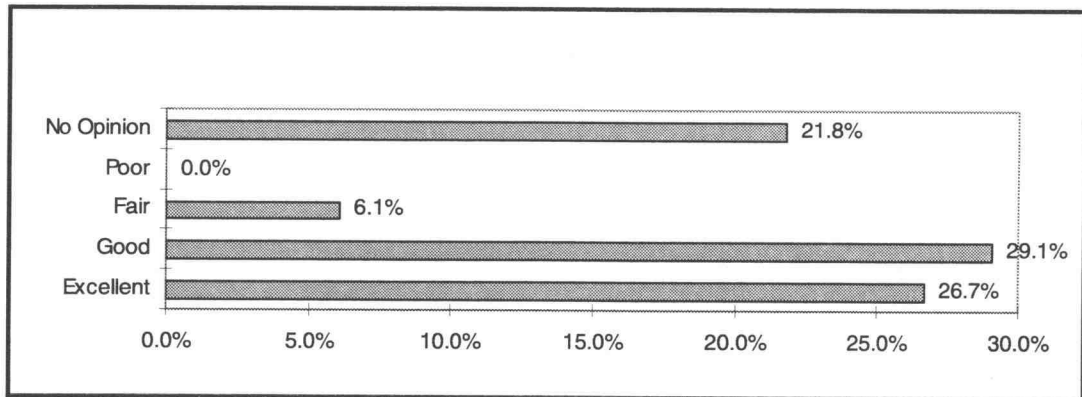Program Students

Figure 35.
The rating of TPAG Program course instruction by 165 State of Washington TPAG
Program students



Bar chart:
- No Opinion: 21.8%
- Poor: 0.0%
- Fair: 6.1%
- Good: 29.1%
- Excellent: 26.7%

**Student Ratings of Potential TPAG Program Features**

Students were asked how important four potential TPAG Program features would be to them. Seventy percent of the TPAG Program students felt that the availability of college credit was very important and 30 percent felt hat the availability of college credit was important. Nearly 50 percent of the students felt that community college credit was very important. Nearly 45 percent of the students felt that the courses being taught at their high school was very important. Only 30 percent of the students rated the courses being coordinated with the needs of business and industry as being very important. (Figures 36, 37, 38, and 39.)

Figure 36.
How important was the courses being taught at the student's high school to 165 State of Washington TPAG Program students?
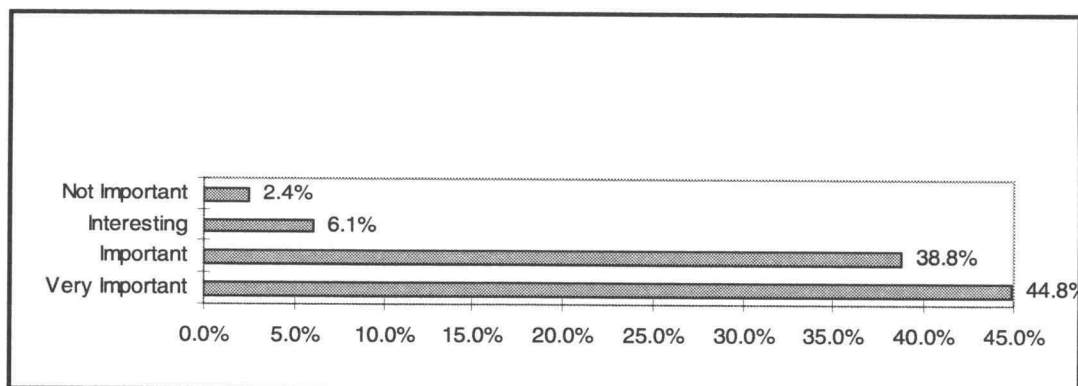
Figure 37.
How important was the availability of community college credit to 165 State of
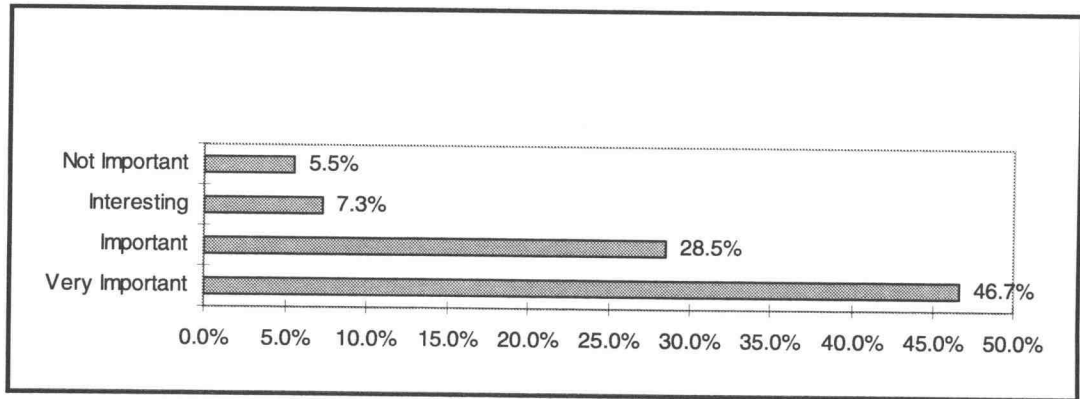Washington TPAG Program students?



Figure 38.
How important was the availability of college credit to 165 State of Washington TPAG
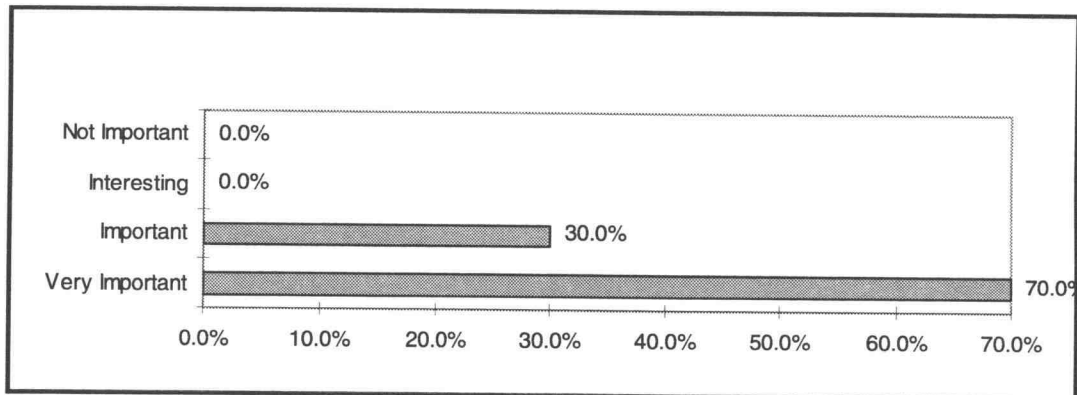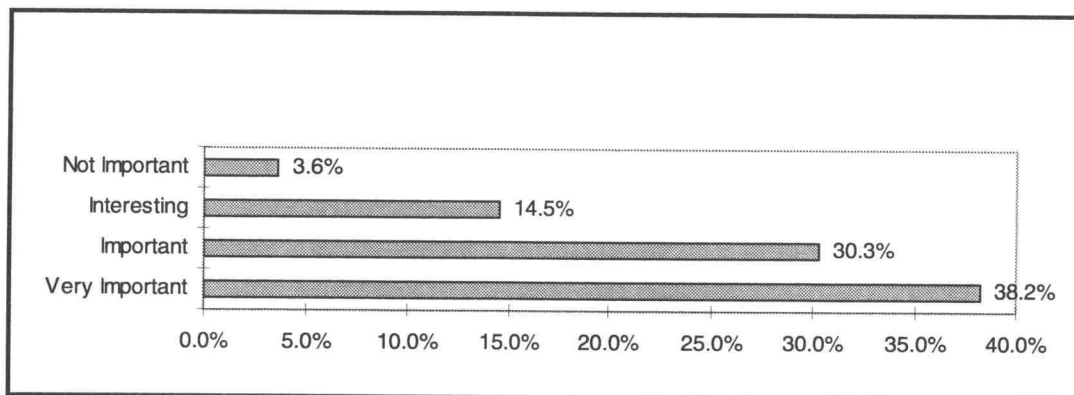Program students?

Figure 39.
How important were the courses being coordinated with the needs of business and industry to 165 State of Washington TPAG Program students?
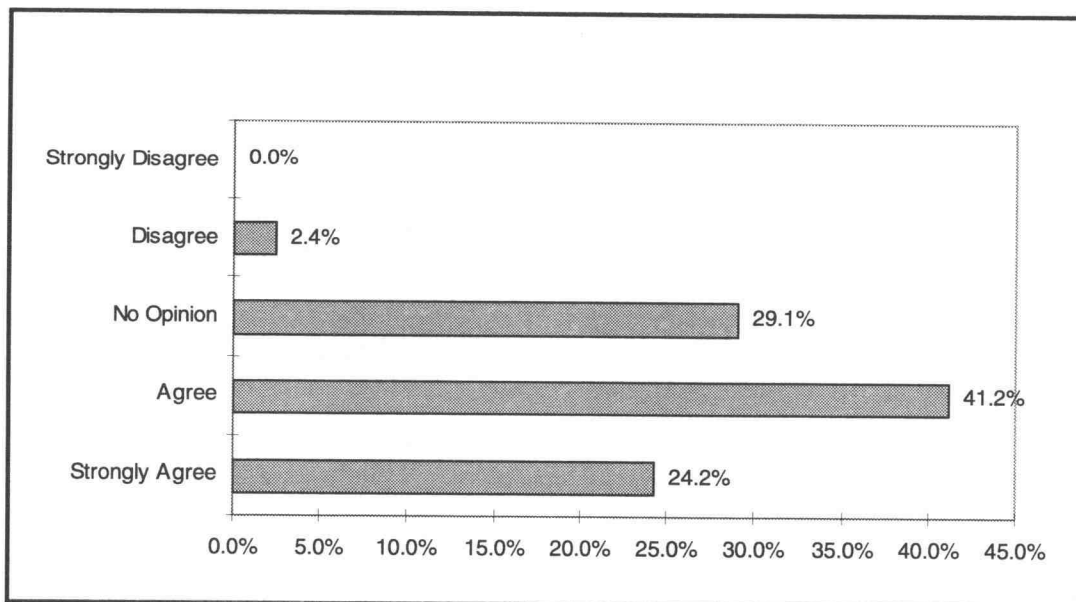
## Student Expectations Of Program Benefits

The appeal of the TPAG Program will be dependent upon what the students expect to gain from the program.

### Superior Preparation

Over 65 percent of the students expected to be more confident entering college because of the program. Less than three percent felt that the program would not help them feel more confident about college. Nearly 30 percent had no opinion on whether or not the program would help them be more confident about college. (Figure 40.)

Figure 40.
Because of their involvement in the program did 165 State of Washington TPAG Program students expect to be more confident entering college?



| Response | Percentage |
| --- | --- |
| Strongly Disagree | 0.0% |
| Disagree | 2.4% |
| No Opinion | 29.1% |
| Agree | 41.2% |
| Strongly Agree | 24.2% |

**Early Exit From College**

Although earning college credit while in high school was a significant feature of

the TPAG Program, less than 50 percent of the students expected to get out of college

sooner because of their participation in the program. The maximum TPAG Program

credits that may be applied toward a degree was 15 community college term credits, or

10 semester credits at Washington State University. Thus, the students could have

expected to save one term at the community or technical college, or less than one

semester at Washington State University. Since at the time the survey instrument was

administered few participating high schools offered more than two courses, with a

maximum of ten terms credits, the students' expectations were logical. (Figure 41.)

Figure 41.
Because of their involvement in the program did 165 State of Washington TPAG
Program students expect to get out of college sooner?
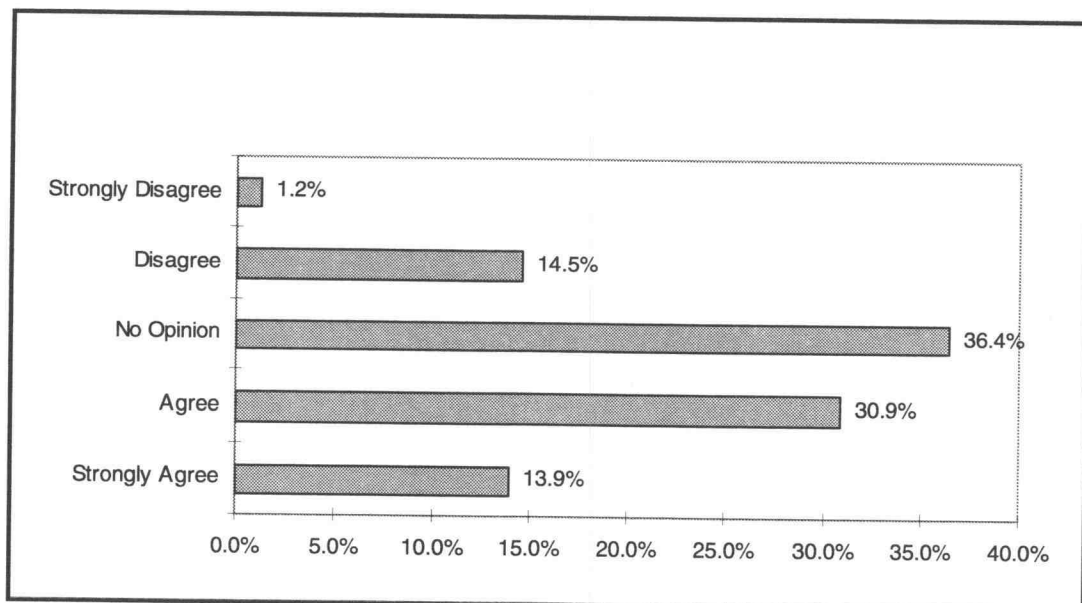
**Save Tuition Expense**

Over 60 percent of the TPAG Program students expected to save tuition expense because of their involvement in the program. (Figure 42.) Because of the way the program was structured, and because of the way the community and technical colleges charged for tuition, this was probably a reasonable expectation. First, there was no charge by the community or technical colleges for the transcription of the TPAG Program courses. Second, the community and technical colleges charged fees by the credit hour. Thus, the TPAG Program credits were perceived as free to the students.

Figure 42.
Because of their involvement in the program did 165 TPAG Program students expect to save tuition expense?
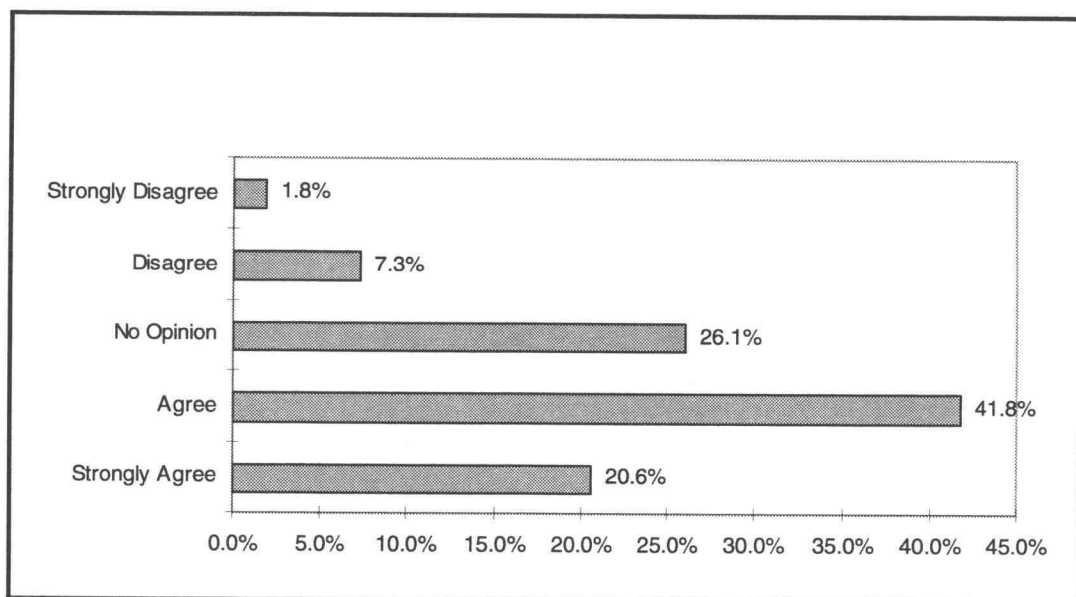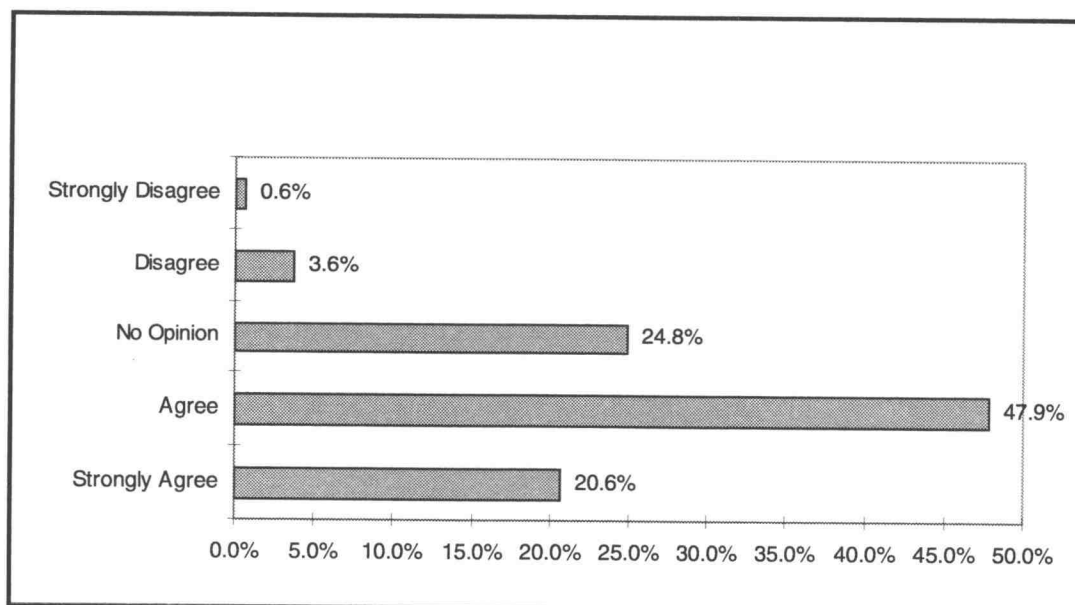
**Training For Business and Industry**

Nearly 70 percent of the TPAG Program students expected to benefit by having the training that industry wants. A little over four percent felt that the program would not provide the training that industry wants and about 25 percent of the students had no opinion. Coordination with industry and the use of the DACUM process in building competency based curriculum were considered key components of the TPAG Program. The teachers, instructors, professors and administrators that have worked on the creation of the program have been keenly aware of the point and it appears that the message was reaching a significant proportion of the students participating in the program. (Figure 43.)

Figure 43.
Because of their involvement in the program did 165 State of Washington TPAG Program students expect to have the training that industry wants?



| Category | Percentage |
|---|---|
| Strongly Disagree | 0.6% |
| Disagree | 3.6% |
| No Opinion | 24.8% |
| Agree | 47.9% |
| Strongly Agree | 20.6% |

**Repetition of Course Work**

A major student complaint the investigator has heard at the two community

colleges where he has been employed as an administrator or adjunct instructor was that

students find themselves covering the same material in college that they covered in high

school. One of the purposes of the TPAG Program was to prevent this from happening,

or at least minimize course repetition between high school and college. Nearly 70

percent of the TPAG Program students felt that because of their involvement in the

program they would not have to repeat Tech Prep courses in college that they had taken

in high school. (Figure 44.)

Figure 44.
Because of their involvement in the program did 165 State of Washington TPAG
Program students expect they will not have to repeat Tech Prep Courses taken in high
school in college?
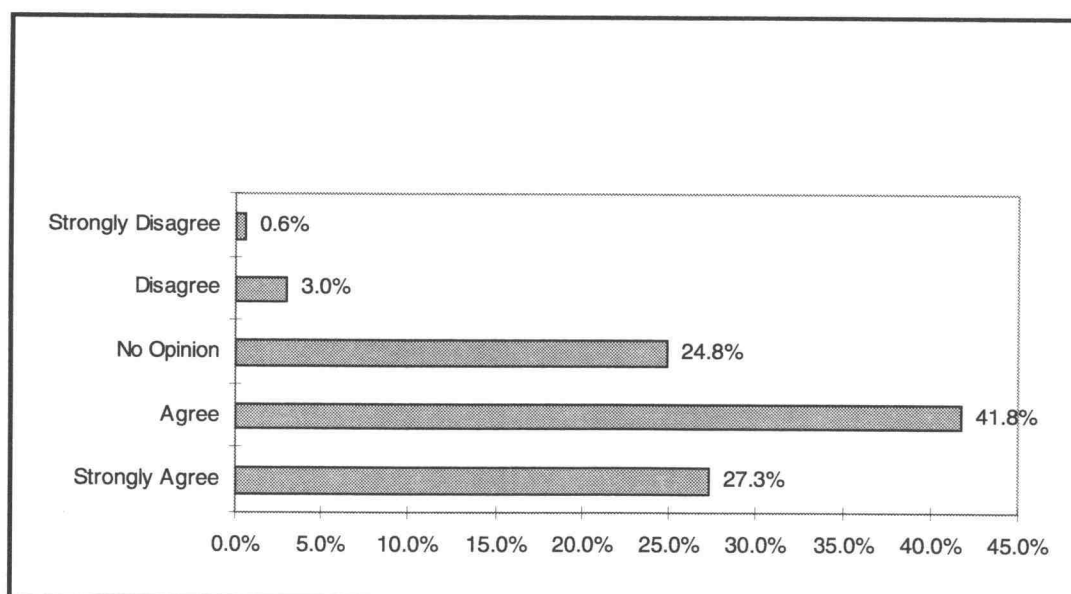
**Preparation For Advanced Training**

Just over 75 percent of the TPAG Program students felt that the Tech Prep

program would prepare them for advanced training in two and four year colleges.  Only

a little over one percent felt that the program would not prepare them for advanced

training in two and four year colleges.  Slightly over 20 percent of the students did not

have an opinion on whether the program would prepare them for advanced training in

two and four year colleges.  (Figure 45.)

