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ABSTRACT

A study developed a vision of postsecondary vocational-technical curriculum that would be appropriate for the social context expected in the year 2000. Three substudies had their own research methodologies, data gathering, and conclusions. The first substudy identified categories, called determinants, of societal changes that might affect future postsecondary vocational education and assumptions regarding those determinants. It provided an assumed context within which postsecondary vocational education will operate. The second substudy identified categories of curriculum characteristics that could be used to define specifically a desired curriculum and about which decision makers must make choices. The third substudy gathered data from key decision-making groups regarding their perceptions of curriculum characteristics that would be desirable for Minnesota's area vocational-technical institutes in 2000 and described differences among the perceptions of those groups. The study developed (1) assumptions about the future social context of postsecondary vocational education, (2) a list of characteristics that can be manipulated to adapt curriculum, and (3) a scenario for the future based on those assumptions and characteristics. (The curriculum futures questionnaire and analysis summary are appended.) (YLB)

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PREFACE

The purpose of this study was to develop a vision of postsecondary vocational technical curriculum that would be appropriate for the social context expected in the year 2000. The premise was that curriculum will probably be shaped by a number of groups of decision-makers, and will include elements upon which those groups agree. Assumptions about the future social context of postsecondary vocational education, a list of characteristics which can be manipulated to adapt curriculum, and a scenario for the future based on those assumptions and characteristics were developed. Differences in the perceptions of the different decision-making groups were also analyzed and described.

This report provides information at various levels of detail. It presents detailed findings for people interested in specific assumptions, characteristics and findings. It also presents summary information for those interested in more general findings and implications. Those interested in only the latter should first refer to Chapter 7, Summary and Conclusions: Implications for Policy.

This study provides policymakers and people irvolved with curriculum development a framework to affect vocational curriculum in the future.

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CHAPTER I

INTRODUCTION

Study Goal and Organization

The primary goal of this study was to identify the desirable characteristics of the curriculum of the Area Vocational Technical Institutes (AVTIs) in Minnesota in the year 2000. The study was conducted and will be described in three parts. Each part was a separate sub-study with its own research methodology, data gathering, and conclusions. The first sub-study identified categories, called determinants, of societal changes which might impact future postsecondary vocational education, and assumptions regarding those determinants. This sub-study provided an assumed context within which postsecondary vocational education will operate in the year 2000. The second sub-study identified categories of curriculum characteristics which could be used to specifically define a desired curriculum, and about which choices must be made by decision-makers. The characteristics focused on the structure of the curriculum rather than on the types of occupations to be taught. For example, characteristics focused on concepts, such as the time of day programs should be available and the geographic areas that should be used in planning, rather than whether to have a practical nursing or welding program. The third sub-study gathered data from key decision-making groups regarding their perceptions of curriculum characteristics (given the characteristics identified in sub-study two) which would be desirable for Minnesota's AVTIs in the year 2000 (given the context describe in sub-study number one), and described differences among the perceptions of those groups.

Background Information

The AVTIs in Minnesota are postsecondary institutions offering both full-time and adult extension programs. The majority of educational programming currently takes place within the institutions, while some is provided on-site in business and industry through customized vocational programs, and some through internships and clinical experiences.

Although the AVTIs of Minnesota have served the State well, postsecondary vocational education is changing rapidly and the need to clarify the desired direction of that change was viewed as a high priority. Change can occur in many directions, and if change is not controlled or directed, the outcomes may or may not be desirable, appropriate, or effective.

This study is based on the premise that the most probable direction of institutional change is the direction in which key decision-makers would like to see change take place. Although decision-makers are influenced by many factors such as legislation, the writings of futurists, and changing societal values and goals, the changes they will choose will ultimately reflect their own opinions, values, and preferences. This is particularly true if the various groups of decision-makers agree on the direction of desired change. If all of the decision-makers consent to a desired change, it will probably occur. If the decision-makers disagree, it is difficult to predict the direction of change. Therefore, in order to predict the directions of change, it is first necessary to identify the key decision-makers.

Tyler (1979) suggests that there are many groups who ought to be involved in curriculum planning. He suggests, "In general, the selection of persons in curriculum planning should be guided by two criteria: Whether they can furnish helpful information for curriculum planning and whether they will have a part to play in the implementation of the program." (pp. 65-66)

Abbott and Eidell (1970) indicate that it is generally presumed that curriculum decisions are actually made in some way through the interdependent actions and opinions of all of the multiple groups involved. However, they point out that the relative weight carried by each group in the decision-making process is not clear. It could be argued, for example, that teachers traditionally have made the majority of curriculum decisions, but that better decision-making would include input from a broader group of people.

What is Curriculum?

Curriculum is defined as "the courses offered by an educational institution" (Webster, 1986). Good (1959) indicates that curriculum can be defined as "a general overall plan of the content or specific materials of instruction that the school should offer the student by way of qualifying him (her) for graduation or certification or for entrance into a professional or a vocational field."

This study defines a curriculum characteristic as a means of describing the nature of the courses contained in a curriculum, their organization, and elements which relate to planning and implementing those courses.