Figure 45.
<u>Did 165 State of Washington TPAG Program students expect that the TPAG Program
will prepare them for advanced training in two and four year college career training
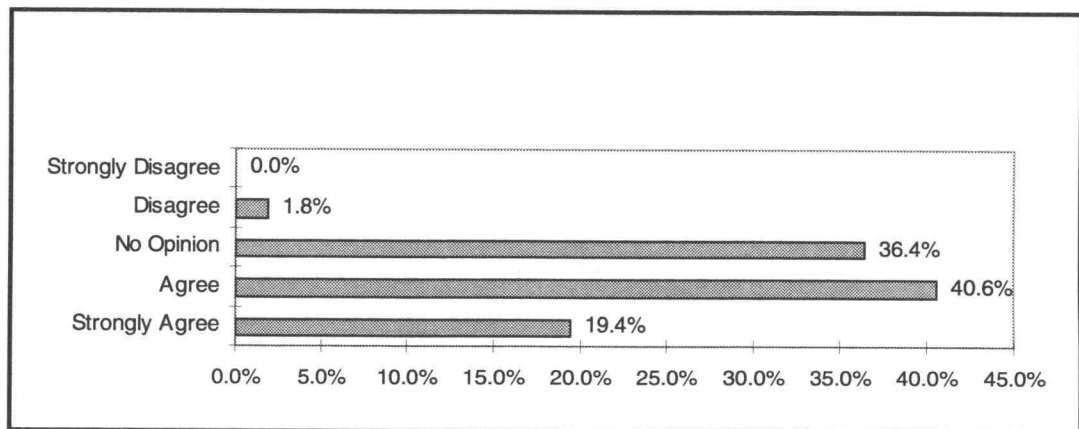programs?</u>
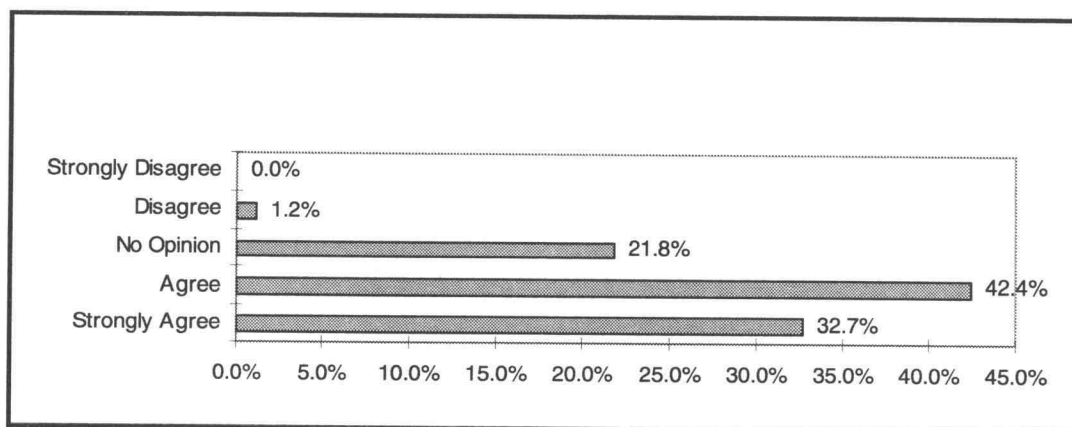
**More Is Better Myth**

Historically there has existed the perception that the more education a person had, the greater the person's status and earning power. Just a little over 60 percent of the TPAG Program students were aware that some Tech Prep Associate Degree Programs led to higher paying jobs than did some bachelor degree programs. Only less than two percent disagreed, while over 35 percent had no opinion. (Figure 46.)

Figure 46.
Did 165 State of Washington TPAG Program students believe that some Tech Prep Associate Degree Programs lead to higher paying careers than do some bachelor degree programs?

## Coordination of Training

Over 75 percent of the TPAG Program students believed that the purpose of
Tech Prep was to coordinate high school training with community college, technical
college and four year college programs.  The students responded consistently to
questions concerning the purpose of the program.  (Figure 47.)

Figure 47.
Did 165 State of Washington TPAG Program students believe that the purpose of Tech
Prep is to coordinate high school training with community college, technical college,
and four year college programs?
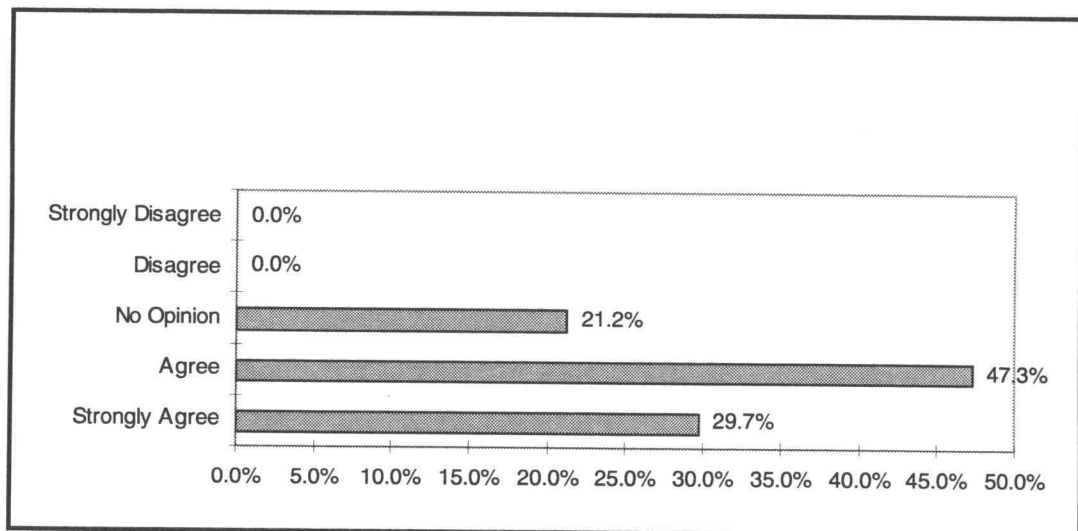


## Future Workforce

When the TPAG Program students were asked about the nature of the workforce
in the year 2000 they responded in an inconsistent manner.

When asked if they agreed with the statement that by the year 2000 about 20 percent of the workforce would need a bachelor's degree and about 65 percent of the workforce would need at least one year of specialized training beyond high school, but not necessarily need a bachelor's degree nearly 45 percent of the students agreed with the statement, while only about seven percent disagreed. Over 36 percent had no opinion. (Figure 48.)

Figure 48.
Did 165 State of Washington TPAG Program students believe that by the year 2000 about 20 percent of the workforce will be classified as professional and will need at least a bachelor's degree? Furthermore, that about 65 percent of the workforce will be classified as skilled and need training beyond high school, but will not necessarily need a bachelor's degree?
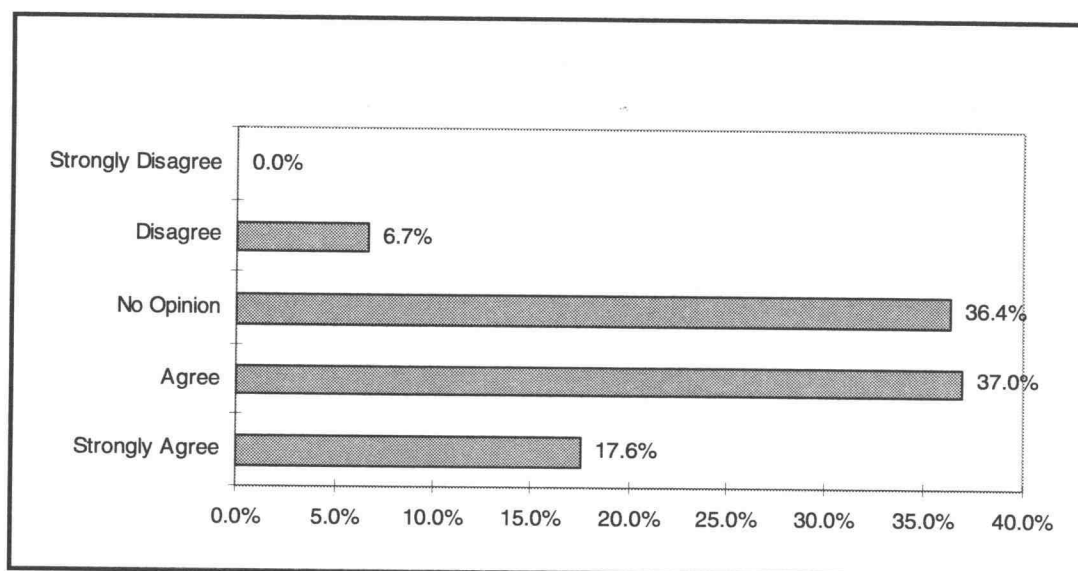
However, when the TPAG Program students were asked if they agreed with the statement that 15 percent of the workforce will be classified as unskilled in the year 2000, only about 27 percent of the students agreed or strongly agreed. Nearly 50 percent had no opinion and nearly 25 percent disagreed or strongly disagreed. (Figure 49.)

Figure 49.
Did 165 State of Washington TPAG Program students believe that by the year 2000 only 15 percent of the workforce will be classified as unskilled and will not need education beyond high school?
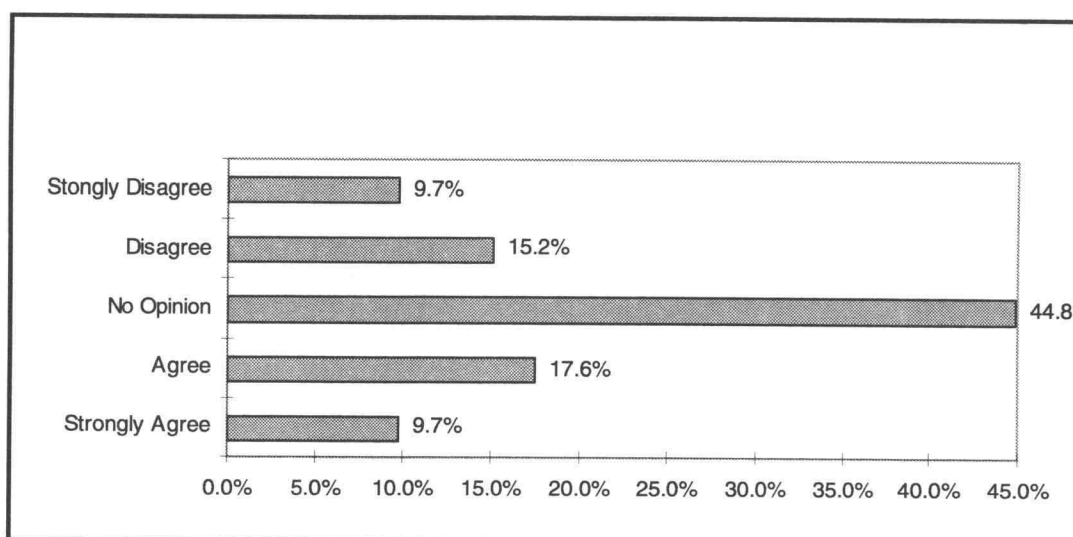
## Student Actions

The TPAG Program recommended a series of actions on the part of participating students. The program also required the students create an educational plan and a portfolio.

### Investigation of Career Options

Over 50 percent of the TPAG Program students had investigated new career options. Just over 40 percent said that they planned to investigate new careers, while seven percent had not and did not plan to carry on such an investigation. (Figure 50.)

Figure 50.
Had the 165 State of Washington TPAG Program students investigated new career options?
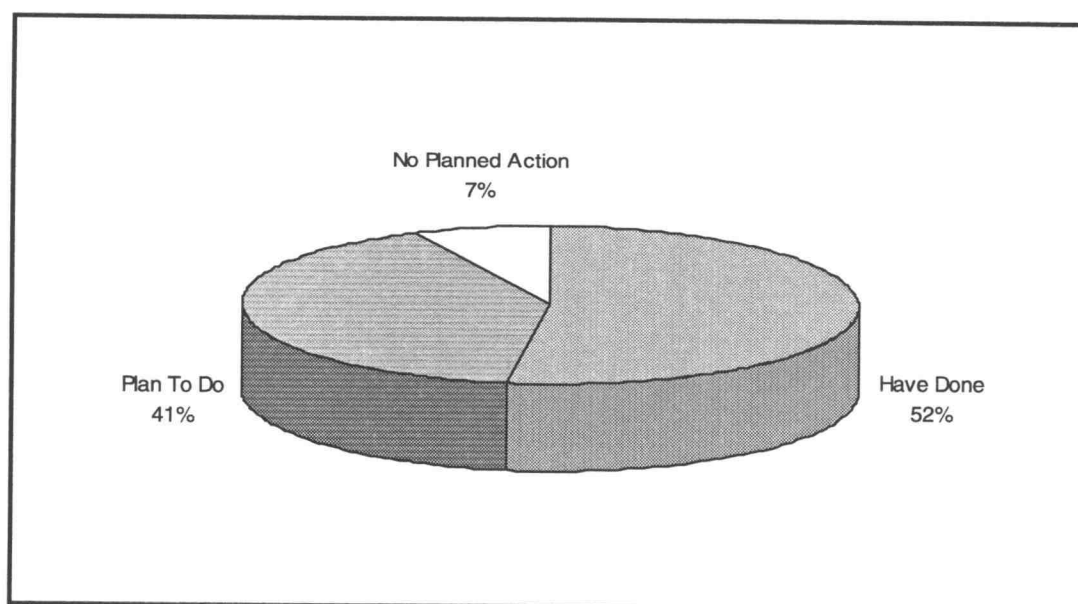
**Workplace Visitations**

Over 50 percent of the TPAG Program students had visited a career related work place and just over 40 percent said that they planned to do so, while seven percent had not and did not plan such a visit. (Figure 51.)

Figure 51.
Had the 165 State of Washington TPAG Program students visited a career related work place?



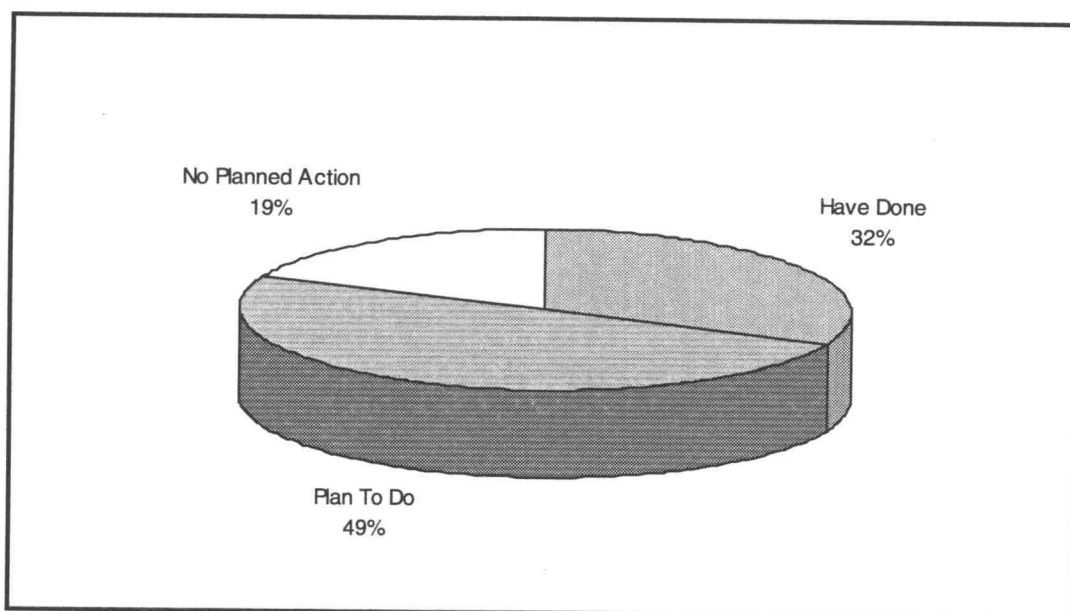No Planned Action
7%

Plan To Do
41%

Have Done
52%
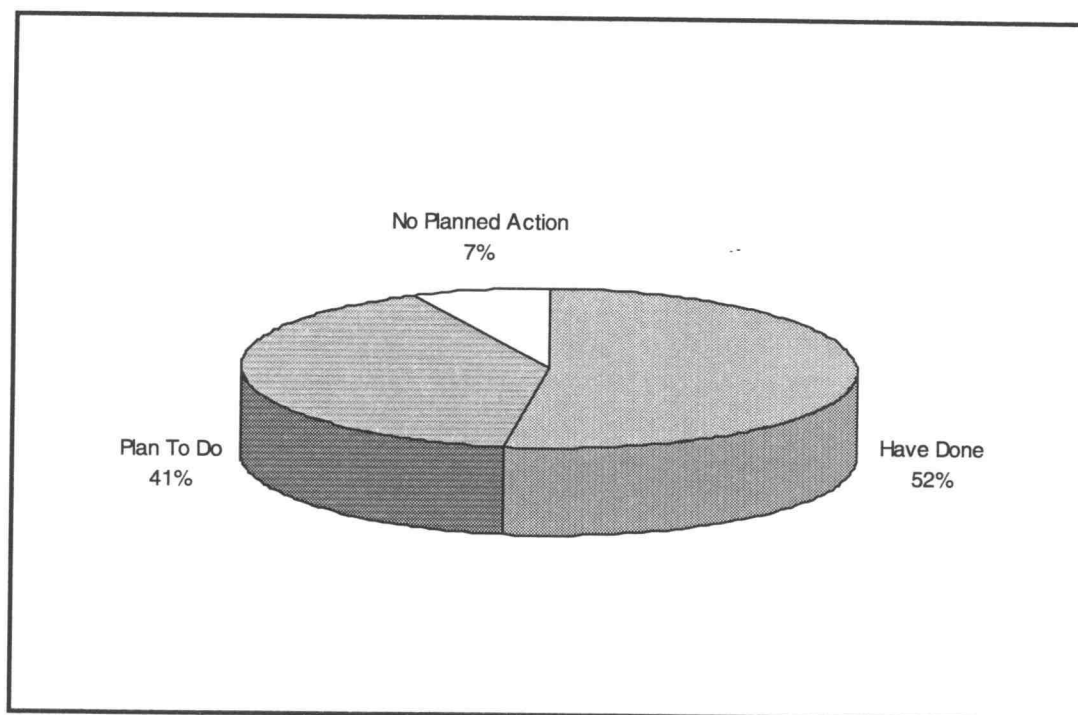
**Career Mentors**

Less than 35 percent of the students had found a career mentor. Nearly 50

percent of the students planned to find a career mentor. However, nearly 20 percent of

the students had not planned to find a career mentor. (Figure 52.)

Figure 52.
<u>Had the 165 State of Washington TPAG Program students found a career mentor?</u>

**Personal Education Plans**

Although the TPAG Program specifically required the creation of a personal

educational plan that must be included in the student's TPAG Portfolio, less than 30

percent of students had prepared a personal plan. Furthermore, just over 50 percent had

planned to create a personal educational plan. Just under 20 percent had not created, nor

planned to create, a personal educational plan. (Figure 53.)

Figure 53.
Had the 165 State of Washington TPAG Program students created a personal education
plan?
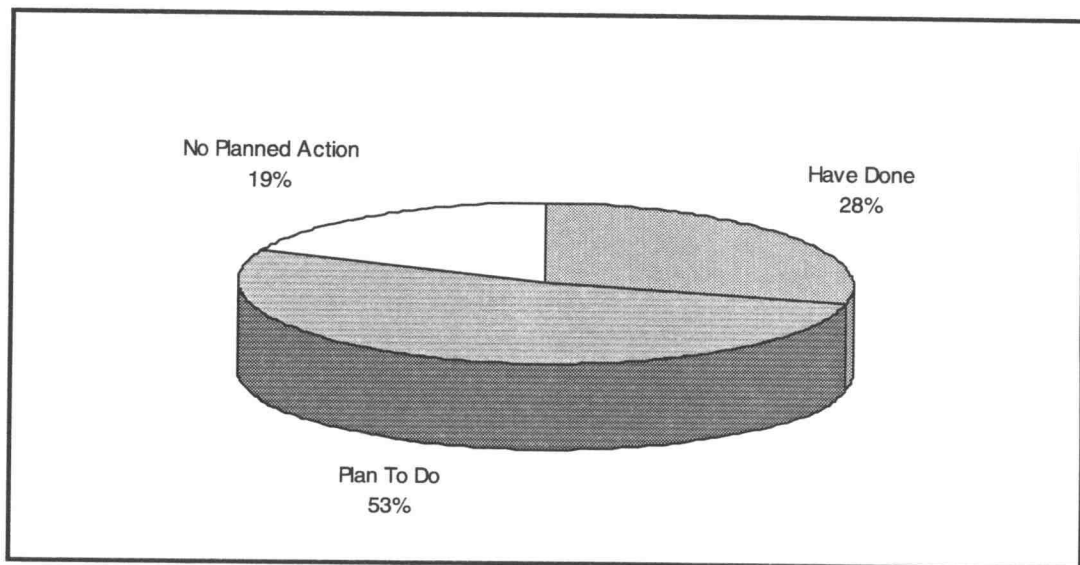
**College Visits**

Over 90 percent of the TPAG Program students had contacted or visited a post-secondary institution, or planned to contact or visit a post secondary institution. Eight percent of the students had not taken action or did not plan to take nine. (Figure 54.)

Figure 54.
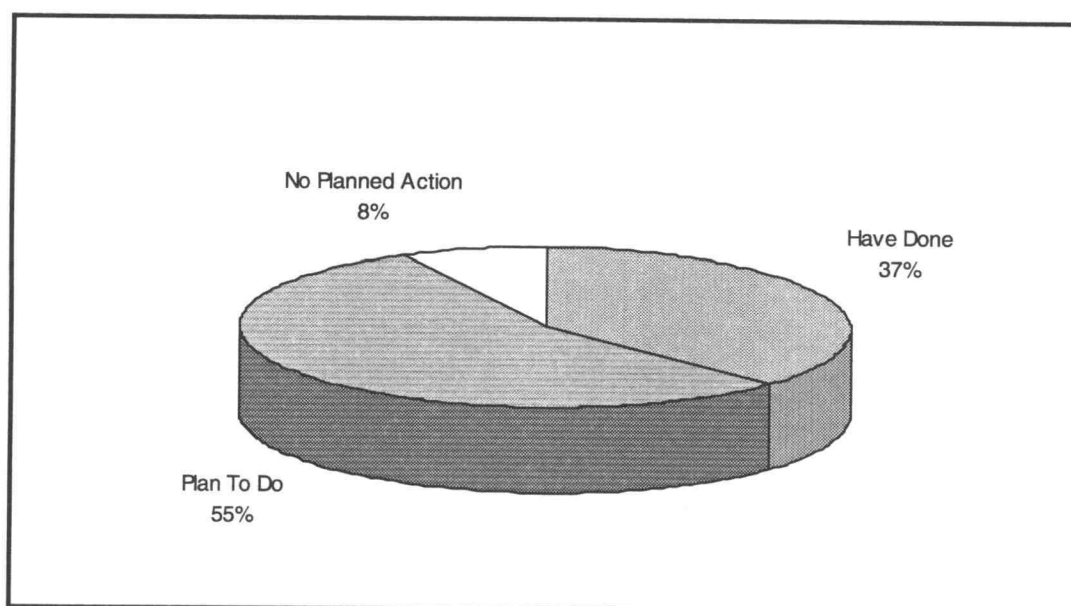Had the 165 State of Washington TPAG Program students contacted or visited a post-secondary institution?



**Applied Academics**

During the preliminary interviews and the administration of the pilot survey instrument it was noted that the participating students almost totally ignored the questions about participation in applied academics. After the students completed the

pilot forced response survey instrument the investigator individually asked them why

they did not respond to the questions concerning applied academics. Three of nine

students stated that the applied academics courses were for "losers".

When the forced response survey instrument was administered to 165 students at

12 Washington high schools the students did not ignore the questions. There was a

greater perception of availability of applied academic courses. Students were most

aware of Applied Mathematics, with 97 of the 165 students stating that their high school

offered the course. Awareness of the availability of other applied courses varied with

about a third of the students aware of the more common courses, including Applied

Business, Applied Communications and Applied Sciences. About one fifth of the

students were also aware of Applied Technology. However, participation rates were

low. A little less than one third of the students had taken or planned to take the most

popular course, Applied Mathematics. (Table 8.)

Table 8.
TPAG Program student awareness of and participation in applied academic courses

| Applied Academics Course | Number of Students | | |
| | Student Perceives That Their High School Offers | Student Has Taken or Plans To Take | Student Would Take If Available |
| --- | --- | --- | --- |
| Applied Business | 49 | 18 | 11 |
| Applied Technology | 34 | 12 | 21 |
| Applied Statistics | 11 | 4 | 18 |
| Applied Communications | 49 | 8 | 18 |
| Applied Sciences | 55 | 37 | 9 |
| Applied Mathematics | 97 | 49 | 6 |
| Other Applied Subjects | 9 | 10 | 2 |

## Follow-Up Group Interview

After a preliminary analysis of the forced response survey was completed, nine TPAG students who had completed the forced response survey instrument four months earlier were interviewed as a group. When a brief summary of the profile of student characteristics, perceptions and expectations revealed by the survey was presented to the group they stated that they were not surprised by the findings.

When the students were asked what they found attractive about the Agriculture Education Program, which underlies the TPAG Program, they talked about being able to acquire transferable skills in leadership, communications, sales, people management, job seeking, and teamwork.

The interviewed group vigorously defended their presence in the TPAG Program when they were asked if politicians should be upset because the majority of the surveyed students, who were in an Agriculture Education program, were not planning to enter agricultural careers. Most of them stated, and all agreed, that they were learning skills they would use in any career area. The interviewed students also championed the academic diversity of the agriculture education classes. They stated that working with students different from themselves helped them to develop teamwork skills. They did not feel it was good for them to be constantly segregated according to comparative levels of academic achievement, academic tracks, or grade point averages.

When confronted with the fact that 40 percent of the surveyed students had not selected an area of career interest, these interviewed respondents stated that the junior high school and high school years were the time and place for career exploration, and

not for making premature decisions that they could be sorry for into the future. The group was very defensive about being pushed into early career decisions when they had what they considered limited information. One student stated that in grade school students only saw four professions: "doctor, teacher, mother's (career) and father's (career)". The group also pointed out how their perceptions of career possibilities became broader as they progressed through junior high school and high school, and how they expected to learn of even greater career possibilities in college.

The students were also asked if the school system responded to the groups' preference to learn from "doing" and "seeing". One senior responded that "all they try to do is pour it into your head with talk, talk, talk". The group felt that the Agriculture Education and a few science classes were the only classes that allowed them to learn by "doing".

The group interview reinforced the findings from the forced response survey instrument, with one notable addition. The forced response survey instrument did not address how the students felt about using the time in junior and senior high school to explore career possibilities. This small, purposefully selected group of studied students all felt strongly that these years were a time to explore options, but that career decision should not be required. Their response did not reflect a lack of decisions on the part of the interviewed group, most of whom had indicated a career choice in their response to the forced survey instrument. These students uniformly expressed the opinion that

requiring firm career decisions at any uniform age may be premature and potentially harmful to individual students.

## Teacher Evaluations of Survey Findings

The high school agriculture education teachers who had six or more students responding to the forced response survey instrument were provided with a graphical summary of the findings for their students and were asked for comments.

The teachers indicated that the findings were an accurate description of the students in their class.

The teachers indicated that the information would be useful to them. First, they felt the information would be useful in their conversations with administrators and parents. It would give them an independent description of their students. Second, it would help them talk to students about careers and skills the students would need. They expressed the opinion that the students' rating of the importance of skills was information that they could use in their interactions with students.

The feedback from the agriculture instructors reinforced the usefulness of the findings as a basis for the conclusions and recommendations which follow.

## <u>The Potential Existence of a Cohort Effect</u>

The three research initiatives, the exposure to the agriculture education system, and the continuing discussion of educational reform that includes career strand education and creation of homeroom systems for secondary schools led the investigator to question if the agriculture education system that underlies the TPAG Program was a model for these reforms. The image of a career strand/homeroom secondary educational model seemed to percolate from the array of data.

It appears to the investigator that the high school agriculture education program is one, and perhaps the only, secondary education program that offers the students a common interest, extended time frame, open to all cohort experience. The cohort may be formed with the freshman agriculture education class and extend through the senior agriculture education class, with reinforcing extracurricular activities such as the FFA and 4-H programs . The surveyed students' other classes appear to be limited to narrow academic disciplines, to a one or two semester time frame, and to students segregated by comparative measurements of academic achievement.

In general career strand cohorts could be formed about career clusters and would not have to totally dominate the educational landscape. Courses of study in fields such as mathematics could retain their segregated by academic track and sequential progression characteristics. The data, and 18 months of sporadic opportunities to observe the agriculture education classroom, suggest that the common interest, mixed academic track cohort could also be the basis for a homeroom system that provides a teacher advocate for each student, a teacher counselor for each student, a multi-year

career exploration experience for each student, and basic school-to-work orientation that is centered about broad career strands in which the student has exhibited interest. Such a environment could give the students and the teacher an area of common interest without segregating students by comparative levels of academic performance.

## Chapter Five
## Conclusions and Recommendations

## Introduction

The Cat only grinned when it saw Alice. It looked good-natured, she thought; still it had *very* long claws and a great many teeth, so she felt it ought to be treated with respect.

"Cheshire Puss," she began, rather timidly, as she did not at know whether it would like the name; however, it only grinned a little wider. "Come, it's pleased so far," thought Alice, and she went on, "Would you tell me, please, which way I ought to walk from here?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where," said Alice.

"Then it doesn't matter which way you walk," said the Cat.

"--so long as I get *somewhere*, " Alice added as an explanation.

"Oh, you're sure to do that," said the Cat, "if you only walk long enough!" (Carroll, L., 1946, pg. 64)

## Format

This chapter presents the conclusions and recommendations for each of the 13 following key elements of the investigation: Career Selection, Academic Spectrum, Student Educational Aspirations, Skill Importance Assessment, Trusted Advisors, FFA Involvement, Student Characteristics, Extra Curricular Activities, Student Expectations, Career Exploration Actions, Applied Academics, Lack of Student Comprehension, and Cohort Effect. For each element the conclusions are listed. Then, based on the stated conclusions, recommendations are offered are offered for each element.

## Career Selection

## Conclusions

1.  The subject students, who were involved in a career cluster-specific Tech Prep program, displayed an exceptionally rich range of career aspirations. The students' choices were not limited to the career cluster. They literally spanned the careers alphabet from accountant to x-ray technician. Correspondingly, educational aspirations covered the spectrum of post-secondary educational options. While a limited minority of respondents specified careers requiring no post-secondary training, almost all of the respondents specified aspirations requiring post-secondary education ranging across apprenticeship, community college, technical college, four year college, and post-graduate programs.

2.  Almost all the subject students were involved in the process of career selection. They varied both in terms of where they were in the process and in terms of how certain they felt about their choice. It was considered favorable that the students were involved in different stages of the career selection process.

3.  A substantial minority of students did not specify a career aspiration. Again, these high school students were engaged in a career cluster-specific Tech Prep program. Their presence in the TPAG program provided some evidence that these students had begun making educational decisions that could affect their post-secondary education and career options because in order to be selected to participate in the

study the students had to have decided to do the extra work required to earn college credits and signed a Declaration of Student Interest for the TPAG program.

4. Student responses to questions about career exploration resources at their high schools indicated high school career exploration programs were producing mixed results. Even among students who were in a least one common program within the same high school, the rating of the career exploration resources were mixed.

5. The implementation of the following recommendations should increase the proportion of students who arrive at post-secondary institution with a sense of direction. This may increase educational efficiency and effectiveness by reducing the time students spend at post-secondary institutions without career specific goals.

## Recommendations Regarding Career Selection

It is recommended that:

1. The TPAG program modify the Agricultural Careers and Orientation course such that TPAG program students may explore any career.

(Note: It is anticipated that this recommendation will not be met with universal approval. A very limited minority of teachers and administrators have strongly stated that the purpose of program is to "keep our best and brightest in agriculture". Most teachers and administrators associated with the TPAG program have strong ties to *agricultural*. However, almost everyone has indicated that one of their personal objectives for the TPAG program is to "expose" students to career options in *agricultural*, including the *agriculture* support sector.)

2. To reflect the broader scope of the revised course, the Agriculture Careers and Orientation course be revised and renamed "Career Exploration and Orientation".

3. Because the data indicates that a substantial portion of the studied students are not exposed to career exploration and counseling outside of the Agriculture Education and TPAG Programs, the Career Exploration and Orientation course become a mandatory part of the TPAG program. It is also recommended that the competency based curriculum commence in the junior year at the latest, and the course extend into the senior year.

4. The impact of the Career Exploration and Orientation course be investigated by conducting entrance, exit, and follow-up surveys. Said research should concentrate on the students' status in the career selection process and the stability of career decisions. Such research should not assume that early career selection or a lack of change in career aspirations are the desired result for all students.

## Academic Spectrum

## Conclusions

1. As a group the subject students were above average as measured by the high school grading system. However, all four quartiles of the high school population were represented in the study population. Considering the fact that the Tech Prep family of educational programs are assumed to be targeted at the middle two quartiles of the high school population and, simultaneously, at those career options

which require education beyond high school but not necessarily a bachelor's degree, it would at first appear that the TPAG program is off target. However, the TPAG program was formulated as a career cluster-specific program aimed at careers in the agricultural and agricultural support sectors of the economy. The cluster represents a family of career options. Individual options within the family require varying levels of education. Thus, the TPAG program appears to remain on target as measured by the original intentions of the program.

2. The strong majority of surveyed students did not feel they learned best from the preferred teaching methodology of the public education system. These students, who were above average on average, stated that they learned best from "doing" and "seeing". Furthermore, these students preferred hands on learning to abstract learning.

## Recommendations Regarding Academic Spectrum

It is recommended that:

1. The TPAG program retain its career cluster orientation and not seek to exclusively serve specific fragments of the high school population.

2. The TPAG Program retain its orientation toward curriculum that emphasizes learning through experience.

   (Note: This approach calls for the agriculture education teacher to either simulate "real world" experiences or to expose students to "real world" situations. For example, in the current Agriculture Careers and Orientation course students are called upon to create realistic resumes, write letters of application for publicly advertised positions, and to conduct mock interviews with businesses in their community. This approach requires cooperation between the teachers, local business interests, and the students.)

3. Additional research be conducted into the following questions:

   - Do programs such at the TPAG program, and the underlying agricultural education program, attract or create better students?

   - Does the teaching methodology used in the agricultural education program attract and/or better nurture these students?

   - Does the nature of the subject matter attract and/or better nurture these students?

## Student Educational Aspirations

### Conclusions

1.  Most students aspired to a post-secondary education at a community college, technical college, or four year college. Of those students aspiring to a post-secondary education, most aspired to a community college or technical college education. Thus, when the distribution of educational aspirations of the subject students was compared to the anticipated educational needs of the workforce in the year 2000 it appeared that this group of students was in concert with the projected educational needs of the workforce.

2.  The preference for a community college or technical college education did not appear to be generated by negative feelings toward post-secondary education because the surveyed students indicated that if time and finances allowed most would seek formal education beyond the associate's degree.

### Recommendations Regarding Student Educational Aspirations

It is recommended that:

1.  The TPAG program seek to strengthen its ties with the community and technical college system, while working to expand relationships with the four year colleges.

2.  Given the rich variety of career interests of the TPAG program students, it is recommended that the community and technical colleges be encouraged to accept

TPAG program credits into more than agriculture programs.

(Note: A number of institutions, including Washington State University, indicate that they will accept the TPAG Program courses as General Education Requirements where appropriate for individual students. Because of the rich variety of student career and educational aspirations, these verbal commitments need to be strengthened and formalized so that it will be more certain that the students will fully realize their expectations from the program.)

3. The TPAG administration increase their efforts with Washington State University to create a pathway from several currently terminal community college associate degree programs in agricultural technologies and food processing technologies into Washington State University's Bachelor of Science in Agricultural Technology and Management.

4. The TPAG administration seek to establish relationships with other four year colleges.

(Note: While a bachelor's degree may not be expected to be a necessary credential for employment for eighty percent of the future workforce, the bachelor's degree may remain a highly desirable personal goal for many individuals. There is no reason for society to assume that individual intellectual interests and potential is limited by how a person earns their daily bread. With the so-called upside down bachelor's degree, the student obtains employable professional skills in the first two years of their post-secondary education, then in the last two years completes many of the general educational, advanced career

education, and lifestyle skill requirements found in most bachelor degree programs. Such programs may be of value to a significant proportion of the 65 percent of the workforce that is expected to be classified as skilled by the year 2000.)

## Skill Importance Assessment

### Conclusions

1.  The surveyed students recognized the importance of foundation workplace skills in their futures. Skills that relate to working with others, the ability to communicate, and the ability to learn rated high with these students.

2.  Contemporary foundation skills such as basic mathematics, creativity, and computer usage also rated highly.

3.  More specific academic skills such as advanced mathematics or chemistry that are more closely related to specific careers, tended to be rated lower.

4.  Rated lowest were the appreciation of art, music, literature, plays, movies and TV

5.  The ordering of the skills was determined by the percentage of the responding students who declared that they did not know how important the skill would be in their future.

6.  The relatively low ranking of, and the percentage of students who stated that they did not know how important skills such as child rearing/raising, life sciences, and

the arts would be in their futures raised questions concerning the teaching of the social sciences, humanities, and arts.

(Note: While the study did not deal directly with these subjects, an investigation into education can seldom be conducted in isolation from social and political issues. At the time of the study contemporary social problems included youth violence, the spread of the AIDS virus, and an expanding prison population. The relatively low rating of subjects such as child rearing/raising skills, the life sciences, and the physical sciences raised concern with the investigator. Even though the data may only be whispering an alarm, the investigator feels he would be negligent if he did not convey his interpretation of the findings' suggestion of areas of further exploration into the socialization of students.)

## Recommendations Regarding Skill Importance Assessment:

It is recommended that:

1.  Further research be conducted concerning the relevance of the secondary educational system to the workplace and to the non-work environment.

2.  Further research concerning social educational issues should be conducted, focused on the following questions:

    - Does the secondary curriculum address the relationships between child rearing paradigms and adult behavior?

    - Specifically, does the secondary curriculum address the impact of physical, sexual, and psychological abuse upon children?

3. Further research concerning the appreciation of the arts should be conducted, focused on the following questions:

- Does the secondary educational system address the contemporary arts? (Note: For example, how common are courses that might be titled "Cinema As Literature" or "Appreciation of the Science Fiction Novel"?)

- Can students relate to their secondary education in classical art, music, and literature?

- Have education budgets been cut to the point that cultural enriching experiences are no longer available to students?

4. Research into the contextual content of courses such as the sciences, technologies and quantitative methodologies appears appropriate and should be conducted.

5. Research into classroom discussion of careers should be undertaken, including, but not necessarily limited to the following questions:

- When careers are discussed are the duties of individuals involved in the career accurately described?

- What reference materials are provided for students?

- Are DACUM materials used?

6. The DACUM materials used by the curriculum teams be distributed to all teachers in the program.

7. The TPAG program conduct DACUM training sessions for the participating high school teachers or develop a parallel video tape presentation.

# Trusted Advisors

## Conclusion

Parents, high school teachers, and young people working in the student's area of career interest were the most trusted advisors on careers and education. Individuals such as media journalists and politicians that society might consider good advisors to students on education and careers were not trusted by almost one in three of the surveyed students. High school counselors and corporate executives were mistrusted by one of twelve studied students.

## Recommendations Regarding Trusted Advisors

It is recommended that:

1. Efforts to educate parents and teachers about the changing composition and nature of the workplace be increased.

2. Community colleges recruit recent graduates to help educate high school students about specific career options.

3. Younger graduates should be featured in promotional videos and brochures.

# FFA Involvement

## Conclusion

Almost one of three of the surveyed students were not active in local FFA programs and most of the students were not active in district level FFA competitions.

## Recommendation Regarding FFA Involvement

It is recommended that the TPAG program maintain its position that while FFA activities may be used to satisfy individual competencies, FFA activities may not be required and may not be the sole method available for passing a competency.

# Student Characteristics

## Conclusion

Minority and female students were underrepresented in the surveyed population of TPAG program students.

(Note: Individuals associated with the Hispanic transitions program at Walla Walla Community College indicate that family influence in the Spanish speaking community is very important. Thus, it is necessary to also reach the parents and grandparents who's primary language may be Spanish. While the staff of the

Hispanic transitions program at Walla Walla Community College cautions that

interesting young Hispanic students in agriculture programs may be difficult

because of the tendency for the students and their families to associate careers in

agriculture with manual labor, it is anticipated that the TPAG program literature

will better inform the Hispanic community about the Tech Prep concept.)


## Recommendations Regarding Student Characteristics

It is recommended that:

1.  TPAG program and individual community college agricultural technology program

    literature be published in Spanish.

2.  Innovative approaches be taken to the distribution of the Spanish language

    literature.  For example, literature be distributed through community based

    Hispanic organizations and through predominately Hispanic churches.  Such

    distribution channels should reach a greater proportion of the target population

    than the conventional methods of making the literature available at post-secondary

    institution.

    (Note:  This action may result in greater demands for post-secondary education

    from the Hispanic community and create a need for programs that integrate

    English as a Second Language curriculum with community and technical college

    career education programs.)

3.  TPAG administration should assure that gender balanced graphic images are used

    in the brochures and video segments used to promote individual programs.  The

presence of vicarious role models in publications should send the message that training in all fields is available to women at post-secondary institutions.

4. Secondary and post-secondary institutions should be made aware of ethnic and gender imbalance in current enrollments in the TPAG Program. The institutions should be instructed to take steps to insure that no artificial barriers exist to entry into programs, that the educational environment is cleansed of ethnic and gender bias, that the educational environment is totally free of ethnic and gender based harassment, that students who inhibit free access to programs are disciplined, and that teachers are in full support of an educational landscape free of ethnic and gender bias. Furthermore, that a positive appeal is made to interest all students in all career options.

## Extra Curricular Activities

## Conclusions

1. The surveyed students were active in work and non-work extra curricular activities.

2. For many students early work experiences were not related functionally to their career aspirations. Students needed to educated in how early work experiences could be used in the development of marketable workplace skills. Parents and educators also needed to learn to appreciate the value of early work experiences and stop belittling students' early work experiences.

3.  Many of the TPAG program students are from small, relatively remote communities that do not offer a wide range of employment exploration opportunities. Thus, making the work experience that is available to students relevant to their education and career plans takes on greater significance.

## Recommendations Regarding Extra Curricular Activities

It is recommended that:

1.  The TPAG program investigate how the students current activities may be used more constructively in their school-to-work educational transition.

2.  Educators be educated in how they can better value the work early work experiences of students.

3.  Then, students be educated as to how they can benefit from early work experiences and in how they may better seek paid and non-paid work experience that is related to their career aspirations.

## Student Expectations

## Conclusions

1. Student expectations concerning the benefits of the program appeared to be reasonable.

2. Students did not display a knowledge of the shifting composition of the domestic workforce and appeared unaware of the decreasing presence of unskilled jobs in the workforce.

3. It is important to the success of the TPAG program, and to the concept of seamless education, that the students experience their expectations of being better prepared for college, of not having to repeat courses taken in high school in college, of having the training business and industry wants, and of gaining college credits while they are in high school.

## Recommendations Regarding Student Expectations

It is recommended that:

1. The findings be aggressively distributed to the participating secondary and post-secondary institutions.

   (Note: The post-secondary institutions need to realize the levels of student expectations. If the student expectations are not realized and the students do not

trust the educational system, then the TPAG Program and other programs may be damaged.)

2. When the Ag Careers and Orientation class is re-formatted into Careers Exploration and Orientation that a significant section be devoted to understanding the composition of the contemporary and projected workforce.

## Career Exploration Actions

### Conclusion

While a strong majority of the students had taken or planned to take the career exploration steps suggested or required by the TPAG program, a significant minority had not take action, and did not plan to take action, on finding a career mentor and on creating a personal educational plan.

### Recommendations Regarding Career Exploration Actions

It is recommended that:

1. The TPAG program administration should forcefully remind the participating secondary institutions and students of the requirement to create a personal education plan.

(Note: This may be difficult for those students who have not specified an area of career interest. However, even these students could put together a plan that

states when and how they intended to determine an area of career interest and their educational plans leading up to that determination.)

2. The TPAG program administration should investigate methods of assisting the students in forming mentoring relationships.

(Note: For many students it could be very difficult to establish the network of contacts that lead to the establishment of a mentoring relationship because the student may be placebound in a location that does not offer relevant employment opportunities. Given the advent of electronic communication it may be possible to create an electronic bridge that allows students to establish a mentorship relationship with someone hundreds of miles distant from the student. However, there could be barriers to establishing said program because predatory individuals might use such a system to seek out young victims.)

## **Applied Academics**

## **Conclusion**

The availability of, and the participation in, applied academic courses is low.

## Recommendation Regarding Applied Academics

Further research be conducted as to why these courses are not offered at some participating high schools and why Tech Prep students are not participating when the courses are available.

## Lack of Student Comprehension

## Conclusions

1. Some studied students did not fully understand what courses and activities were involved in the TPAG program, indicating a need for improved orientation of both high school administrators and teachers.

2. Preliminary indications are that the student misunderstanding may originate with a limited number of secondary administrators who favor the creation of a competitive program that would by pass the community and technical college system to create an articulation track from the secondary agriculture education/FFA programs to the state's major agricultural university.

## Recommendations Regarding Lack of Student Comprehension

It is recommended that:

1. Participating schools be informed of the problem.

2. The source of the students' misconceptions should be determined as soon as possible.

## Cohort Effect

### Conclusion

The underlying Agriculture Education program appears to foster a cohort environment that may contain many of the elements being promoted as desirable elements of career strand education and homeroom.

### Recommendations Regarding Cohort Effect

It is recommended that:

- Research be conducted into the potential of a cohort effect being present in the underlying Agriculture Education program.

- The secondary school Agriculture Education model be investigated as a model for career strand education and the homeroom concept.

## Recommendations For Further Research

The following research is recommended:

1. All students involved in Tech Prep programs in the state of Washington should be surveyed in a similar fashion so that a better understanding of the programs' primary customer bases can be achieved.

2. Similar research should be conducted into the characteristics, perceptions, and expectations of other student populations.

3. Research should be conducted into the dynamics of the career selection process of high school students in the state of Washington.