Why is Curriculum Important?

Although an educational institution has many components, the most critical component is the curriculum. It is the vehicle which governs the instruction presented to learners. Other components of an educational institution are functional only to the extent that they bring students and curriculum together to allow learning to take place. Instructors teach the curriculum

to students. Admissions officers and counselors help students make choices among portions of the curriculum and assist them with problems as they proceed through the curriculum. Administrators orchestrate the interaction of staff, curriculum, students, etc.

The characteristics of the curriculum are critical to accomplishing the educational goals of an institution. For example, even though an institution may have the goal of admitting students throughout the year, students will not be able to enter programs throughout the year unless the curriculum is capable of dealing with individualized student programs. Or, if an institution has the goal of combining day school programs and evening school programs, the curricula of both must be planned together, or at least coordinated.

In other words, when any substantial change is to be made in an educational institution, the curriculum must be adapted to accommodate that change. That change must be manifested in the types of content taught, the names of courses, and also in the ways the courses are organized, planned and implemented. If the goals of an institution change but the curriculum does not, students will be taught in the customary and traditional ways, and the new goals of the institution will not be realized.

Curriculum Change

Historically there has been substantial resistance to curriculum change. A great deal of time, effort and personal commitment is required to generate a new curriculum. Textbook publishers and others with vested interests in an established curriculum tend to discourage deviations from it. Therefore, changes usually occur as the result of very compelling arguments. In addition, the desired direction of change must be very clear. Otherwise, excuses for not changing proliferate. Instructors may say, for example, "No one can tell me how to change my program! I will continue with what I am doing," or, "There are so many possible ways to change; since I do not know which one will eventually be accepted, I will continue with what I am doing."

Abbott and Eidell (1970) address the issue of educational innovation in the light of social change. They observe that the resistance of educational organizations to curriculum change may be viewed in a positive light as stability. However, they claim that educational institutions are, by and large, non-responsive to primary changes in the social or technological environment which warrant curricular change. They claim that this resistance to curriculum innovation may endanger organizational survival.

Burns and Brooks (1970) write, "School curricula at all levels of education need to be critically reviewed in the light of present cultural needs, global pressures and technological innovations" (p. 3). They stress the need for both "a thorough revision of curricular content" (p. 4) and for a re-thinking of

learning processes. They indicate that although education has traditionally lagged behind societal change, society can no longer afford this practice.

> Curricula must be updated and integrated with methods which will maximize learning. Materials for learning should be empirically designed, behaviorally oriented, up-to-date, intensive, adapted to the learner, and relevant to his (/her) environment. Multisensory approaches should be used -- students should work with things, instruction should be based on reality, and the classroom and environment should be brought closer together. (p. 4).

Educational institutions are faced with a crisis. The question is, how should they respond to the crisis? This study is based on the assumption that the best way to respond is to:

1. Determine the current and future societal contexts within which the educational institution will be functioning.
2. Clarify the curricular implications of those societal contexts.
3. Clearly state curriculum characteristics which describe the nature of future curriculum which can meet the needs of society within those contexts.

The desired curricular characteristics can then form a goal toward which curriculum innovation can be directed.

CHAPTER 2

SUB-STUDY ONE:

IDENTIFICATION OF CURRICULUM DETERMINANTS AND RELATED ASSUMPTIONS ABOUT THE FUTURE

Introduction

The first sub-study focused on the identification of likely directions of social change as we approach the year 2000. Changes are continually occurring in a complex society. These changes modify the context within which an institution operates. Some of them have more impact on the curriculum of a particular type of educational institution than others. Therefore, it was important to identify the categories of societal changes which are considered to be primary determinants of postsecondary vocational education curricular change. Once those categories of changes were identified, assumptions regarding future changes in society related to those categories were identified as a context for the future AVTI curriculum.

The Mission of the AVTIs

In order to identify these determinants, it was necessary to clearly define the mission of the AVTIs as public institutions in the State of Minnesota. The relevance of curriculum determinants and assumptions concerning those determinants could then be judged in relation to that mission.

The Minnesota AVTIs operate within a mission for vocational education which is stated in the Minnesota State Plan for Vocational Education (1986 Minnesota State Plan, 1985).

> The mission of vocational technical education in Minnesota is to offer and provide Minnesota citizens with quality education and training through a process of general orientation, specific preparation, retraining, and upgrading. Education and training for employment is provided in occupations in all fields and at levels other than those requiring a baccalaureate degree. The State Plan for Vocational Technical Education is the instrument that facilitates this mission by describing and defining the programs offered by vocational technical education in Minnesota. (p. 9)
>
> This mission is accomplished through secondary programs and post-secondary and adult programs of vocational technical education. (p. 11)

The secondary programs are administered through the Minnesota Department of Education and are carried out in secondary schools. The post-secondary programs and adult vocational technical programs are administered through the Minnesota Area Vocational Technical Institutes (AVTIs) under the State Board of Vocational Technical Education (SBVTE).

This process for determining the context within which the AVTIs will most likely function is supported by Eggleston (1977).