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# Appendices

# Appendix A
# Pilot Forced Response Survey Instrument

**TECH PREP IN AGRICULTURE STATEWIDE ARTICULATION**
Student Perceptions Survey
Pilot Sites
1994/95 Academic Year

|  | Code |  |
|---|---|---|
| 0 | ▭▭▭▭▭▭ | 0 |
| 1 | ▭▭▭▭▭▭ | 1 |
| 2 | ▭▭▭▭▭▭ | 2 |
| 3 | ▭▭▭▭▭▭ | 3 |
| 4 | ▭▭▭▭▭▭ | 4 |
| 5 | ▭▭▭▭▭▭ | 5 |
| 6 | ▭▭▭▭▭▭ | 6 |
| 7 | ▭▭▭▭▭▭ | 7 |
| 8 | ▭▭▭▭▭▭ | 8 |
| 9 | ▭▭▭▭▭▭ | 9 |

1. What is your gender?
   ▭ male ▭ female

2. What is your ethnic origin?
   ▭ Asian American ▭ Black American
   ▭ American Indian ▭ Hispanic American
   ▭ White American ▭ Mixed Ethnic Origin
   ▭ Other ▭ Unknown

3. Do you live with?
   ▭ single parent - mother ▭ single parent - father
   ▭ two parents ▭ other family
   ▭ foster family ▭ a roommate
   ▭ by yourself ▭ in an institution

4. What is your age?
   ▭ 14 or younger ▭ 18
   ▭ 15 ▭ 19-25
   ▭ 16 ▭ 26-30
   ▭ 17 ▭ 31 or older

5. What is your status in school?
   ▭ grade 9 ▭ college freshman
   ▭ grade 10 ▭ college sophomore
   ▭ grade 11 ▭ college junior
   ▭ grade 12 ▭ college senior

6. What is your approximate GPA?
   ▭ less than 1.5 ▭ 3.0
   ▭ 1.5 ▭ 3.5
   ▭ 2.0 ▭ 4.0
   ▭ 2.5

7. What environment do you live in?
   ▭ central core of a city ▭ suburb of a city
   ▭ small town ▭ rural community
   ▭ farm or ranch area

8. What level of eduction do you intend to achieve?
- ( ) Some high school
- ( ) High school diploma
- ( ) GED certificate
- ( ) Some college
- ( ) 1-yr professional certificate
- ( ) AAAS 2-yr terminal degree

- ( ) AA 2-yr transfer degree
- ( ) BS or BA 4-yr degree
- ( ) Master's degree
- ( ) Doctorate degree
- ( ) Post doctoral studies
- ( ) Undecided

9. What is the highest level of education your father completed?
- ( ) Some Grammar School
- ( ) Some High School
- ( ) Some College
- ( ) Associate Degree (2-yr)
- ( ) Masters Degree
- ( ) Post Doctorate Studies

- ( ) Grammar School (1-8)
- ( ) High School Diploma
- ( ) Technical Certificate
- ( ) Bachelors Degree (4-yr)
- ( ) Doctorate (PhD)
- ( ) Do not know

10. What is the highest level of education your mother completed?
- ( ) Some Grammar School
- ( ) Some High School
- ( ) Some College
- ( ) Associate Degree (2-yr)
- ( ) Masters Degree
- ( ) Post Doctorate Studies

- ( ) Grammar School (1-8)
- ( ) High School Diploma
- ( ) Technical Certificate
- ( ) Bachelors Degree (4-yr)
- ( ) Doctorate (PhD)
- ( ) Do not know

11. Approximately how many hours per week do you work for pay or in a family enterprise?
- ( ) 0
- ( ) 1-10
- ( ) 11-20

- ( ) 21-30
- ( ) 31-40
- ( ) Over 40

12. Is your current work related to your career plans?
- ( ) Yes
- ( ) No

- ( ) Do not work

13. After completeting your education, what do you anticipate your approximate starting pay will be?
- ( ) Less than $5.00 per hour
- ( ) $7.50 - $10.00 per hour
- ( ) $12.50 - $15.00 per hour
- ( ) Over $17.50 per hour

- ( ) $5.00 - $7.50 per hour
- ( ) $10.00 - $12.50 per hour
- ( ) $15.00 - $17.50 per hour
- ( ) I do not know what to expect

14. Have you decided upon a career?
- ( ) Yes
- ( ) No

15. Your involvement in the Tech Prep in Agriculture program can be described as:
- ( ) First year in program
- ( ) Second year in program
- ( ) Third year in the program

- ( ) Considering the program
- ( ) Not interested in the program
- ( ) Unfamiliar with Tech Prep

16. How did you learn about the Tech Prep Program?
- ( ) Ag instructor
- ( ) Parents
- ( ) Friends
- ( ) Printed material/newspaper

- ( ) High school counselor/advisor
- ( ) Adult mentor
- ( ) Television
- ( ) Unfamiliar with Tech Prep

**Please rate the following program factors:**

```
                                                        Unknown ──┐
                                                   Poor ──┐       │
                                             Fair ──┐     │       │
                                      Good ──┐       │     │       │
                             Excellent ──┐    │      │     │       │
                                         │    │      │     │       │
```

■ 17.  Program Advising and Counseling          (_) (_) (_) (_) (_)

■ 18.  Courses Offered                          (_) (_) (_) (_) (_)

■ 19.  Course Content                           (_) (_) (_) (_) (_)

■ 20.  Instruction                              (_) (_) (_) (_) (_)


**How important are the following Tech Prep in Agriculutre Program features to you?**

```
                                              Not Important ──┐
                                          Of Some Interest ──┐ │
                                              Important ──┐   │ │
                                         Very Important ──┐ │  │ │
                                                         │ │  │ │
```

■ 21.  Courses taught at my high school         (_) (_) (_) (_)

■ 22.  Availability of college credit           (_) (_) (_) (_)

■ 23.  Courses coordinated with the needs of business   (_) (_) (_) (_)


**Please rate the Tech Prep Program on how well you feel it is preparing you in terms of the following:**

```
                                                        Unknown ──┐
                                                   Poor ──┐       │
                                             Fair ──┐     │       │
                                      Good ──┐       │     │       │
                             Excellent ──┐    │      │     │       │
                                         │    │      │     │       │
```

■ 24.  Technical Knowledge and Skills           (_) (_) (_) (_) (_)

■ 25.  Academic Knowledge                       (_) (_) (_) (_) (_)

■ 26.  Work Attitudes                           (_) (_) (_) (_) (_)

■ 27.  Knowledge of Career Training Opportunities   (_) (_) (_) (_) (_)

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28. I seem to learn well from: (check all that apply)
        ( ) What I read                ( ) What I hear
        ( ) What I see                ( ) What I do

29. I like learning about: (check all that apply)
        ( ) Abstract theory         ( ) Applications of theory
        ( ) Hands on experiences

**Please indicate your degree of agreement with the following statements:**

Strongly Disagree
Disagree
No Opinion
Agree
Strongly Agree

30. Tech Prep will prepare me for advanced training at a community college, technical college, or college/university.  ( ) ( ) ( ) ( ) ( )

31. Some Tech Prep associate degree programs lead to higher paying careers than do some bachelor degree programs.  ( ) ( ) ( ) ( ) ( )

32. Tech Prep limits career opportunities for people like me.  ( ) ( ) ( ) ( ) ( )

33. Tech Prep is a way to prepare for numerous well-paid modern careers.  ( ) ( ) ( ) ( ) ( )

34. The purpose of Tech Prep is to coordinate high school training with community college, technical college and 4-yr college programs in all fields of study.  ( ) ( ) ( ) ( ) ( )

35. In the foreseeable future, about 20% of the workforce will need a bachelor's degree or higher.  ( ) ( ) ( ) ( ) ( )

36. In the foreseeable future about 65% of the workforce will need training beyond high school, but will not need a bachelor's degree or higher.  ( ) ( ) ( ) ( ) ( )

37. In the foreseeable future only 15% of the workforce will be classified as unskilled and need minimal training.  ( ) ( ) ( ) ( ) ( )

How important are the following skills in your chosen career?

|  |  | Very Important | Important | Nice to Know | Not Important |
|---|---|:---:|:---:|:---:|:---:|
| 38. | Basic Mathematical Computations | ( ) | ( ) | ( ) | ( ) |
| 39. | Algebra | ( ) | ( ) | ( ) | ( ) |
| 40. | Math Beyond Algebra | ( ) | ( ) | ( ) | ( ) |
| 41. | Statistics | ( ) | ( ) | ( ) | ( ) |
| 42. | Physics | ( ) | ( ) | ( ) | ( ) |
| 43. | Chemistry | ( ) | ( ) | ( ) | ( ) |
| 44. | Life Sciences | ( ) | ( ) | ( ) | ( ) |
| 45. | Computer Literacy | ( ) | ( ) | ( ) | ( ) |
| 46. | Writing, Non-technical | ( ) | ( ) | ( ) | ( ) |
| 47. | Technical Writing | ( ) | ( ) | ( ) | ( ) |
| 48. | Reading | ( ) | ( ) | ( ) | ( ) |
| 49. | Personal Hygiene | ( ) | ( ) | ( ) | ( ) |
| 50. | Oral Communications | ( ) | ( ) | ( ) | ( ) |
| 51. | Ability To Work With Others | ( ) | ( ) | ( ) | ( ) |
| 52. | Second Language Skills | ( ) | ( ) | ( ) | ( ) |
| 53. | Listening Skills | ( ) | ( ) | ( ) | ( ) |
| 54. | Ability to Continue to Learn | ( ) | ( ) | ( ) | ( ) |
| 55. | Understanding Cultural Differences | ( ) | ( ) | ( ) | ( ) |
| 56. | Artistic Skills | ( ) | ( ) | ( ) | ( ) |
| 57. | Creativity | ( ) | ( ) | ( ) | ( ) |
| 58. | Accounting | ( ) | ( ) | ( ) | ( ) |
| 59. | Economics | ( ) | ( ) | ( ) | ( ) |

I have taken, or plan to take the following actions. (check all that apply)

Plan to do ─┐
Have done ─┐ │

60. Investigate new career options. ( ) ( )

61. Contact at least one community college, technical college, college or university. ( ) ( )

62. Visit at least one community college, technical college, college or university. ( ) ( )

63. Visit at least one career related work place. ( ) ( )

64. Find a career mentor. ( ) ( )

65. Increase the number of math, science, technology or comunications courses I take. ( ) ( )

66. Increase the number of computer courses I take. ( ) ( )

67. Study a second or third language. ( ) ( )

68. Study at least one diverse culture. ( ) ( )

69. Learn more about my own ethnic heritage. ( ) ( )

70. Put together a personal educational plan. ( ) ( )

71. Take at least on applied acadmics course. ( ) ( )

How do you rate the following levels of education as an investment?

| | excellent | good | decent | poor | terrible |
|---|---|---|---|---|---|
| 72. High School | ( ) | ( ) | ( ) | ( ) | ( ) |
| 73. Community college | ( ) | ( ) | ( ) | ( ) | ( ) |
| 74. Technical College | ( ) | ( ) | ( ) | ( ) | ( ) |
| 75. Four year college | ( ) | ( ) | ( ) | ( ) | ( ) |
| 76. Four year university | ( ) | ( ) | ( ) | ( ) | ( ) |
| 77. Graduate school | ( ) | ( ) | ( ) | ( ) | ( ) |
| 78. Trade school | ( ) | ( ) | ( ) | ( ) | ( ) |

▬▬▬▬

**The cost of a college education has**

|  | | false |
|---|---|---|
|  | | true |

▬ 79.  had no impact on my planned eduction                ( ) ( )

▬ 80.  caused me to reduce my career aspirations.          ( ) ( )

▬ 81.  caused me to delay my advanced education.           ( ) ( )

▬ 82.  caused me to join the military.                     ( ) ( )

▬ 83.  caused me to shorten my planned college education.  ( ) ( )

▬ 84.  caused me to replace the first two years at a univeristy or college with     ( ) ( )
two years at a community college or technical college.

▬ 85.  caused me to give up on obtaining a college education.     ( ) ( )

▬ 86.  caused me to give up on having a good paying career.       ( ) ( )


**I expect that someone with the following level of education could expect a
starting pay level of:**

|  | $5 000/yr | $10 000/yr | $15 000/yr | $20 000/yr | $25 000/yr | $30 000/yr | $35 000/yr | $40 000/yr |
|---|---|---|---|---|---|---|---|---|
| ▬ 87. Less than high school | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 88. High school diploma | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 89. GED | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 90. 1 yr Professional Certificate | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 91. 2 yr Associate's Degree | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 92. 4 yr Bachelor's Degree | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 93. Master's Degree | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |
| ▬ 94. Doctorate | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |

95. Who do you feel should bear the majority of the cost for post secondary
    education. (check only one)
          ( ) students                      ( ) society (government)
          ( ) parents                       ( ) business


Do you feel that the following proposed changes in how we finance post secondary
education would be fair?

                                                                     no ⌐
                                                         yes ⌐       |
96.  Increase tuition                                        ( )    ( )

97.  Increase student loan limits                            ( )    ( )

98.  Require public service of post secondary students       ( )    ( )

99.  Allow tax deductions for tuition                        ( )    ( )

100. Increase taxes                                          ( )    ( )

101. Reduce social security benefits                         ( )    ( )

102. Reduce military spending                                ( )    ( )

103. Limit access to education to only the most qualified students   ( )    ( )

104. Eliminate all courses and activities that are not work related  ( )    ( )


How valuable do you feel college level courses taught by the following
instutions are?

                                                              best ⌐
                                                   superior ⌐     |
                                                   good ⌐    |    |
                                         inferior ⌐    |     |    |
                                 worthless ⌐    |  |    |     |    |
105. High schools                        ( ) ( ) ( ) ( ) ( )

106. Running start                       ( ) ( ) ( ) ( ) ( )

107. Community college                   ( ) ( ) ( ) ( ) ( )

108. Technical college                   ( ) ( ) ( ) ( ) ( )

109. 4 yr college                        ( ) ( ) ( ) ( ) ( )

110. 4 yr university                     ( ) ( ) ( ) ( ) ( )

111. Private trade school                ( ) ( ) ( ) ( ) ( )

If education were free I would complete (check only the highest level that applies)

Check only one ─┐

■112. High school ( )

■113. GED ( )

■114. One year Professional Certificate ( )

■115. Two year Associate Degree ( )

■116. Four year Bachelor's Degree ( )

■117. Master's Degree ( )

■118. Doctorate ( )


To be successful and be able to provide a good life for myself and/or family I need at least a:

Check only one ─┐

■119. High school diploma ( )

■120. GED ( )

■121. One year Professional Certificate ( )

■122. Two year Associate Degree ( )

■123. Four year Bachelor's Degree ( )

■124. Master's Degree ( )

■125. Doctorate ( )


126. After completing my education I expect to have a starting pay of:
■     ( ) $5 000/yr          ( ) $25 000/yr
■     ( ) $10 000/yr         ( ) $30 000/yr
■     ( ) $15 000/yr         ( ) $35 000/yr
■     ( ) $20 000/yr         ( ) $40 000/yr

127. The career field I have selected is:
( ) ------------------------------    ( ) I haven't made a decision yet

Please feel free to comment on any aspect of the Tech Prpa in Agriculture
Statewide Articulation Program that you care to comment on.  Thank you for
taking the time and trouble to fill out this rather long survey.

Your responses will help us to improve the TPAG program and to better serve both
students and future employers.

## Appendix B
## Forced Response Survey Instrument

**Tech Prep in AGRICULTURE**

TO:       Tech Prep In Agriculture Students

FROM:     Jim Willis, Program Coordinator

SUBJECT:  Student Survey

    As a student I hated being treated like a lump of clay rolling along an assembly line. With rare exception, neither teacher nor administrator asked what my interests were, how I felt I learned best, or what my goals were. How could the administrators, who seemed to come from a different time and planet, be so presumptuous when they knew so little about me?

    Also, as a business person who for the last several years has helped put a number of new products on the shelf, I learned you better do your homework: you better know your consumer.

    As Coordinator for the TPAG Program I need to know more about the Tech Prep students so that the program may be modified to better serve the student and society. I need to know more about you, your perceptions, and your expectations. I need to know more about how and why you migrated into the program.

    Therefore, please complete the enclosed survey. It is long because we know so little. After completing the survey, please place the survey and one copy of the signed Informed Consent Document in the enclosed envelope, then seal the envelope and return it to your teacher. Your teacher will return the sealed envelopes to me.

    In addition to the survey you have been provide with two copies of the Informed Consent Document. This legalist document explains your rights concerning your voluntary participation in the investigation. Your participation is voluntary and important. The information gathered through this investigation will be used to help us manage the TPAG Program and to help other educators plan and manage other Tech Prep programs. A summary of the results of the investigation will be distributed to high schools in Washington and will also become part of my Ed.D. Doctoral Dissertation.

    Thank you for helping us to better manage the Tech Prep in Agriculture Program.

Sincerely,

James F. Willis

**Tech Prep in AGRICULTURE**

## INFORMED CONSENT DOCUMENT

You are being asked to voluntarily participate in a follow-up study concerning the Tech Prep in Agriculture Statewide Articulation Program that you have decided to participate in at your high school. The study seeks to learn more about the Tech Prep students, their perceptions, and expectations of the program so that the program may be potentially modified to better serve the needs of the students and of society.

The importance of the investigation is associated with the value of creating more effective educational systems and in attracting students into efficient educational alternatives such as the Tech Prep Associate Degree program that calls for the coordination of the last two years of high school with community and technical college associate degree programs, which themselves may be coordinated with four year college and university bachelor's degree programs.

### PROCEDURES

We would like you to participate in the study by:
* Completing a long survey form that will ask questions about who you are and what your perceptions and expectations are concerning your education. The survey form is long and will take up to 30 minutes of your time.
* A few students will be asked to participate in short, no longer than 20 minutes, interview concerning the same subject.
* A few students will be asked to participate in group interviews covering the same subject. The group interviews may take up to an hour to complete.

### VOLUNTARY PARTICIPATION STATEMENT

I understand that participation in the study is voluntary and if I decide not to participate that decision will not affect my participation in the Tech Prep in Agriculture Program or any other programs in anyway. I understand that if I am uncomfortable in answering any of the questions on the survey form or in an interview I am free to skip those questions. Furthermore, at any time I may ask to be excused from the study. I understand that there will be no penalty or loss of benefits if I decided not to participate or if I decide to discontinue my participation.

### CONFIDENTIALITY

Any information obtained from me will be kept confidential. A code number will be used to identify any information that I provide. The only persons who will have access to this information will be the investigators and no student names will be used in any data summaries or publications. Surveys will be turned in in a sealed envelope and no person at your high school will see your completed survey.

## IF YOU HAVE QUESTIONS

I understand that any questions I have about the study and/or study procedures should be directed to James Franklin Willis, Coordinator, Tech Prep in Agriculture, 500 Tausick Way, Walla Walla Community College, Walla Walla, Washington 99362-9267, (509) 527-4324, fax (509) 527-4480. Any other questions I have may should be directed to Mary Nunn, Sponsored Programs Officer, Oregon State University Research Office, (503) 737-0670. (The Oregon State University Research Office has reviewed the study for the appropriateness of questions and procedures for student participants.)

## UNDERSTANDING AND COMPLIANCE:

My signature below indicates that I have read and that I understand the procedures described above and give my informed and voluntary consent to participate in this study. I understand that I will receive a signed copy of this consent form.

_____          _____
Student's Signature                                              Name of Student


_____
Date Signed


_____          _____
Signature of Minor Student's Parent                Name of Minor Student's Parent or
or Legal Guardian                                              Legal Guardian


_____
Date Signed


_____          _____
                                                                    Student's Phone Number
_____


_____
Student's Current Address

## TECH PREP IN AGRICULTURE STATEWIDE ARTICULATION
### Student Survey

CODE

Male    Female

1. What is your gender?

2. What is your age?
   - 14 or younger
   - 15
   - 16
   - 17
   - 18
   - 19
   - 20
   - 21 or older

3. What is your ethnic origin?
   - Asian/Pacific Islander
   - Native American
   - White/Caucasian
   - Black/African
   - Hispanic/Chicano
   - Mixed Ethnic Origin
   - Caribbean Islander
   - Other _____

4. Check with whom you live:
   - single parent - mother
   - single parent - father
   - two parents
   - other family
   - foster family
   - roommate(s)
   - by yourself
   - spouse
   - other

5. Where do you live?
   - central city
   - suburb of a city
   - small town
   - rural community
   - farm or ranch

6. Check activities and clubs in which you participate:
   - sports
   - drama
   - service clubs
   - church activities
   - volunteer/charity work
   - career interest clubs
   - music
   - social clubs
   - other _____

7. What is your approximate high school GPA?
   - less than 1.5
   - 1.50 - 1.99
   - 2.00 - 2.49
   - 2.50 - 2.99
   - 3.00 - 3.49
   - 3.50 - 4.00

8. What is your status in school? (Check all that apply)
   - grade 9
   - grade 10
   - grade 11
   - grade 12
   - Running Start freshman
   - Running Start sophomore
   - community college freshman
   - community college sophomore

9. Check the Tech Prep in Agriculture courses you have taken or are taking FOR COLLEGE CREDIT.
   - AgriBusiness
   - Agicultural Safety and Health
   - Plant Science
   - Welding
   - Ag Careers and Orientation
   - Environmental Science
   - Shop Fundamentals

10. For the following courses, check each statement that applies:

| | My high school offers | Have Taken, Taking Now Or Will Take | I would take If made available |
|---|---|---|---|
| Applied Business | | | |
| Applied Technology | | | |
| Applied Statistics | | | |
| Applied Communications | | | |
| Applied Sciences | | | |
| Applied Mathematics | | | |
| Other:_____ | | | |

**11. Check highest level of education your parents completed?**

(Specialized apprenticeship, military or naval training may be checked in addition to academic education.)

|  | Mother | Father |
|---|---|---|
| Some Elementary School |  |  |
| Elementary School (grades 1-8) |  |  |
| Some High School (9-12) |  |  |
| High School Diploma |  |  |
| Some College |  |  |
| Professional Certificate (1 year) |  |  |
| Associate Degree (2 Years) |  |  |
| Bachelor's Degree (4 Years) |  |  |
| Master's Degree |  |  |
| Doctorate |  |  |
| Apprenticeship Program |  |  |
| Specialized Military or Naval Training |  |  |
| I do not know |  |  |

**12. What level of education do you intend to achieve?**

(Apprenticeship, military, and naval training may be checked in addition to academic educational levels.)

___ Some High School
___ GED Certificate
___ High School Diploma
___ Some College
___ 1 Year Professional Certificate
___ 2 Year Associate Degree
___ Bachelor's Degree
___ Master's Degree
___ Doctorate Degree
___ Post Doctorate Studies
___ Apprenticeship
___ Military Training
___ Naval Training
___ Undecided

**13. The career field you have selected is:**

_____

___ No career selected yet

**15. During school how many hours per week do you work for pay for anyone, or in a family enterprise without pay?**

___ 0
___ 1-10
___ 11-20
___ 21-30
___ 31-40
___ Over 40

**14. Is your current work related to your career plans?**

___ Yes
___ No
___ I do not work
___ No career decision yet

**16. What do you feel you learn best from? (Please check one or two.)**

___ What you read
___ What you see
___ What you hear
___ What you do

**17. Check all activities you are or have been involved in.**

___ FFA Chapter
___ FFA Chapter Competition
___ FFA District Competition
___ FFA State Competition
___ FFA National Competition

**18. How long have you been in the COLLEGE CREDIT Tech Prep in Agriculuture Program?**

___ First Year
___ Second Year
___ Third Year
___ Graduate

**19. Check the statement below which best describes how you feel regarding your career choice.**

___ I am very certain that I will follow my current choice.
___ I am pretty sure I will follow my current choice.
___ I have a career area I am interested in, but I haven't narrowed it down to a specific career.
___ I am exploring a number of options.
___ I haven't really thought about career choices yet.

20. What do you most like learning about:
(Check one or two.)

- Abstract Theory
- Applications of Theory
- Technology
- Working with my hands
- Working with my mind
- Working with both my hands and mind
- Working on real problems
- Working on made up problems

21. Who interested you in the Tech Prep Program?
(Check all that apply.)

- Ag teacher
- High School Counselor
- Parent(s)
- Friend attending college
- Sibling (brother, sister)
- College counselor
- Other teacher
- Other _____

22. If education were free and you had the time you would complete: (Check only the highest level that applies.)

- High School
- GED
- 1 Year Professional Certificate
- 2 Year Associate Degree
- 4 Year Bachelor's Degree
- Master's Degree
- Doctorate

23. To be successful in your career and have a comfortable lifestyle what level of education do you feel you need?

- High School
- GED
- 1 Year Professional Certificate
- 2 Year Associate Degree
- 4 Year Bachelor's Degree
- Master's Degree
- Doctorate

24. Check all the statements that apply concerning your decision to enroll in Tech Prep courses:

- It was my decision to be involved in the Tech Prep Program.
- It was a school counselor's or administrator's decision to place me in the Tech Prep Program.
- It was my parent's decision to place me in the Tech Prep Program.
- It was an accident that I ended up in the Tech Prep Program.
- It was a natural consequence of my Ag Ed Program to take the Tech Prep courses.