> To write of the context of the curriculum is to write not only of the whole of education but also the whole of society. The curriculum is exposed to and in some way interacts with every aspect of the total social situation. But time and resources in the school are limited and a curriculum (within one institution) totally open to society is unrealistic; it would almost certainly be transitory, unmanageable and overloaded. In practice every curriculum involves a process of selection that is rigorous in nature as a result of which a selection of knowledge, understanding, values and skills are chosen for inclusion. (p. 22)

Categories of Curriculum Determinants

The investigation of the societal contextual factors which might influence the nature of the postsecondary vocational curriculum began with a search for models of societal change which affect education. Such models were necessary to focus the review of literature and to make sure the review was comprehensive, as well as to provide limits to the review. A composite model was developed for use by this study after integrating what was found in the literature and validating that integration with an advisory committee composed of AVTI directors, adult directors, financial aids coordinators, counselors, curriculum specialists, and instructors, as well as representatives from the State Department of Vocational Technical Education and the University of Minnesota. The advisory committee members are listed in Appendix A.

Two different models of societal factors which might impact education were identified as a basis for initiating the review. Saylor and Alexander (1966) described the factors that affect curriculum and programs as "curriculum determinants." They noted that curriculum determinants "constitute the basic considerations which guide curriculum planners" (p. 7). Their list of determinants for an institution includes:

1. Pupils
2. Social values
3. Structures and demands
4. Functions and aims of the school
5. Nature of knowledge
6. Process of learning.

Michael A. McDanield (1974), in a volume edited by Alvin Toffler, identified seven categories of factors within society that could potentially affect education. These seven categories of factors are:

1. Demographic factors
2. Technological innovation factors
3. Social innovation factors
4. Cultural-value factors
5. Ecologic factors
6. Information-idea factors
7. Cultural diffusion factors (pp. 115-117)

The categories proposed by McDanield were adopted as a basis for beginning to review the literature regarding assumptions concerning social change. The concept of "curriculum determinants" proposed by Saylor and Alexander was adopted as a useful term to describe the categories of factors.

Throughout the identification of assumptions, an assumption was defined as "a fact or statement taken for granted" (Webster's Ninth New Collegiate Dictionary, 1986). It is generally an extrapolation from a fact that goes beyond the data that is contained within the fact. For example, the demographics of the U.S. population at the end of the twentieth century show a significant shift in the age distribution as the baby boomers (people born in the years immediately following World War II) grow older. This is a well established fact. From this information planners have decided that the amount of medical care needed by the elderly will increase. This is logical, since the number of elderly persons will increase as the baby boomers grow older, and people usually need more medical attention as they age. This inference or extrapolation from a fact is an assumption.

During the review of the literature it became apparent that there are many views about society and its evolution. Based on the review of the literature, and the review of assumptions by the project advisory committee, it also became apparent that the categories of factors affecting curriculum proposed by McDanield did not adequately describe the factors affecting the postsecondary vocational education. Assumptions could not be specifically identified that related ecological and cultural diffusion factors to postsecondary vocational education. Therefore, they were removed from further consideration. The "social innovation" category was viewed as too broad and needing further definition. It was redefined into two categories: a) legislative and political factors, and b) institutional factors. Although other major social innovations may also have relationships to the postsecondary vocational curriculum, they tend to be more indirect and manifested through factors contained in the other categories. In addition, a specific category for "economic" factors was included because of the close relationship between the postsecondary vocational mission and the preparation of personnel for employment in the economy.

Seven curriculum determinant categories finally emerged and were adopted as applicable to the postsecondary vocational education. They are presented in Table 1. Each was stated in a consistent format highlighting the nature of the pertinent changes, classifying assumptions about the future into these categories.

Table 1

Curriculum Determinant Categories and Definitions

Determinant	Definition
Cultural values:	Changes in cultural axioms or values which trigger other significant changes (e.g., the shift in the way people used time after industrialization, which required punctuality because of the need for synchronized work).
Information-Ideas:	Changes in the character and distribution of the knowledge pool (e.g., a new scientific discovery, a new theory about race or child rearing, new verbalized conceptions about how things work).
Demographics:	Changes in population characteristics (e.g., shifts in the age and sex distribution, variations in birth and death rates, life span, family size, relative proportions of young and old, migration).
Economics:	Changes in the distribution and use of income, wealth, and commodities.
Technology:	Changes in the processes and machines which result in innovation and affect productivity in industry and/or education.
Legislative/ political factors:	Changes in laws and societal mandates which are the result of formal or informal political processes (e.g., legislative laws, board adopted policy).
Institutional factors:	Changes in the development and structure of enterprises and institutions oriented to the promotion of defined goals and objective.

Identification of Assumptions Regarding the Curriculum Determinants

Ninety-two assumptions identified through the review of the literature were grouped under the original tentative set of determinants. They were presented to an advisory committee along with the above rationale. The committee met on February 18, 1986. The advisory committee was asked to review the rationale, the curriculum determinants, and the assumptions regarding each of the determinants and to suggest possible revisions. The committee unanimously agreed with the determinants as being the major categories of influence on the AVTI curriculum in Minnesota and suggested minor revisions. They suggested a broader review of documents regarding social change and futures theory to insure that the assumptions were comprehensive. They also suggested that assumptions regarding educational technology be added under the technology determinant and that assumptions regarding the changing views of human nature and motivation be added where appropriate.