25. From what you have experienced to-date please rate the following factors for the Tech Prep In Agriculture Program.

|  | Excellent | Good | Fair | Poor | No Opinion |
|---|---|---|---|---|---|
| Advising and Counseling |  |  |  |  |  |
| Course Selection |  |  |  |  |  |
| Course Content |  |  |  |  |  |
| Instruction |  |  |  |  |  |

26. How important are the following potential Tech Prep in Agriculture Program features to you?

|  | Very Important | Important | Interesting | Not Important |
|---|---|---|---|---|
| Courses are taught at my high school. |  |  |  |  |
| The availability of community college credit. |  |  |  |  |
| Courses coordinated with business and industry needs. |  |  |  |  |
| The availability of college credit. |  |  |  |  |

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27. Please indicate your degree of agreement with the following statements.

| | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| Tech Prep will prepare me for advanced training in two and four year college career training programs. | | | | | |
| Some Tech Prep Associate Degree Programs lead to higher paying careers than do some bachelor degree programs. | | | | | |
| The purpose of Tech Prep is to coordinate high school training with community college, technical college, and four year college programs. | | | | | |
| By the year 2000 about 20% of workers will be classified as professional and will need at least a bachelor's degree; also, about 65% of workers will be classed as skilled and need training beyond high school but will not need a bachelor's degree. | | | | | |
| By the year 2000 only 15% of the workers will be classified as unskilled and will not need education beyond high school. | | | | | |

28. Please indicate which actions you have taken or plan to take. (Check all that apply.)

| | Have done | Plan to do |
|---|---|---|
| Investigate new career options. | | |
| Visit at least one career related work place. | | |
| Find a career mentor. | | |
| Put together a personal education plan. | | |
| Contact and/or visit at least one community college, technical college, college, or university. | | |

29. Because of your involvement with Tech Prep you expect that:
(Please indicate your degree of agreement with the following statements.)

| | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| You will be more confident entering college. | | | | | |
| You will get out of college sooner. | | | | | |
| You will save tuition expense. | | | | | |
| You will have training industry wants. | | | | | |
| You won't have to repeat the Tech Prep courses in college that you have taken in high school. | | | | | |

**30. Please rate the following as sources of information about careers and career training.**

| | Very Helpfull | Helpfull | No Value | Misleading |
|---|---|---|---|---|
| High School Administrators | | | | |
| High School Counselors | | | | |
| High School Teachers | | | | |
| College Counselors | | | | |
| College Instructors and Professors | | | | |
| Parents | | | | |
| Older Brothers and/or Sisters | | | | |
| People A Few Years Older Than You | | | | |
| People 5 - 15 Years Older Than You | | | | |
| People About Your Parents' Age | | | | |
| Recent High School Graduates | | | | |
| Current Community College and University Students | | | | |
| Recent Community College and University Graduates | | | | |
| Politicians | | | | |
| Media Journalists | | | | |
| Young Men and Women Working in Your Career Area | | | | |
| Middle Aged Men and Women Working in Your Career | | | | |
| Men and Women Nearing Retirement in Your Career | | | | |
| Men and Women Retired From Your Career | | | | |
| Corporate Executives | | | | |
| A Teacher or Counselor Who is a Personal Mentor | | | | |

**31.   Which statement best describes how you feel about making a career decision now?**

I am ready to make my decision.

I have narrowed the choices down to a few that I am ready to investigate.

I am ready to start exploring the possibilities.

I'm not ready to start career exploration.

32.  Please check all the statements below that accurately describe
     career counseling and exploration at your high school.

     _____ My high school has provided a lot of information,
           counseling, and activities to help me make a career choice.

     _____ At least one of my high school classes has included
           a meaningful career exploration project.

     _____ At least one of my high school classes has touched
           on career exploration, but no meaningful time was devoted
           to career exploration.

     _____ My high school requires us to have a meaningful session
           about career exploration with a school counselor.

     _____ The high school has career exploration resources that we
           can use on our own time.

     _____ The high school does not provide any meaningful career
           exploration experience.

33.  Please check all of the following statements that describe
     how you feel about your career choices and decisions.

     _____ Which career I follow is my decision.

     _____ I am going into a career my parents want me to go into...

     _____ Teachers and counselors have told me what careers are open to me.

     _____ I feel I have a lot of good career options.

     _____ I feel I don't have good career choices.

34.  When you think about your education     35.  When you think about finishing school
     beyond high school, which                    and going to work, which
     statement best describes                      statement best describes
     how your feel?                                how you feel?

          I feel good                                  I feel good
          I feel OK                                    I feel OK
          I am concerned                               I am concerned
          I am depressed                               I am depressed
          I don't think about it                       I don't think about it

36. How important do you think the following skills will be in your future?

| | Very Important | Important | Nice to Know | Not Important | I don't know |
|---|---|---|---|---|---|
| Basic Mathematical Computations | | | | | |
| Algebra | | | | | |
| Math Beyond Algebra | | | | | |
| Statistics | | | | | |
| Physics & Chemistry | | | | | |
| Life Sciences (Biology, Environment) | | | | | |
| Using a computer to solve problems | | | | | |
| Using a computer to get information | | | | | |
| Using a computer to communicate | | | | | |
| Writing, non-technical | | | | | |
| Technical writing | | | | | |
| Reading | | | | | |
| Personal hygiene | | | | | |
| Oral communications | | | | | |
| Ability to work with others | | | | | |
| Listening skills | | | | | |
| Second language skills | | | | | |
| Ability to continue learning | | | | | |
| Creativity | | | | | |
| Accounting | | | | | |
| Economics | | | | | |
| Child rearing/raising skills | | | | | |
| Appreciation of art, music and literature | | | | | |
| Appreciation of plays, movies, and TV | | | | | |

# Appendix C
## Student Ratings of Individuals as Sources of
## Information on Careers and Education

Figure 55.
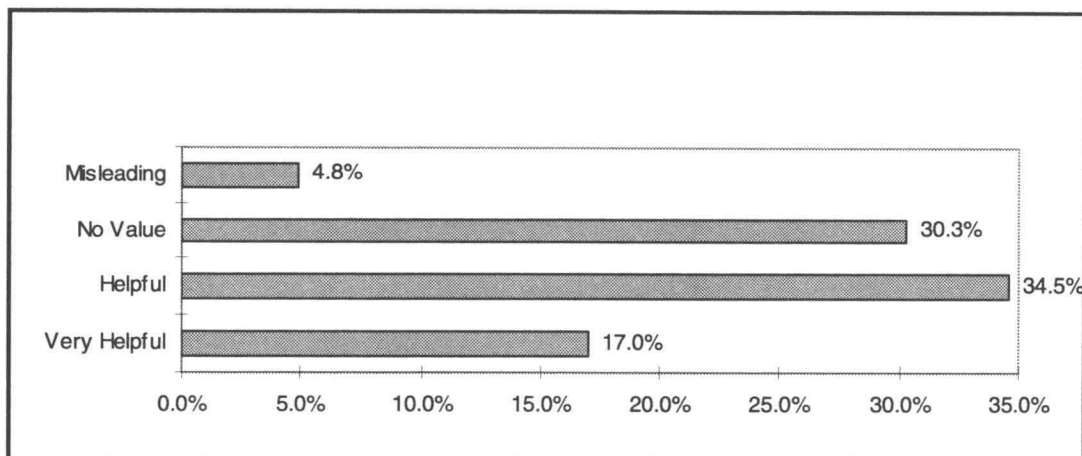How 165 TPAG Program students evaluated parents as sources of information on careers and education
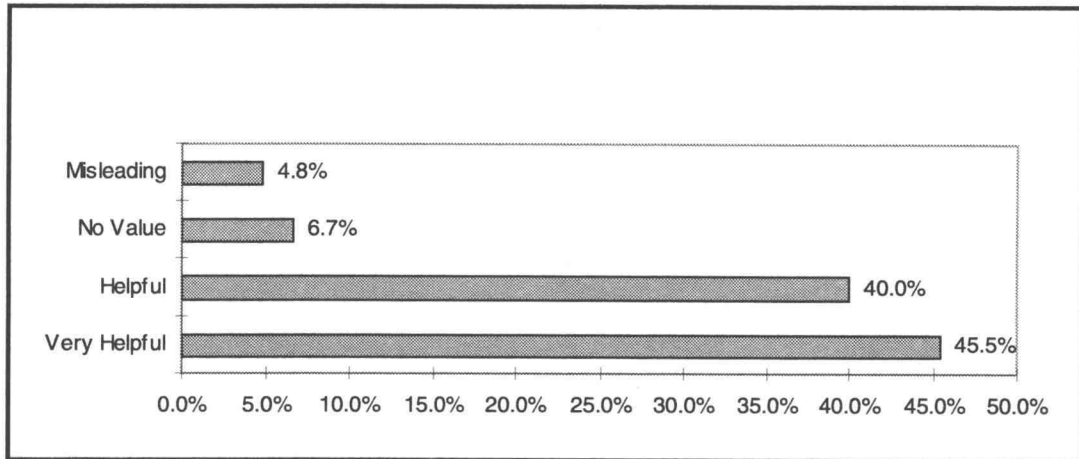


Figure 56
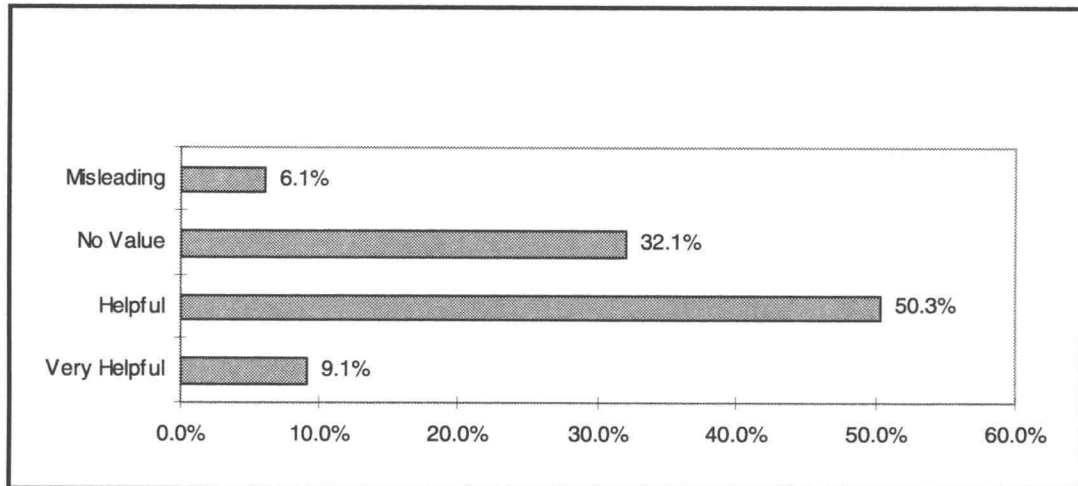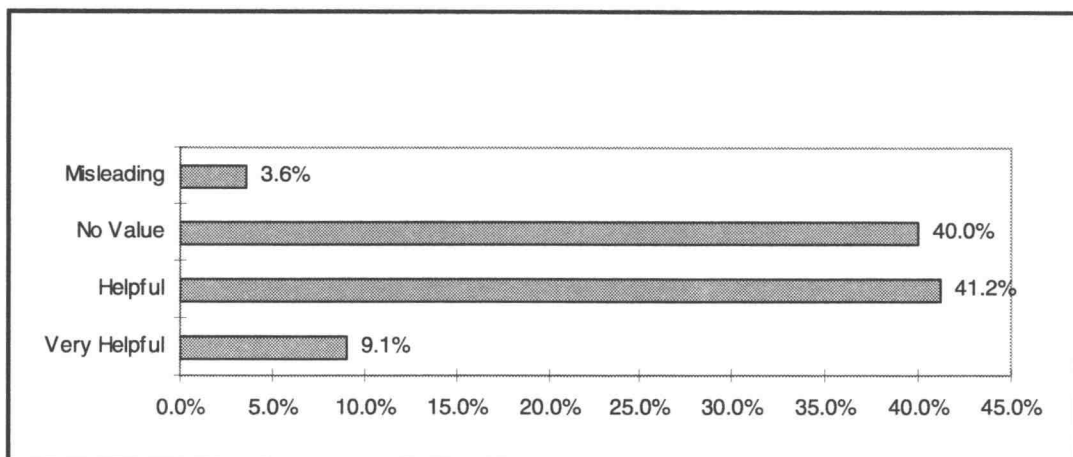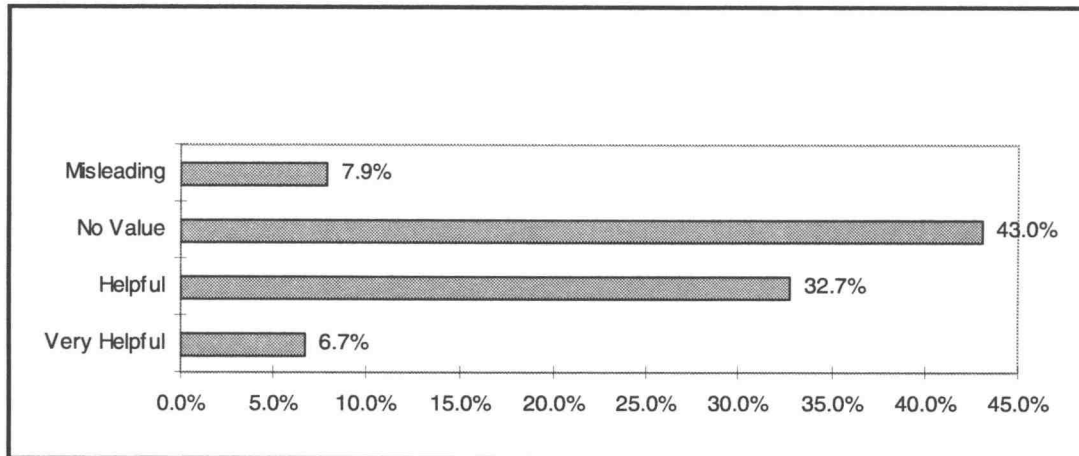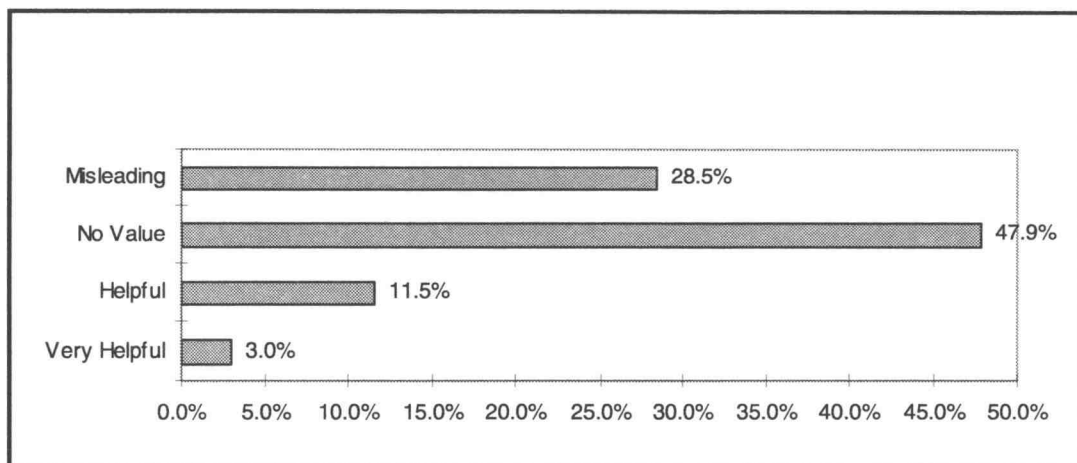How 165 TPAG Program students evaluated high school teachers as sources of information on careers and education
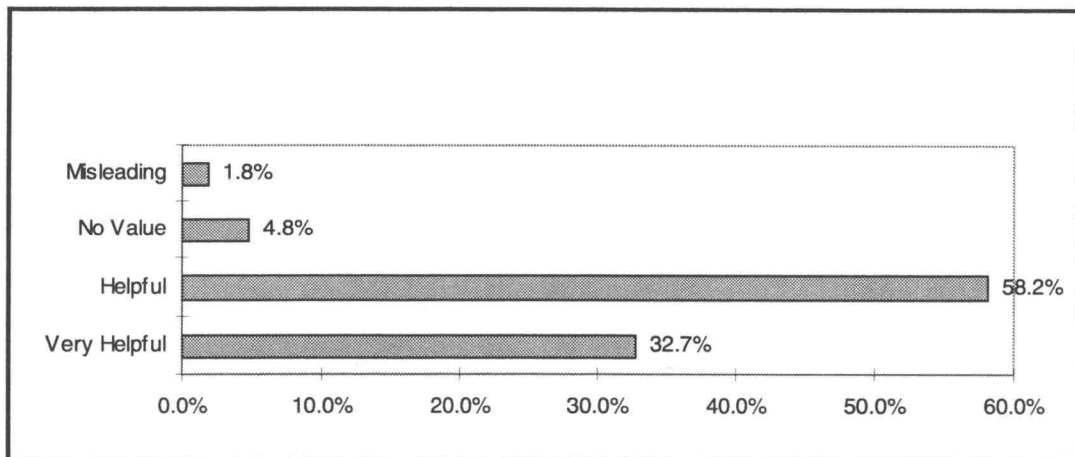
Figure 57.
How 165 TPAG Program students evaluated young people in the student's career area
of interest  as sources of information on careers and education
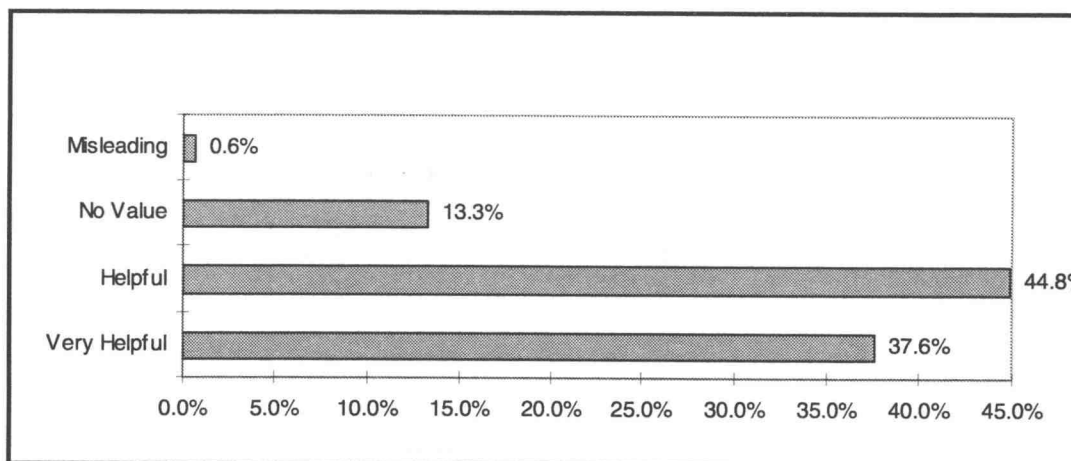


Figure 58.
TPAG Program students evaluated middle aged people in the student's career area of
interest as sources of information on careers and education
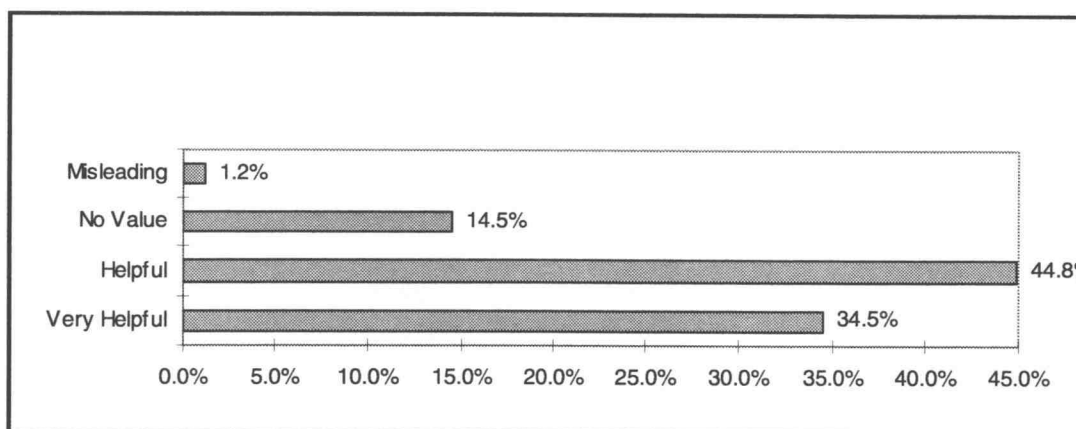
Figure 59.

How 165 TPAG Program students evaluated teachers and counselors who are personal mentors as sources of information on careers and education
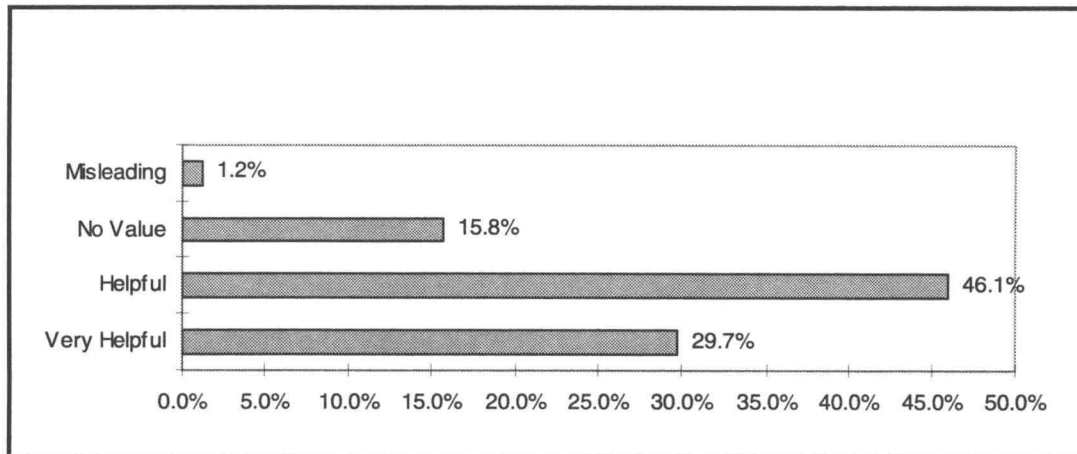


Figure 60.