On the basis of these suggestions, the curriculum determinants were revised, and additional literature was reviewed regarding social change and futures theory and assumptions were added where appropriate. Additional assumptions were identified about the nature of humanity, and assumptions pertaining to educational technology were incorporated into the technology determinant.

The following specific assumptions regarding each of the determinant categories were identified through the review of the literature and the first advisory committee meeting. Specific references are listed for most of the assumptions. The "futures bibliography" presented at the end of this report lists other major works consulted.

Cultural Values

* Workers must be taught to be comfortable with change (Kanter, 1983; Burns and Brooks, 1970, p. 7; Shane and Shane, 1970. p. 23; Toffler, 1970, p. 102).

* As the culture becomes more complex, intentional education to communicate culture will be needed (Burns and Brooks, 1970, p. 7; Shane, 1977, p. 16).

* An awareness of cultural differences will become more important for all citizens as international interdependencies become more salient politically and economically (Naisbitt, 1982, pp. 12-14; Bell, 1976; Burns and Brooks, 1970, p. 14).

* Employees at all levels will expect satisfactions from their work (Kanter, 1983, p. 272).

* Organizations which make creative use of their human resources will be the most attractive to potential employees at all levels.

* Industry will continue to employ work strategies based on quality circles and/or management by objectives.

* In the workplace, employees will ask for a range of options about when, how often, and for what compensation they will work (Toffler, 1983, p. 33; Macarov, 1985, p. 94).

* There will be increased pressure to make handicapped youth and adults self-sufficient (Venn and Skutack, 1979, p. 82).

* A new work ethic will develop that includes: leisure time on demand; being in touch with ones self; commitment to close personal relationships with friends, family, and life partner; and greater independence and autonomy (Burns and Brooks, 1970, p. 18; Toffler, 1983, p. 26; Macarov, 1985, p. 101; Shane, 1977, p. 23).

* There will be a need to resolve conflict between the old and the new emerging work ethic (Venn and Skutack, 1979, p. 83).

* Change in age concepts will lead to more interaction between old and young, shorter adolescence, more involvement of youth in work earlier, and the abolition of a compulsory retirement mindset (Shane, 1977, p. 23).

* Increased educational levels of the labor force will have an increased impact on labor-management relationships (Naisbitt, 1982, pp. 183-200).

* There will be more participation in and ownership of organizations by employees (Abbott and Eidell, 1970, p. 341; Toffler, 1983, p. 33).

* There will be a continued stress on employees to change (Kanter, 1983).

* Private industry will play a more substantial role in the conduct of public education.

* Workers with more education will insist on having more input into decisions affecting the workplace (Kanter, 1983, p. 56).

* Students will increasingly take ownership in their educational processes (Abbott and Eidell, 1970).

Information - Ideas

* The post-industrial society will stress the exchange of information and the delivery of services (Naisbitt, 1982, pp. 11-38).

* Businesses which are most effective and efficient in the delivery of services will be the most successful (Albrecht and Zemke, 1985, p. 12).

* Changing understandings of human thinking and learning processes will impact educational theory and practice (Burns and Brooks, 1970, pp. 5, 7, 15-18; Toffler, 1970, p. 367).

* There will be an increased emphasis on the development of higher-order thinking skills (Burns and Brooks, 1970, p. 7; Venn and Skutack, 1979, p. 82; Toffler, 1970, p. 357).

* There will be an increased need for the development of human relations skills (Venn and Skutack, 1979, p. 82).

* Organizations which learn to appreciate the participation, contributions, and innovations from workers at all levels will be the most successful (Abbott and Eidell, 1970, p. 341; Kanter, 1983).

* Organizations will expect workers to have the ability to work in teams as they seek to stimulate creativity and productivity (Toffler, 1970, p. 129).

* Access to information for both worker and consumer will mean that various groups will have not only a variety of information, but a greater knowledge, expertise, and opinion on a variety of social issues (Shane and Shane, 1970, pp. 24-25).

* There will be a need to cross-train workers to have the skills to fit into several occupations over a lifetime (Shane and Shane, 1970, p. 29).

Demographics

* There will continue to be a substantial number of workers who do not have the skills for a technological society (Venn and Skutack, 1979, pp. 82-83; McMahon, 1972, p. 18).

* More teen-agers will want to work even though they will constitute a smaller percentage of the labor market.

* The average educational level of the work force will increase (Shane and Shane, 1970, p. 28).

* The composition of the work force will reflect increasing numbers of young women (Toffler, 1983, pp. 130-137; Macarov, 1985, p.95).

* Many working women will continue to be employed in traditionally "feminine" occupations, but many others will begin to be employed in traditionally male occupations and professions (Toffler, 1983, pp. 132-137).

* Men will begin to enter occupational fields not traditional for their sex (Toffler, 1983, pp. 130-133).

* There will be an increased demand by working parents for child care (Dickens, 1983, p. 13).

* Age shifts in the population will change not only the in-school population, but who goes to school and when and where (Shane and Shane, 1970, p. 28).

* The average age of the work force will increase through the twenty first century (Shane and Shane, 1970, p. 29).

* There will be a continued increase in Asian, Pacific Islander, and Hispanic populations (Bognar, 1985, pp. 17-18).

* Minority populations will continue to experience a higher degree of unemployment than will the Caucasian population (McMahon, 1972, p. 108).

* Over ninety percent of Minnesota's population growth will be concentrated in urban and exurban areas through the year 2000 (Source: MN State Demographer's Office).

* As fewer children are born, labor shortages will occur in the low end (high school age) of the employee pool.

* There will be a decrease in the percentage of unionized workers (Naisbitt, 1982).

* The number of married women age 25 to 29 who plan to have children will decrease.

* Students from the lower half of the socio-economic scale and in the lower half of their high school classes will continue to enroll in vocational education (Tuckman, 1970, p. 155).

* The national shift of population from north to south will have an impact on our culture and industrial processes (Naisbitt, 1982, pp. 207-229).

* Students with prior higher-education experience will continue to enroll in vocational education in increasing numbers (Venn and Skutack, 1979, p. 84).

Economics

* The service sector of the economy will expand at a rapid rate as demand for services increases at all levels of society and technology (Toffler, 1983; Albrecht and Zemke, 1985, p. 1).

* Enterprises which facilitate the exchange and manipulation of information will replace industry as employers of large segments of the work force.

* As industrial enterprises become more automated, the jobs remaining in them will require a higher level of cognitive and affective functioning from employees (Venn and Skutack, 1979, p. 82; Toffler, 1983, p. 33).

* The U.S. economy will continue to be characterized by slow but steady growth (Shane, 1977, p. 19).

* Quality of goods and services will become a driving force for economic improvement.

* The general trend of federal, state, and local legislation toward fiscal conservatism will result in reduced spending for education (Naisbitt, 1982, p. 143; Shane, 1977, p. 86).

* The social/political system must be prepared to deal with the possibility of a bimodal society in terms of the distribution of income, skills, and education (McMahon, 1972, pp. 18-26).

* There will continue to be a degree of economic instability and unpredictability (Toffler, 1983, p. 13).

* Expanding career options for women will increase women's income.

* Economic interrelationships will have a greater impact on our economy as we continue to evolve toward a truly global economy (Burns and Brooks, 1970, p. 6).

* Fiscal conservation and limited resources will continue the focus on the effectiveness and efficiency of labor, and automation (Strassmann, 1985, pp. 116-120).

* The costs of education will continue to shift to the consumer.

* Businesses which are responsive to the needs of a service-oriented society will be the most successful (Strassmann, 1985, pp. 215-217; Albrecht and Zemke, 1985, p. 12).

* Businesses which serve the needs of people will become the predominant employers (Strassmann, 1985, p. 217; Albrecht and Zemke, 1985, pp. 2-9).

* Organizations will reward innovation, as innovation becomes more and more crucial for successful survival (Abbott and Eidell, 1970, p. 340; Kanter, 1983).

* Employees will increasingly be judged on their joint outputs rather than their individual accomplishments.

* The key resource in the "information society" will be knowledge, replacing capital which was the strategic resource in the industrial era (Toffler, 1983, p. 107; Naisbitt, 1982, pp.13-16; Strassmann, 1985).

Technology

* Educational delivery systems will change rapidly as the development of technology provides new methods of instruction (Burns and Brooks, 1970, p. 8; Abbott and Eidell, 1970, p. 340).

* Individualized instruction will be enhanced through new developments in technology (Burns and Brooks, 1970, pp. 8-9; Abbott and Eidell, 1970, pp. 340-345).

* Classrooms at all levels will be furnished with electronic work stations, and students will become increasingly sophisticated in their ability to use these teaching aids (Burns and Brooks, 1970, pp. 8-9; Toffler 1970, p. 243).

* Advanced technologies will offer greater alternatives in curriculum design (Burns and Brooks, 1970, pp. 12-13; Abbott and Eidell, 1970).

* Distance delivery through electronic media will diversify the range of options available to curriculum planners and students at any one geographical location (Toffler, 1970, p. 244).

* There will be an increase in user friendly computers requiring more sophisticated hardware and software (Naisbitt, 1982, p. 26).

* The microprocessor will continue to increase the number of high technology industries (Naisbitt, 1982, pp. 29-31).

* Due to rapid technological changes, mature (smokestack) industries will tool down, while new high-tech and bio-medical industries will tool up (Toffler, 1983, pp. 13-15).

* The use of robots will continue to increase at a rapid rate (Toffler, 1983, p. 53.; Didsbury, 1979, p. 15).

* The continued growth of "information age" industries will accelerate the need for advanced technologies (Naisbitt, 1982, pp. 27-30).

* There will be rapid growth and greater application of electronics to all industries and occupations (Toffler, 1983, p. 78).