How 165 TPAG Program students evaluated people nearing retirement in the student's area of career interest as sources of information on careers and education
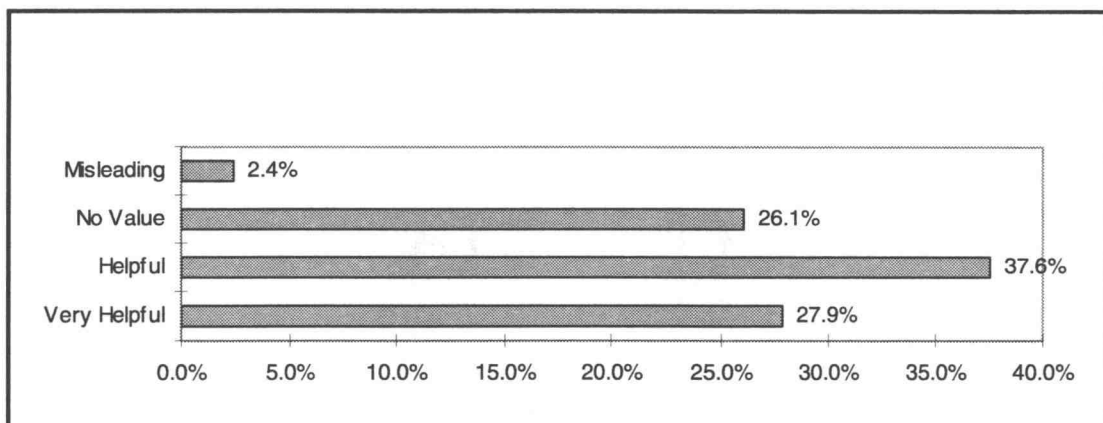
Figure 61.
How 165 TPAG Program students evaluated high school counselors as sources of
information on careers and education
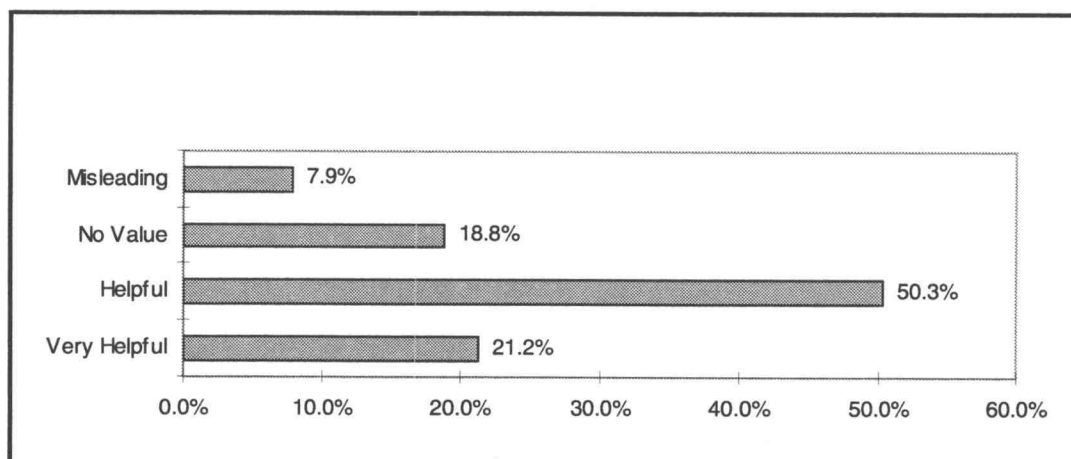


Figure 62.
How 165 TPAG Program students evaluated people about the student's parents' age as
sources of information on careers and education
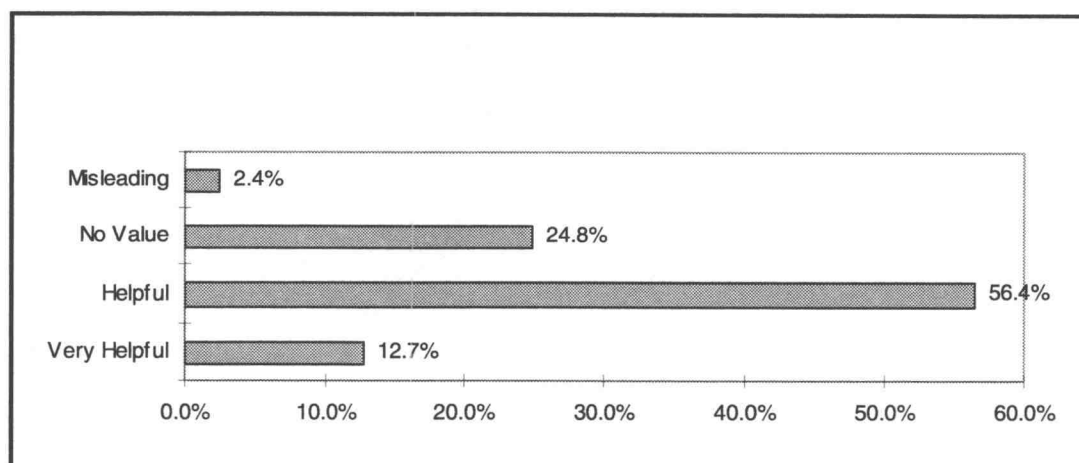
Figure 63.
How 165 TPAG Program students evaluated people 5 to 15 years older than the student as sources of information on careers and education
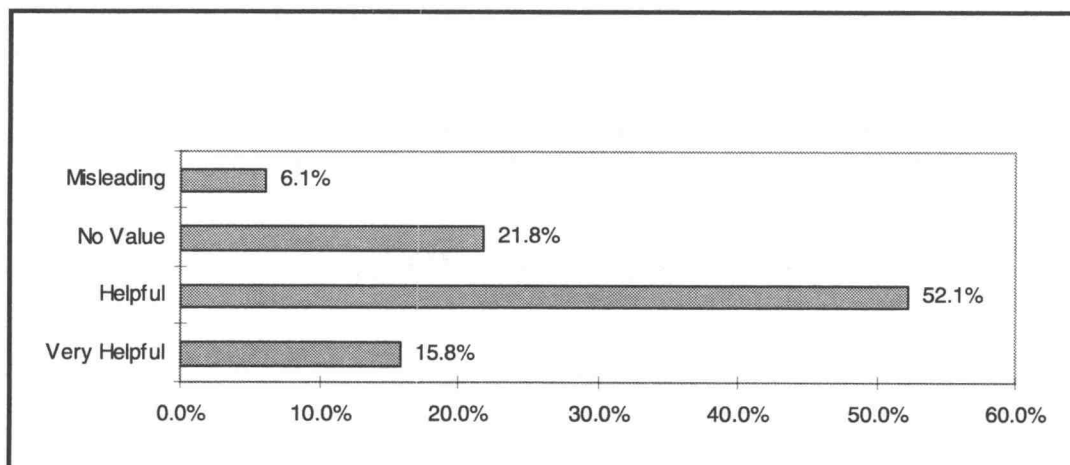


Figure 64.
How 165 TPAG Program students evaluated recent community college and college graduates as sources of information on careers and education
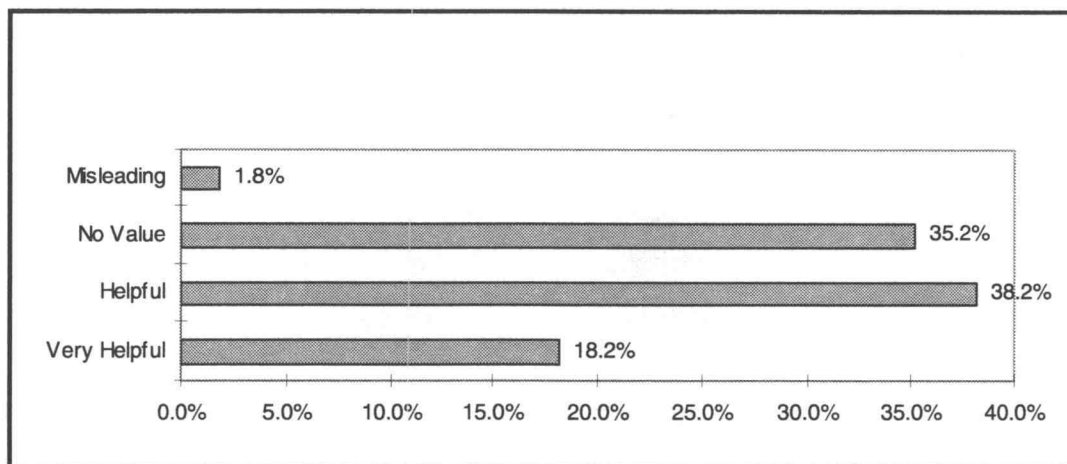
Figure 65.
How 165 TPAG Program students evaluated people retired from the student's area of
career interest as sources of information on careers and education
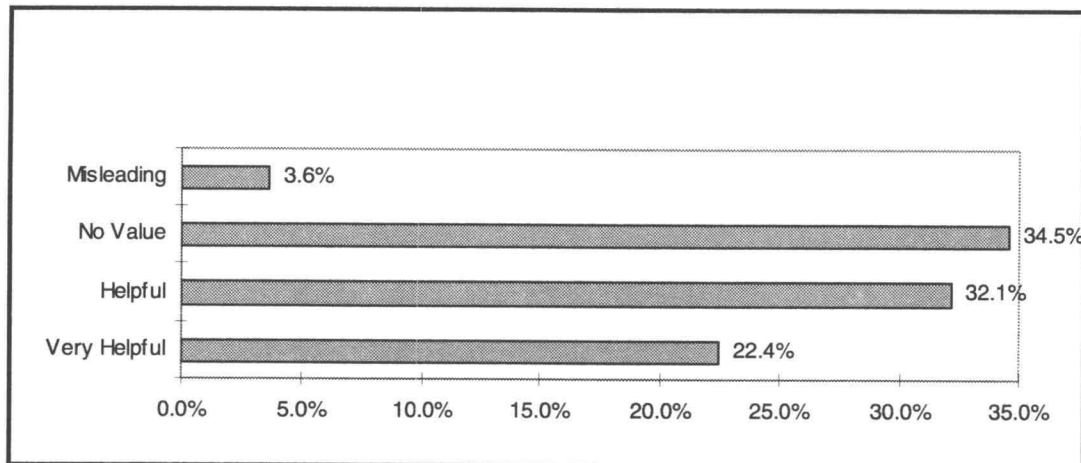


Figure 66.
How 165 TPAG Program students evaluated college professors as sources of
information on careers and education
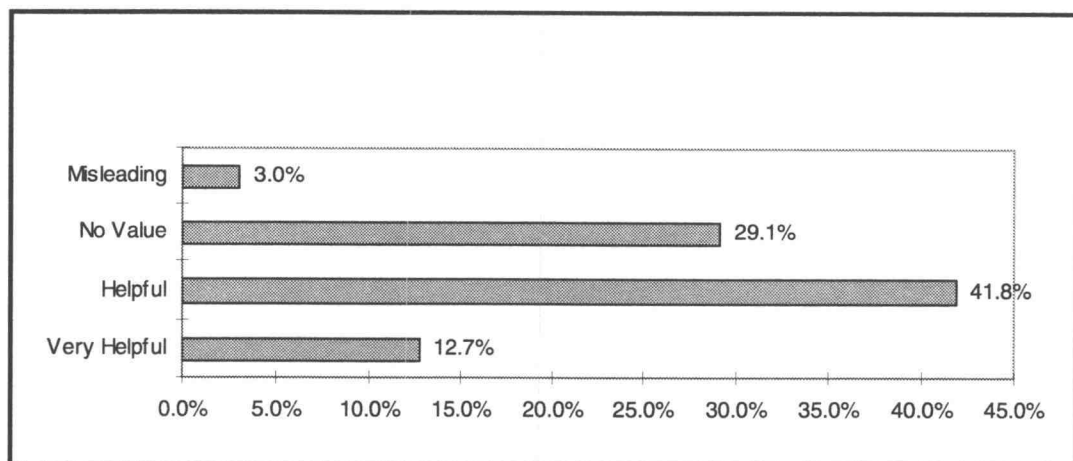
Figure 67.
How 165 TPAG Program students evaluated people a few years older than the student as sources of information on careers and education
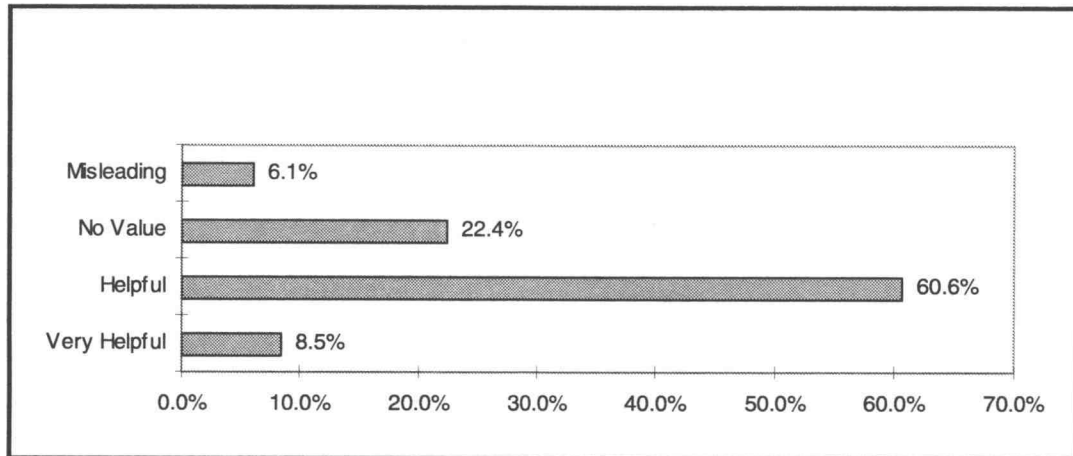


Figure 68.
How 165 TPAG Program students evaluated current community college and college students as sources of information on careers and education
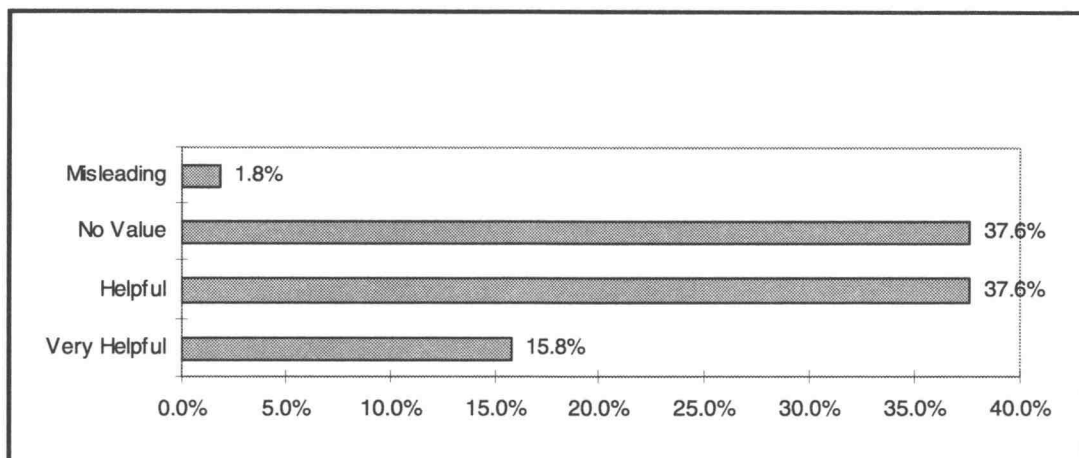
Figure 69.
How 165 TPAG Program students evaluated older siblings as sources of information on careers and education
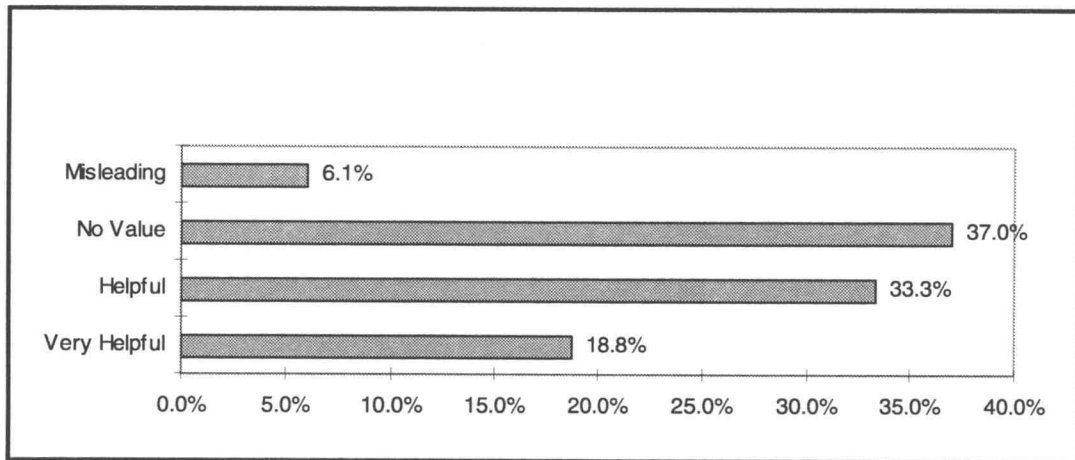


Figure 70.
How 165 TPAG Program students evaluated college counselors as sources of information on careers and education

Figure 71.

How 165 TPAG Program students evaluated high school administrators as sources of information on careers and education



Figure 72.

How 165 TPAG Program students evaluated recent high school graduates as sources of information on careers and education

Figure 73.
How 165 TPAG Program students evaluated corporate executives as sources of information on careers and education



Figure 74.
How 165 TPAG Program students evaluated politicians as sources of information on careers and education

Figure 75.

How 165 TPAG Program students evaluated media journalists as sources of information on careers and education
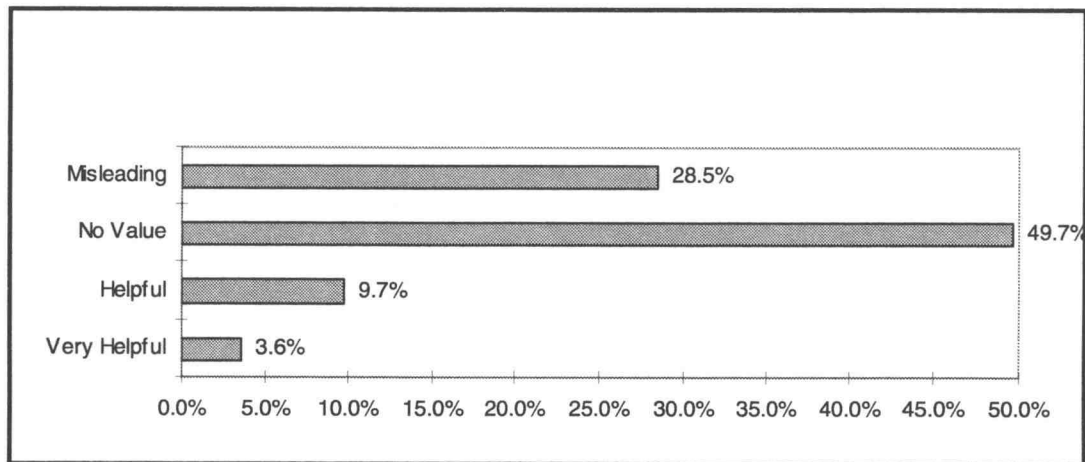
# Appendix D
## Student Perceptions of How Important Specific Skills Will Be In Their Futures

Figure 76.
The perceptions of 165 State of Washington TPAG Program students of how important the ability to work with others will be in their futures
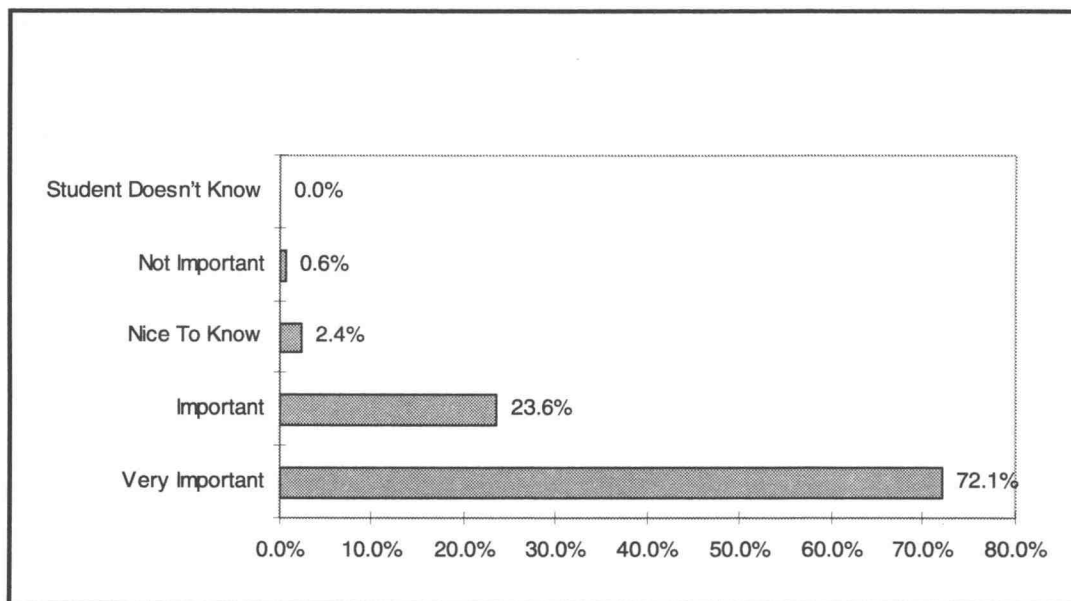