* There will be increased use of mass transit and low energy transportation (Dickens, 1983, p. 14).

* There will be new developments in synthetic fuels (Dickens, 1983, p. 14).

* Office workers will increasingly use computers for immediate access to information (Naisbitt, 1982, pp. 27-30).

* There will be more information generated and traded; therefore, the need for office workers will increase, despite automation of many office functions (Naisbitt, 1982, pp. 27-30).

* Agriculture will continue to experience technological changes.

* There will be an increased emphasis on conservation and solar, wind, and water power (Shane, 1977. p. 17).

Legislative/Political Factors

* The general trend of Federal legislation will be toward fiscal conservatism.

* School boards will be more sensitive to equity and technology options when considering curriculum (Venn and Skutack, 1979, pp. 82-83).

* The trend toward decentralization will continue across the nation. Power will continue to shift from the President to the Congress, and from the Congress to the states and localities (McMahon, 1972, pp. 18-26; Toffler, 1970, p. 356; Toffler, 1983, p. 19).

* There will be a continued distrust of the political system.

Institutional Factors

* There will be increasing cooperation between labor and management (Toffler, 1970, p. 129).

* There will be an increase in industry-education-labor collaboratives to administer education and training with a combination of public and private funds.

* Organizational and managerial systems that were effective in an industrial setting will no longer be appropriate (Venn and Skutack, 1979, p. 83).

* Companies will redesign jobs to suit special needs. There will be more flexible hours, shared jobs and shorter working days (Burns and Brooks, 1970, p. 18; Macarov, 1985, p. 84).

* A job revolution will develop in America. The work environment will be restructured from top to bottom. Organizations that were created to organize the delivery of private and public goods and services will be dismantled and reshaped (Toffler, 1970, p. 129).

* Education will take place in many institutions in addition to schools (Shane and Shane, 1970, pp. 31-32; Toffler, 1970, p. 244; Toffler 1983, p. 58; Benjamin Bloom, quoted in Shane, 1977, p. 133).

* Lower confidence in public education will cause some parents to transfer their children to private schools (Naisbitt, 1982, p. 133).

* Public institutions will experience growing demands for accountability, particularly relating to the expenditure of public funds and the utilization of public resources (McMahon,

1972, pp. 18-26; Eisner and Vallance, 1974, p. 157).

* Organizations which can adapt quickly to societal and technical change will be the most successful (Venn and Skutack, 1979, p. 83; Toffler, 1970).

* Public institutions, including the schools, will be expected to provide more services with less resources (Strassmann, 1985, pp. 116-128).

Summary

The review of the literature, and input from the project advisory committee, revealed seven categories within which futuristic assumptions concerning society which might affect postsecondary vocational could be categorized. Those categories were defined as curriculum determinants. They are presented and defined in Table 1.

The following generalizations summarize the assumptions pertaining to each of the seven curriculum determinant categories.

Cultural changes will be characterized by a heightened awareness and appreciation of individual and group differences. Organizations, particularly employers, will need to provide opportunities for individuals and constituent groups to maximize their own satisfaction and participation. Maximized satisfaction and participation are viewed as critical to increasing quality and productivity.

Societal and cultural changes will continue to evolve at a rapid rate. Successful workers and institutions will be able to adapt quickly to change. As the educational level of many workers rises and the economy and workplace require the rapid acquisition of new skills and knowledge, both individuals and employers will play an increasing role in the development of educational activities.

Information and ideas will be an important focus in business and industry, and will be moving forces in the economy. Individuals with skills in the creation of ideas and the manipulation and synthesis of information will be highly prized. Flexibility and creativity, as well as "people skills" and the ability to adapt to rapid change, will be crucial as well. Many individuals will have several careers during their lifetimes.

Demographic trends indicate that the workforce of the late twentieth century will get increasingly older and well educated. There will be fewer births, more women will be in the workplace, and there will be a continued breakdown of sex-role stereotyping. Labor shortages, especially of younger workers at lower pay levels, will also occur. There will continue to be significant minority populations with educational and employment problems.

The national trend of centering industrial growth in the southern states will continue.

Economic changes will reflect the emergence of the information and service sectors as dominant forces in the economy. Cognitive skills will be highly valued in employees. Serving the customer will be a heightened goal of business. As resources shrink, there will be an increasing emphasis on quality, productivity, and innovation. Organizational charts will continue to flatten, as industry and businesses reduce the size of the management class and become more lean in the effort to compete efficiently in the marketplace. This fiscal conservatism will be reflected in the public sector as well.

Technology will advance rapidly, with many technological innovations occurring in education, office work, and industry. Computers will be used in many contexts as a workforce emerges that has lived with them since birth. Educational technology will become increasingly sophisticated and increase resources available for curriculum design and delivery. The demand for workers comfortable with and knowledgable about technological subjects and with technological skills will require schools to educate students accordingly. The implementation of technology in the delivery of instruction will require increased teacher development and funding to purchase and maintain the necessary equipment.

Legislative and political factors will emphasize decentralized administration and decision-making. There will be fiscal conservatism and a general societal distrust of the political system.