Figure 77.
The perceptions of 165 State of Washington TPAG Program students of how important listening skills will be in their futures
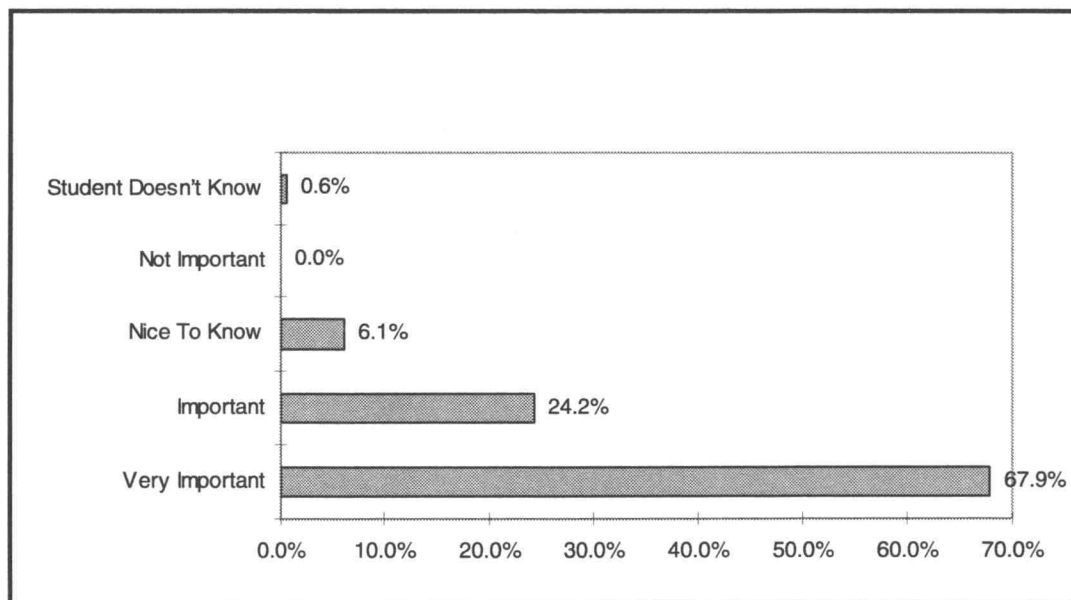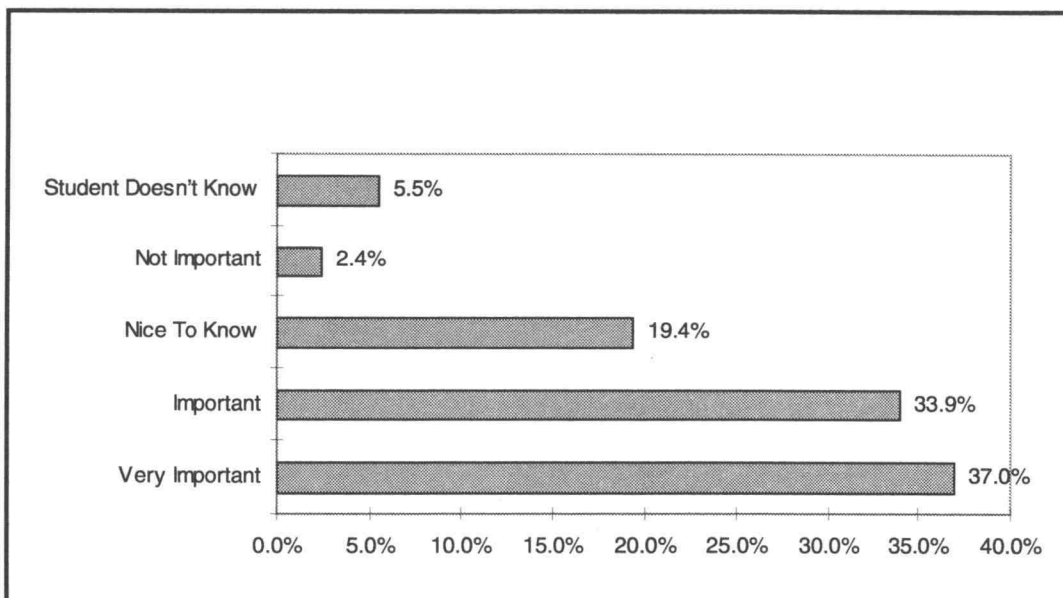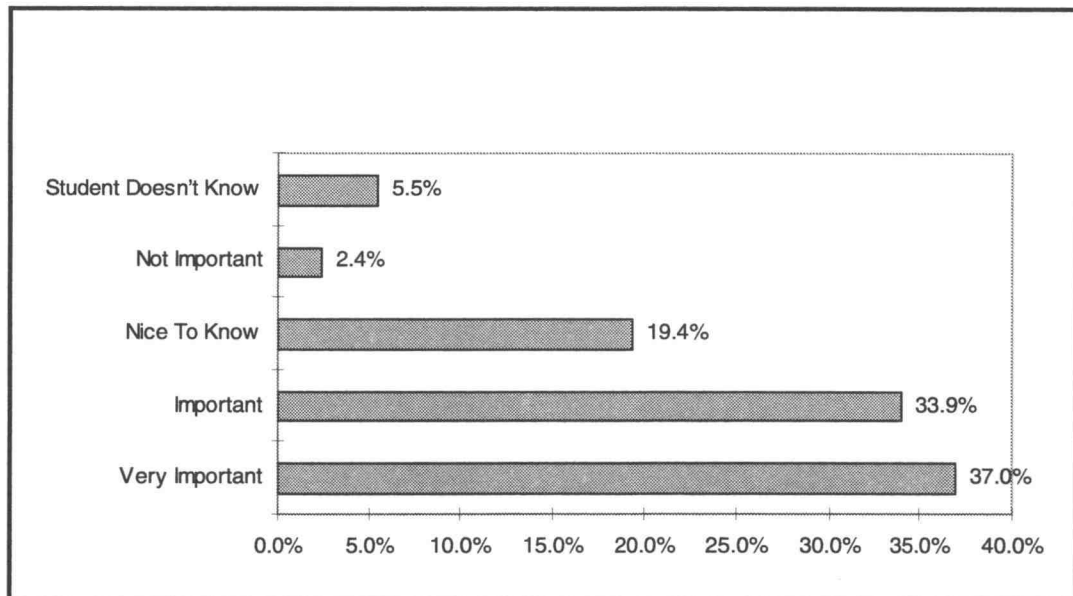
Figure 78.
The perceptions of 165 State of Washington TPAG Program students of how important reading will be in their futures
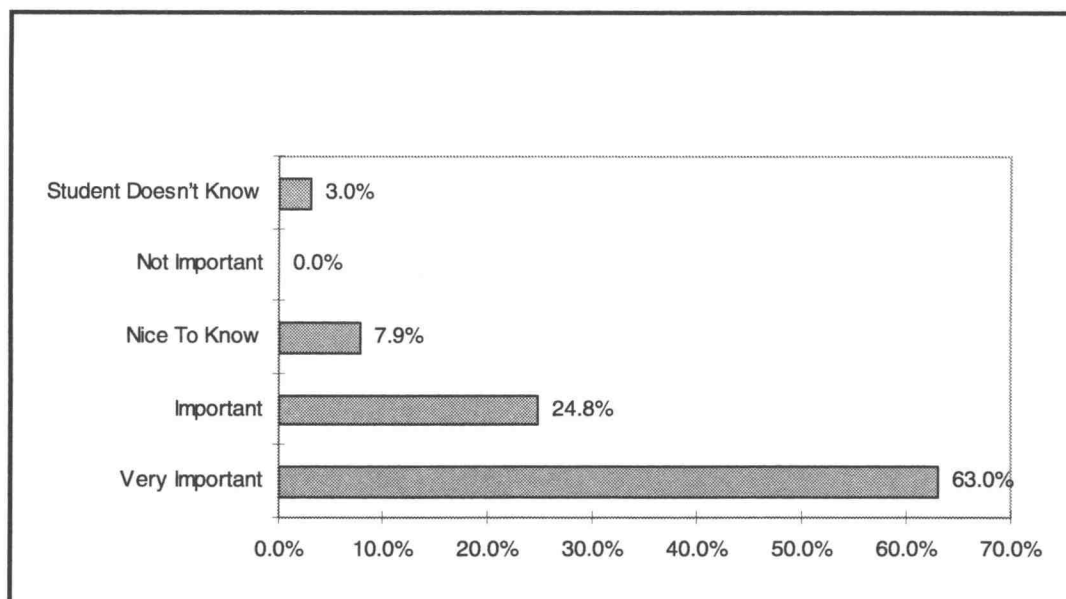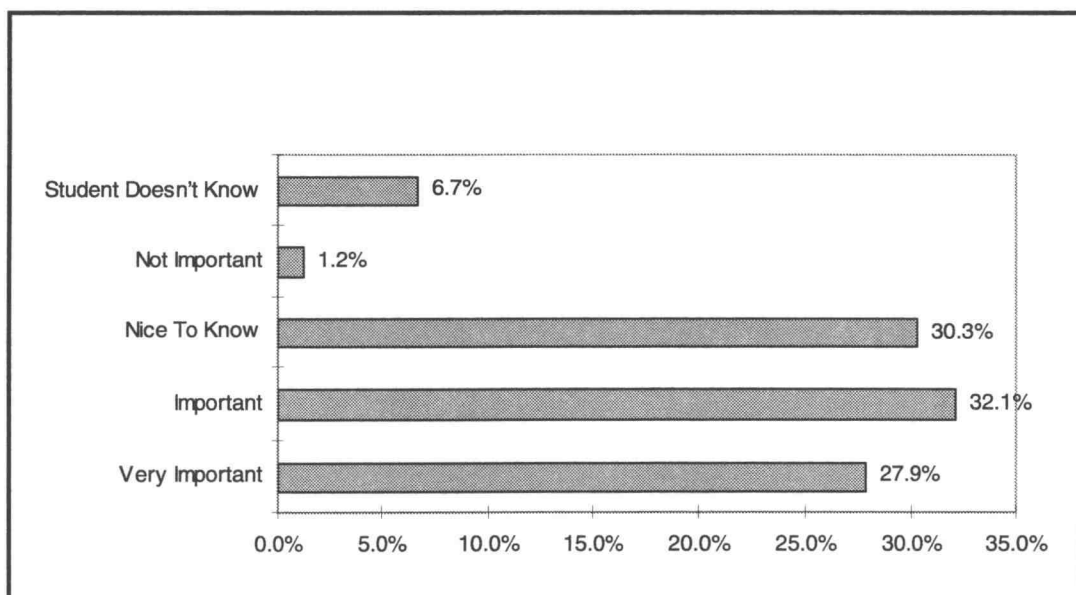


Figure 79.
The perceptions of 165 State of Washington TPAG Program students of how important oral communications will be in their futures
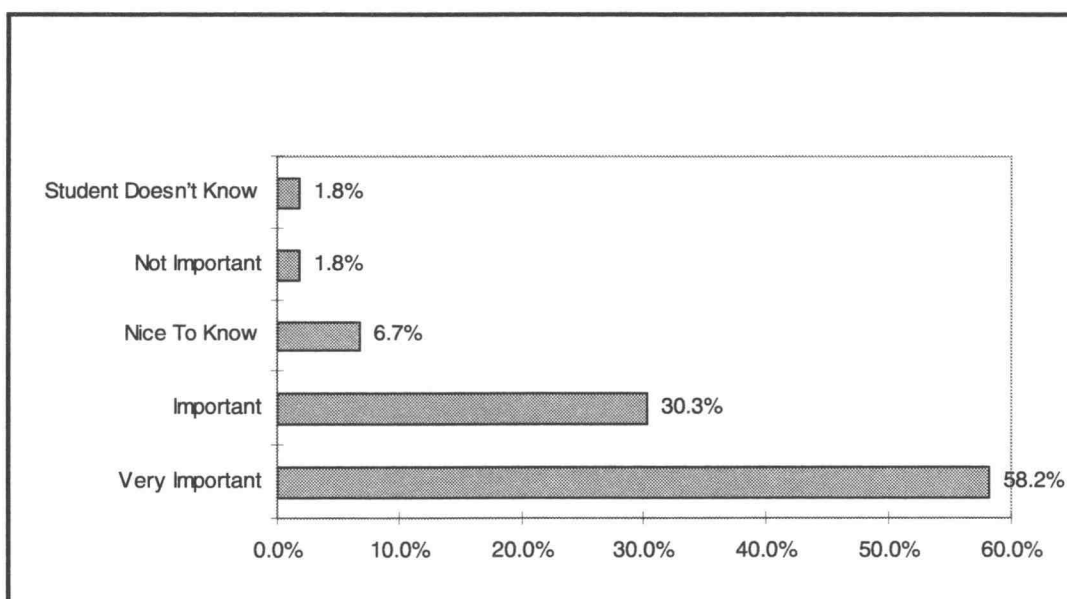
Figure 80.
The perceptions of 165 State of Washington TPAG Program students of how
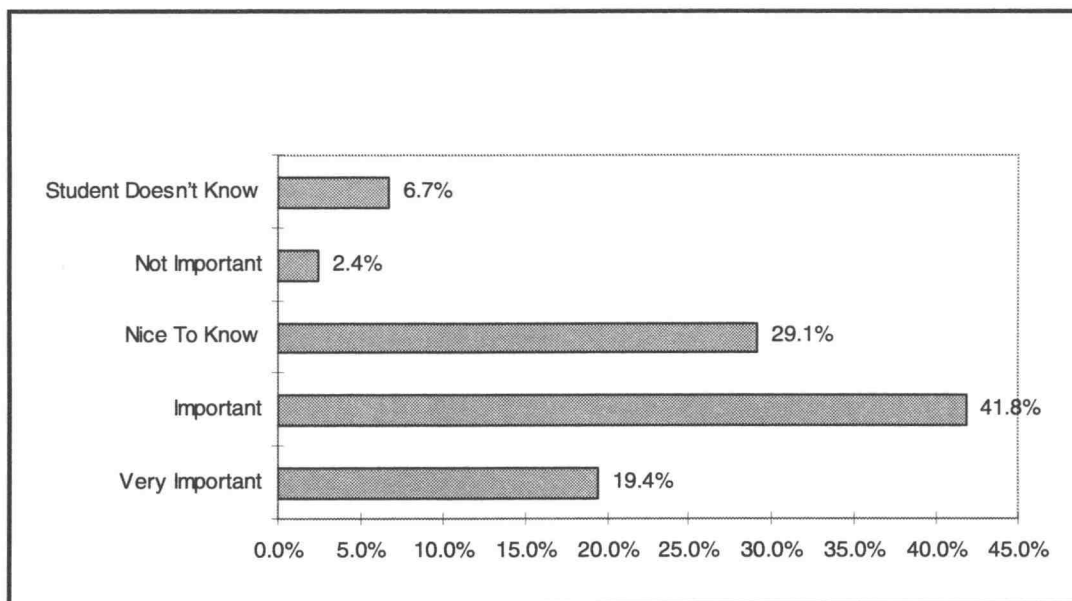important personal hygiene will be in their futures
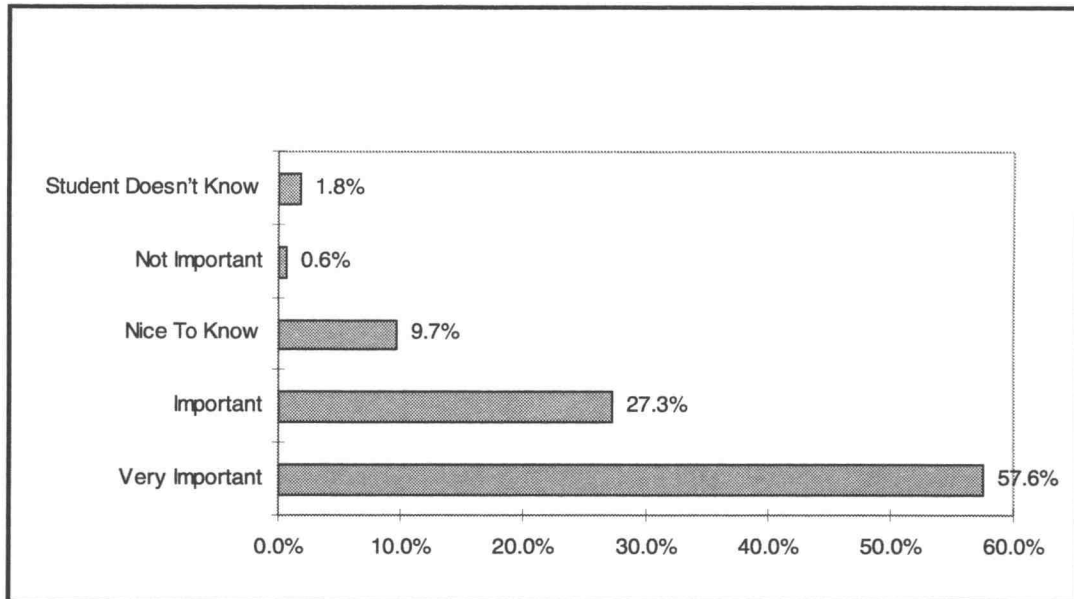


Figure 81.
The perceptions of 165 State of Washington TPAG Program students of how
important the ability to continue learning will be in their futures
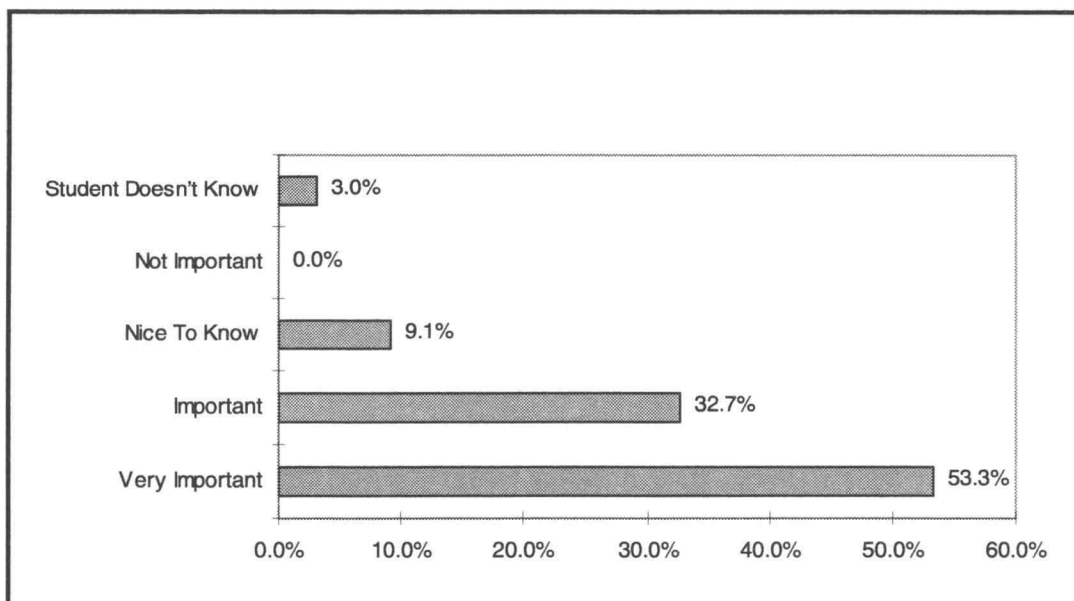
Figure 82.
The perceptions of 165 State of Washington TPAG Program students of how
important basic mathematical computations will be in their futures
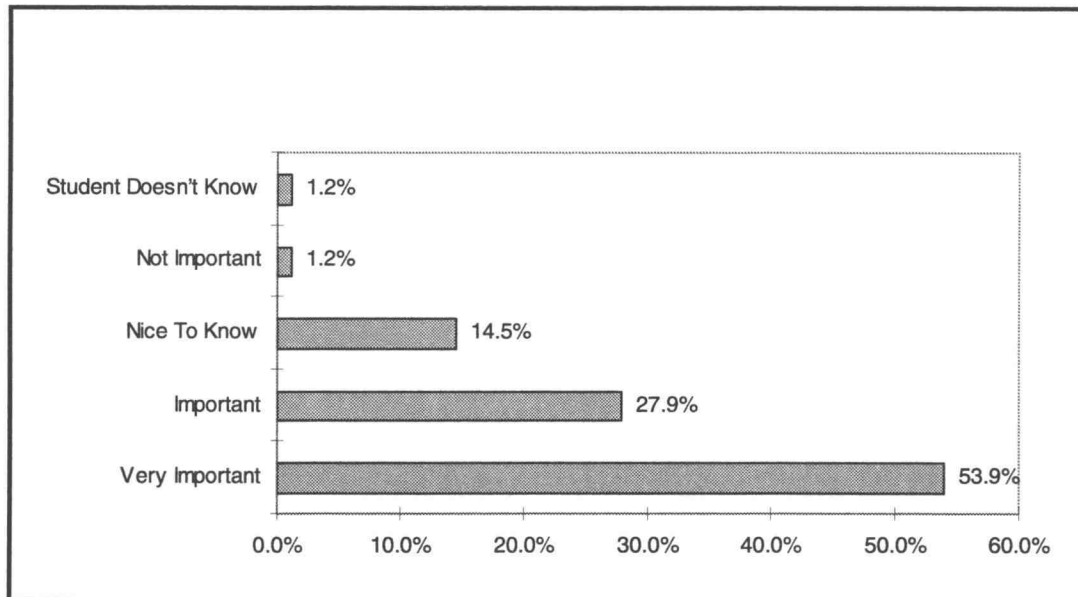


Figure 83.
The perceptions of 165 State of Washington TPAG Program students of how
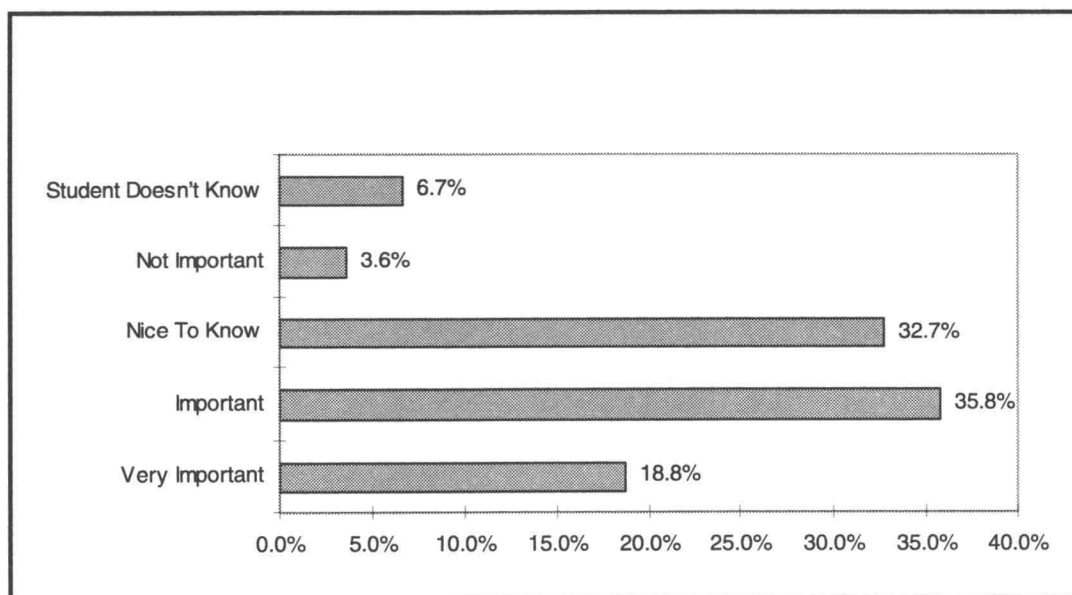important creativity will be in their futures

195
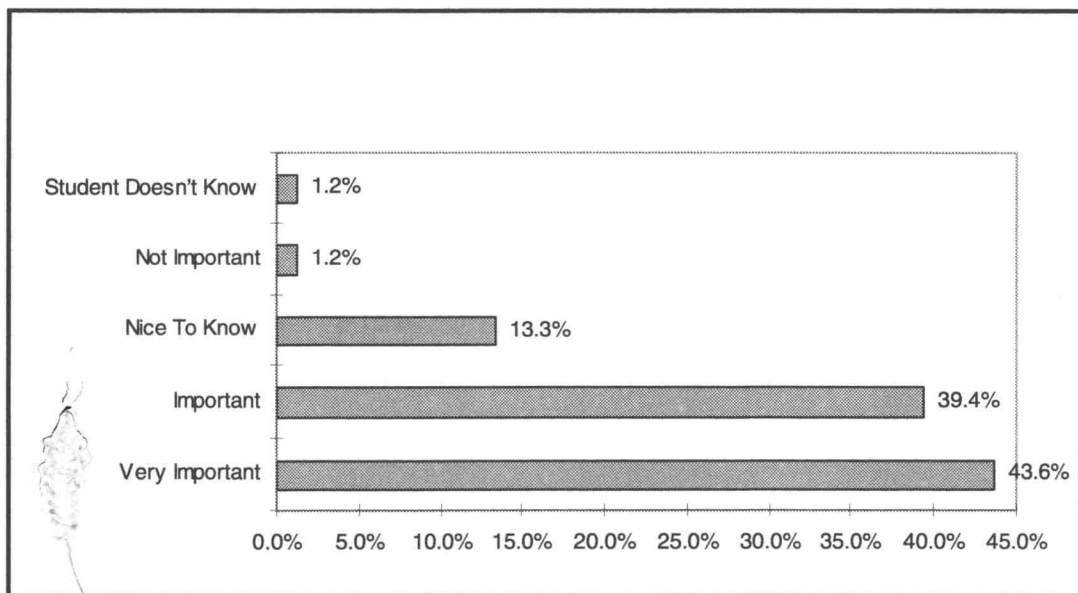
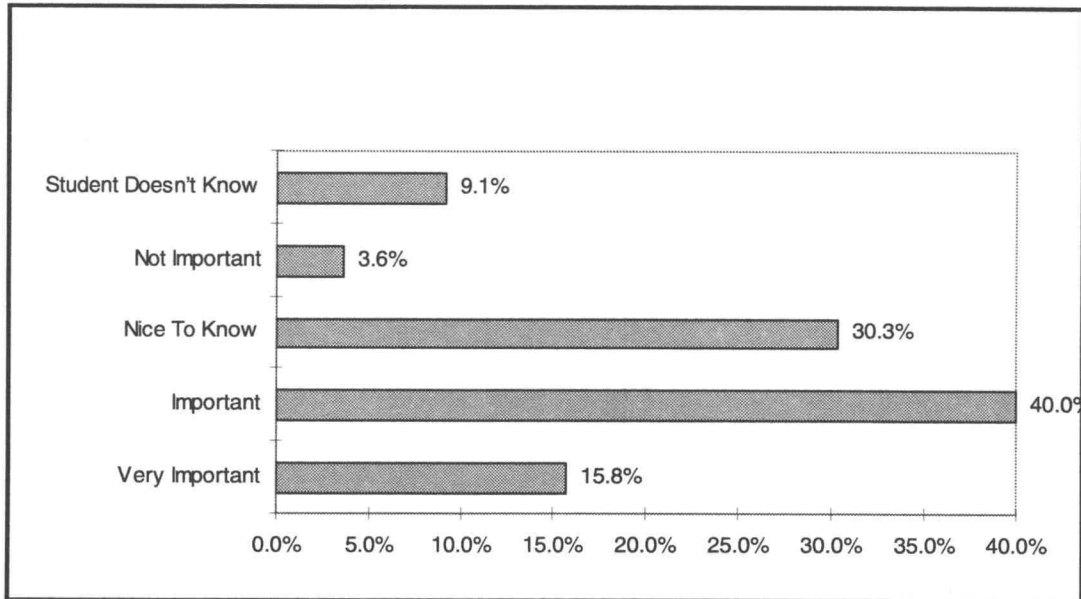Figure 84.
The perceptions of 165 State of Washington TPAG Program students of how
important using computers to get information will be in their futures
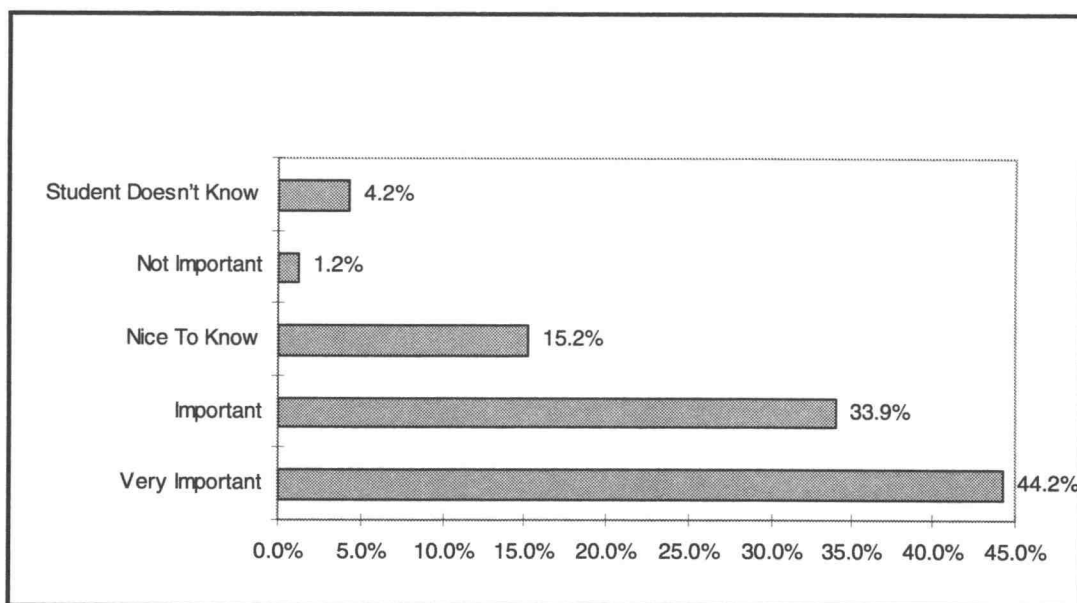


Figure 85.
The perceptions of 165 State of Washington TPAG Program students of how
important using a computer to solve problems will be in their futures

Figure 86.
The perceptions of 165 State of Washington TPAG Program students of how important using a computer to communicate will be in their futures



Figure 87.
The perceptions of 165 State of Washington TPAG Program students of how important algebra will be in their futures

Figure 88.
The perceptions of 165 State of Washington TPAG Program students of how important technical writing will be in their futures
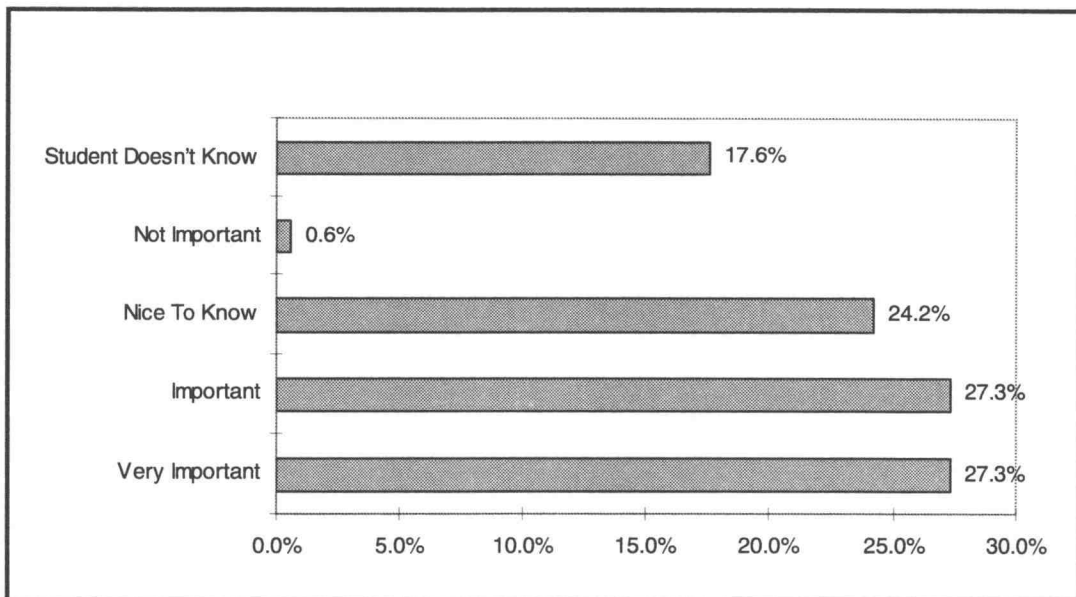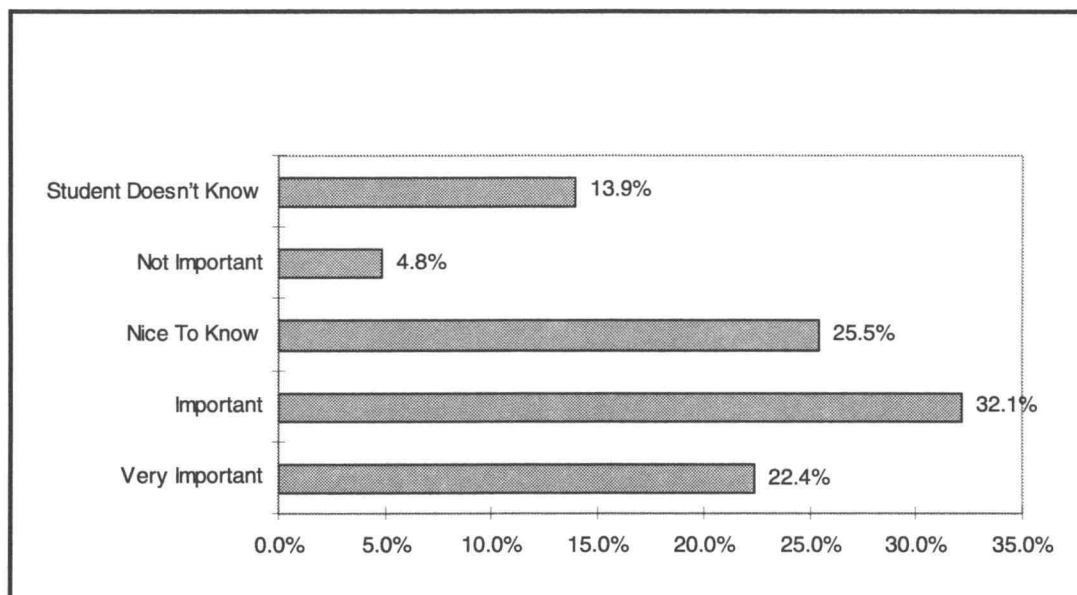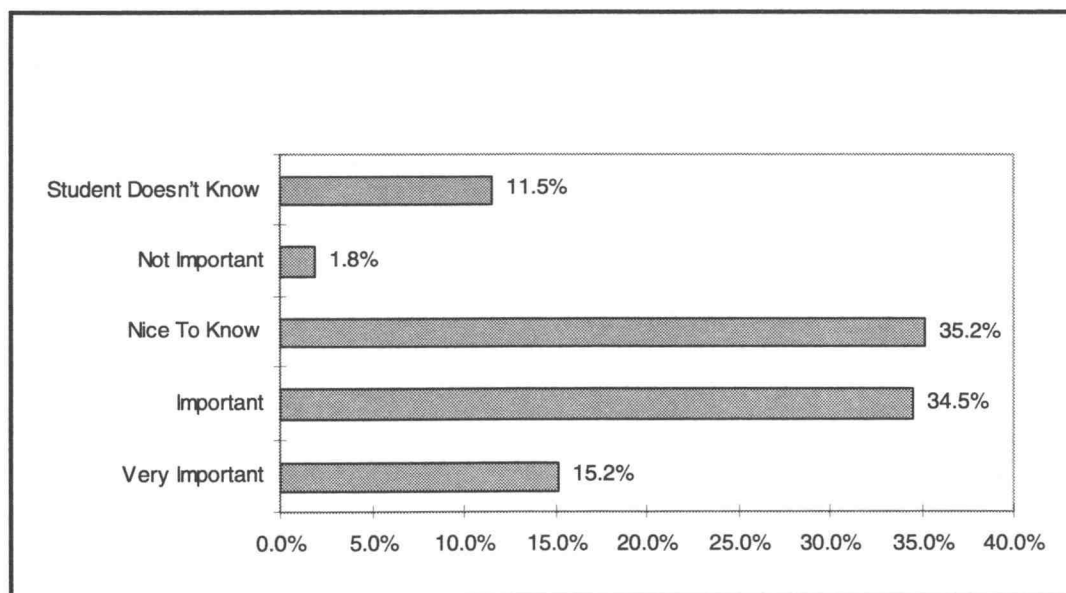


Figure 89.
The perceptions of 165 State of Washington TPAG Program students of how important economics will be in their futures

Figure 90.
The perceptions of 165 State of Washington TPAG Program students of how important non-technical writing will be in their futures



Figure 91.
The perceptions of 165 State of Washington TPAG Program students of how important child rearing/raising skills will be in their futures

Figure 92.

The perceptions of 165 State of Washington TPAG Program students of how important life sciences (biology, environment) will be in their futures



Figure 93.

The perceptions of 165 State of Washington TPAG Program students of how important basic mathematical computations will be in their futures

Figure 94.
The perceptions of 165 State of Washington TPAG Program students of how important statistics will be in their futures
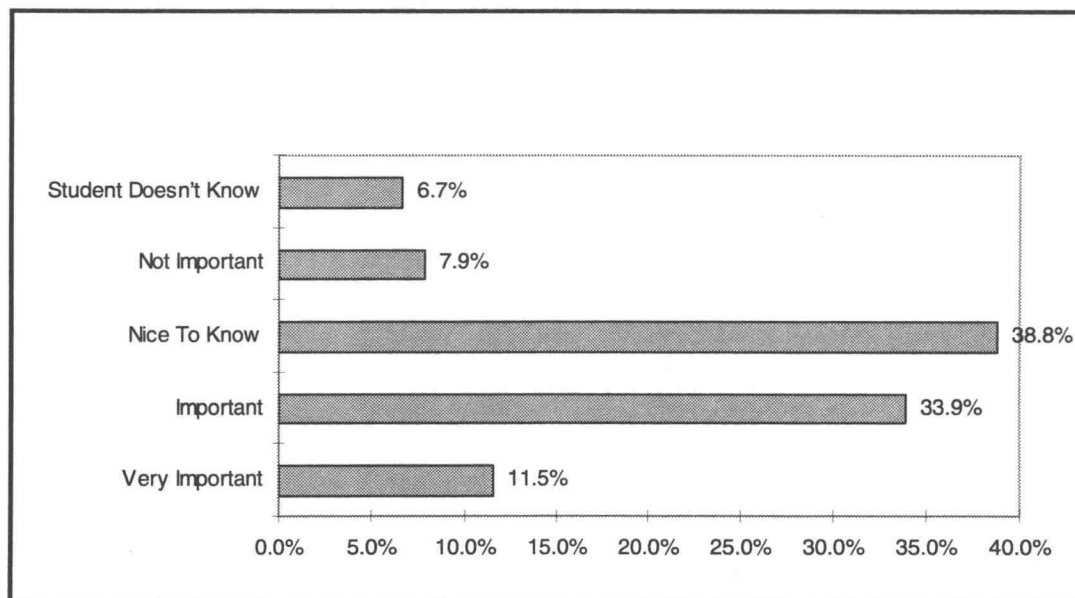


Figure 95.
The perceptions of 165 State of Washington TPAG Program students of how important second language skills will be in their futures
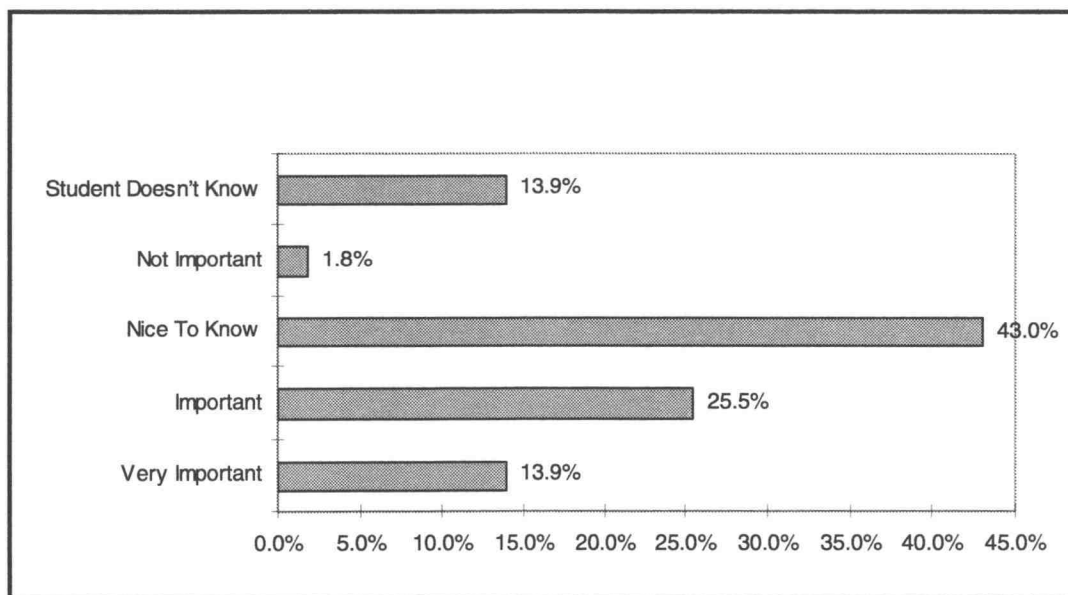
Figure 96.

The perceptions of 165 State of Washington TPAG Program students of how
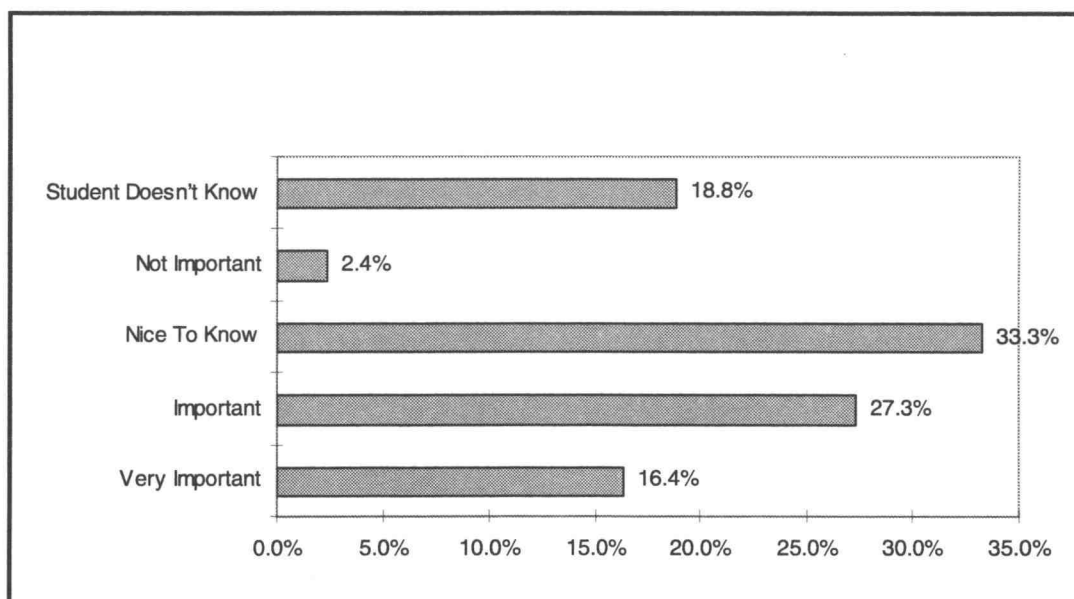important math beyond algebra will be in their futures



Figure 97.

The perceptions of 165 State of Washington TPAG Program students of how
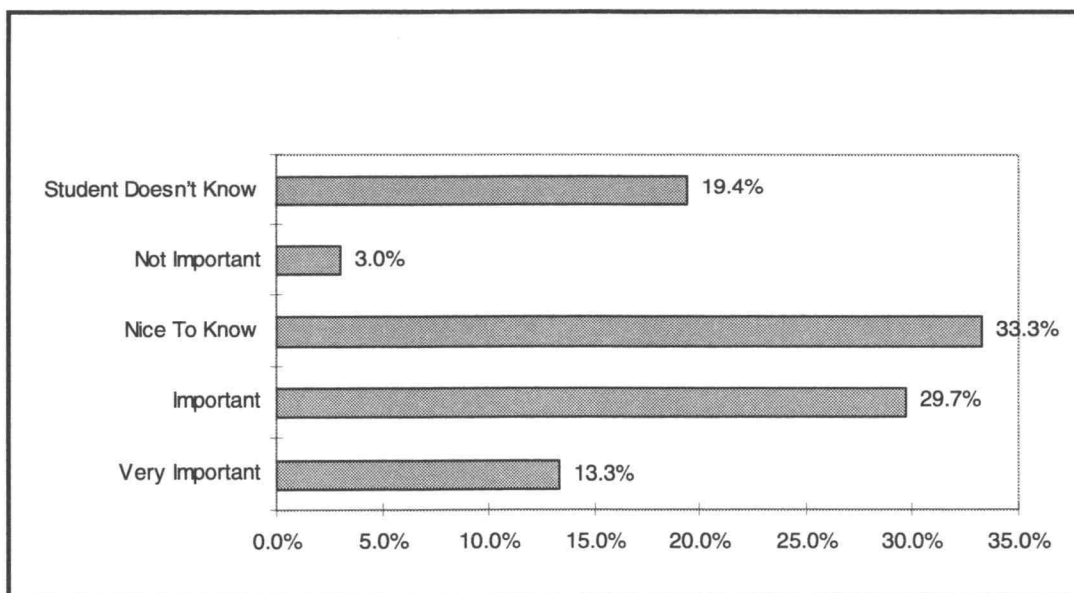important physics and chemistry will be in their futures

Figure 98.
The perceptions of 165 State of Washington TPAG Program students of how
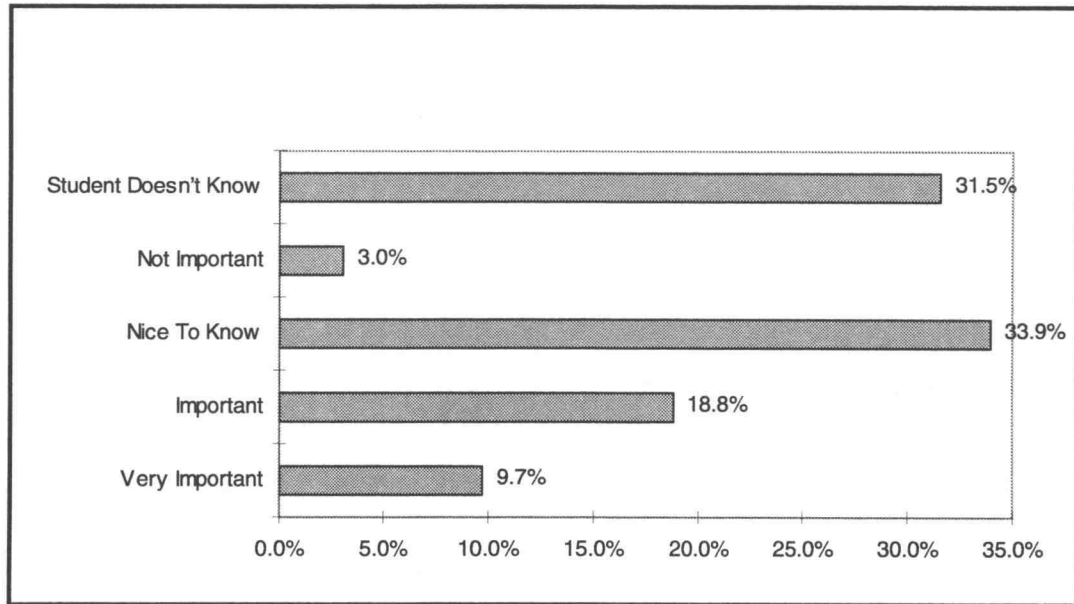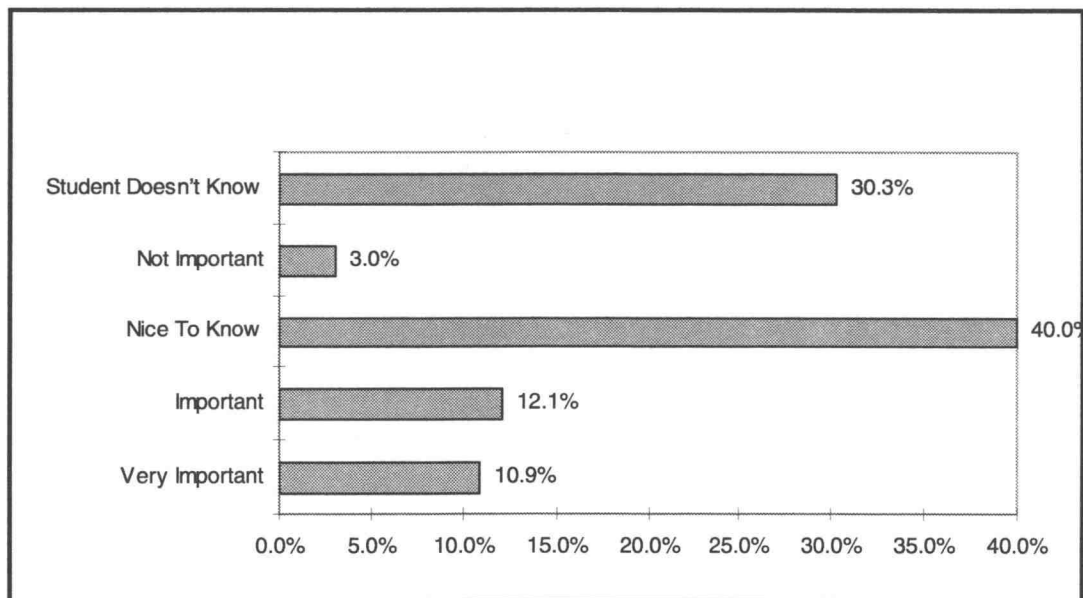important appreciation of art, music, and literature will be in their futures



Figure 99.
The perceptions of 165 State of Washington TPAG Program students of how
important appreciation of plays, movies, and television will be in their futures

**Appendix E**
**Group Interview Questions**

1.  Besides the subject being agriculture, what, if anything, is unique and attractive about your high school agriculture education program?

2.  The study has found that many of the students in the Tech Prep in Agriculture Program are not planning on careers in production agriculture or in the direct agriculture support sectors of the economy. How do you feel about that? Do you feel that this is something that politicians should be upset about?

3.  Forty percent of the surveyed Tech Prep in Agriculture students had not decided upon a career area of interest. What is your reaction to that fact?

4.  Eighty percent of the surveyed students identified themselves as learning best from "doing". Does your high school education respect this learning style?