Institutional factors will be typified by increased participation in decision-making, demands to provide better service with fewer resources. Organizations and jobs will be redesigned and restructured, including the development of new managerial approaches and greater flexibility and openness. There will be more dialogue across institutional lines; there will be increased cooperation between the public and private sectors, such as between education and business, to their mutual benefit.

In general, the assumptions indicated that there will be slow but steady economic growth, increased personal consumption of goods and services, and a decline in the proportion of jobs in the goods producing sector of our economy. There will be an expansion of the service sector of the economy, with a pluralistic, multicultural social mix in the United States. There will be an increase in mass communications and advanced information technologies with the importance of the individual being expressed in trends towards participative styles in organizations, values of self-fulfillment and self-actualization at all levels of society. With the increasing automation of repetitive tasks, workers at all levels will need to be increasingly competent in cognitive and affective, as well as

psychomotor skills. Educational institutions will incorporate technology to increase effectiveness and efficiency, and employers and private groups will increasingly deliver educational services.

CHAPTER 3

SUB-STUDY TWO:

IDENTIFICATION OF CURRICULUM CHARACTERISTICS

Introduction

Sub-study one defined curriculum, curriculum characteristics, curriculum determinants (categories of societal changes), and assumptions regarding those determinants.

The second sub-study was designed to identify categories of curriculum characteristics which could be manipulated by decision-makers, and that could be used to specifically define a desired curriculum. This study defined a curriculum characteristic as a means of describing the nature of the courses contained in a curriculum, their organization, and elements which relate to planning and implementing those courses. The characteristics did not focus on the types of occupations which should be taught in the programs and courses. They focused on how those programs should be developed and implemented. (If readers are interested in the impact of changing technology on the changing nature of the occupations for which vocational should be developed, it is suggested they review the publications by Orth & Russell (1980) and Dickens (1983), who discuss how emerging occupations might be identified and the impact emerging occupations might have on the types of vocational programs offered.)

Literature was again reviewed to identify major categories of curriculum characteristics which could be used to precisely describe a a vocational education curriculum. The literature revealed that, although curriculum is at the heart of the educational process, few people have attempted to describe its characteristics. Those who have addressed curriculum typically present a specific curriculum process without presenting a comprehensive rationale for each of the components, or a discussion of alternatives. Or, they provide a list of courses or options available within an institution. No literature could be found which specifically described the characteristics of curriculum which could be intentionally varied by curriculum developers in order to accomplish a specific purpose or change.

Although the literature did not reveal lists of characteristics which could be used to describe differences in curricula, the need for this level of specificity is apparent. If one wishes to contrast alternative curriculum practices, one must have a basis for communicating differences and similarities. This need occurs whenever one attempts to contrast things. For

example, the general characteristics of a box may be described in terms of length, width, height, volume, what it is made of, etc. All boxes have these characteristics. The box maker chooses the measurements and the materials to suit the specific need and produces a unique type of box. That box can then be described and compared with other boxes based on a number of characteristics which are understood among box makers. Without these characteristics, box makers would not be able to define the boxes they produce for consumers, nor could they develop plans which could be followed by other box makers.

Educators developing curriculum need a list of characteristics for describing curriculum for the same reasons. Without them there is no way to describe and contrast different curricula. Also, there is no clear way to describe a plan which can be followed by curriculum implementors.

The Identification of Curriculum Characteristics

A number of different authors and staff of the Minnesota State Board for Vocational Education who supervise postsecondary vocational curriculum development were consulted in order to generate an overall conceptualization of the curriculum decision-making process, and to generate a comprehensive list of curriculum characteristics to consider in determining the desired characteristics of the postsecondary vocational curriculum in the year 2000. The initial conceptualization and list of characteristics were presented to the study advisory committee at the meeting on February 18, 1986. The advisory committee found the initial conceptualization very complex and had difficulty differentiating among the various characteristics. Based on suggestions from the advisory committee, the conceptualization, the list of characteristics, and their definitions were refined. The list of characteristics were assemble into an initial draft of the data gathering instrument presented in Appendix B. The instrument was mailed to the advisory committee for further input and modification. It was decided that a meeting of the advisory committee would be called if there was substantial disagreement with the revised materials and the instrument format. Only minor revisions were suggested, and the follow-up meeting did not occur. The suggestions were included in a final revision of the instrument.

The following discussion more specifically describes the process that was used to generate the conceptualization. First, a list of the major types of questions curriculum designers must answer in order to develop vocational education curricula was generated. Second, a category label was created to define the concept underlying each question. The category labels were created to be as consistent as possible with current curriculum literature. Major sources which contributed to the creation of this conceptualization were the instructional design (ISD) model developed by the military (Department of the Air Force, 1972 & 1978), the Performance-Based Instructional Design (PBID) model (Pucel, 1986, 1987), the systems approach as it has been applied

to vocational education (Butler, 1972), the discussion of vocational education curriculum development presented by Finch & Crunkilton (1984), and the general discussion of curriculum planning considerations by Tyler (1979). Other major references which were consulted are listed in the "curriculum characteristics bibliography" presented at the end of this report.

After the major questions were identified and categories were determined, the categories were defined in operational terms as a basis for developing the instrument. It was found that this level of detail was required to clearly differentiate between the various categories. The final list of eleven questions, their associated category labels, and operational category definitions are presented in Table 2.

Once these major questions and categories were determined and defined, a list of more precise sub-questions under each major question was developed through brainstorming and continued review of the literature. Each sub-question was developed to gather information on a key characteristic which could be used to describe a vocational education curriculum and to answer the major questions presented above. Once the sub-questions were developed, possible alternative ways of answering each sub-question were listed. (Refer to the questionnaire in Appendix B for examples of major question, sub-questions and alternative answer choices to each sub-question.)

Alternative choices which could be used to answer each sub-question pertaining to a characteristic were listed in an attempt to provide an exhaustive list of major alternative answers to each question. The goal was to provide the decision-making groups who participated in the study with a list of curriculum characteristics and ways of expressing their perceptions of how the curriculum should deal with each characteristic. It was also necessary to provide respondents with a list from which to choose in order to develop an instrument which would allow the data to be summarized as a basis for comparing the perceptions of different decision-making groups. Items which generated open-ended responses would not have allowed for such data analysis and summary.

After the initial list of questions and sub-questions regarding the characteristics, and alternative ways of answering the questions regarding each characteristic were developed, they were sent to the advisory committee as described above. The advisory committee was asked to review each question and sub-question and to determine if the range of answers relating to each question included all of the possible alternatives. The committee members were asked to suggest others questions and answers to the questions if they felt the list was not exhaustive and should be expanded. Several changes were suggested and incorporated.

Table 2

Categories of Major Questions Asked During the Design of a Vocational Curriculum

Question	Category	Category Definition
1. Which programs should be offered?	Needs Assessment	The process of determining which programs should be offered.
2. For whom should the programs be designed?	Program Access	The desired accessibility of programs to various populations.
3. With which agencies or other institutions should the AVTIs cooperate?	Articulation	The interface between a program and other programs and institutions.
4. What should be the primary job-related focus (e.g., initial training, retraining, updating)?	Program Purpose	The job-related training purpose or goal of the program (e.g., in retraining).
5. What are other expected program outcomes for students (e.g., citizenry, well-rounded people and general education)?	Other Student Goals	Program goals other than those which are job related.
6. How should the content be identified?	Content Identification	The types of content to be taught in the program and how they should be identified.
7. How should proficiency be measured?	Student Evaluation	The process of evaluating whether students have learned?
8. What form should programs take?	Program Format	The form that the program will take (e.g., when offered, and how).

Where should the programs be offered? When should the programs be offered? How should they be delivered? (e.g., courses, modules, full programs)		
9. What are the key components of lessons?	Lesson Structuring	The process of organizing lessons to deliver identifiable portions of content.
10. What technology should be used to present lessons?	Learning Resources	The types of instructional methods and media that will be used.
11. How should the program be evaluated?	Program Evaluation	The process of determining whether the program has accomplished its purposes.

In the final development of the instrument, two of the categories were combined: "program purposes" and "other student goals." It was felt that they were sufficiently related that they could fit in the same section of the instrument. The final ten categories of major questions, 29 sub-questions focusing on specific characteristics, and 169 alternative ways of responding to the sub-questions are presented in the final instrument contained in Appendix B. Further information on the development of the instrument and its format are presented in the section on instrument development presented in sub-study three.

Summary

The review of the literature and input from the project advisory committee yielded 11 categories or curriculum characteristics which can be varied by vocational educators during the curriculum development process. Those categories are presented in Table 2. From those 11 categories, 29 sub-questions were derived along with a total of 169 alternative ways of responding to those questions. Those questions and alternative items are presented in the questionnaire presented in Appendix B.

CHAPTER 4

SUB-STUDY THREE: PERCEPTIONS OF KEY DECISION-MAKERS CONCERNING THE DESIRED CHARACTERISTICS OF THE AVTI CURRICULUM IN THE YEAR 2000

The first sub-study defined the assumed context within which postsecondary vocational education would take place in the year 2000. The second sub-study identified the curriculum characteristics which could be used to define alternative curriculum configurations for postsecondary vocational education.

The third sub-study gathered data from key decision-making groups concerning their perceptions of the importance of aiternative possible curriculum characteristics which the Minnesota's AVTIs should have in the year 2000, and to describe the differences among the perceptions of those groups.

Instrument Development

The instrument used in this study entitled "Curriculum Futures Questionnaire" is presented in Appendix B. It was developed to gather information regarding the major questions and sub-questions described above. Since the instrument was to be administered to a number of different groups of people associated with vocational education with varying backgrounds in curriculum, the terminology and method of responding were made as simple as possible. Also, the instrument was developed so that data from different groups would be gathered in the same form so that meaningful comparisons could be made between groups.

Each of the alternative choices which could be used to answer each significant sub-question was defined as an item. Respondents were asked to respond to each item in terms of how important they perceived it to be as a way of defining the curriculum characteristic defined by the sub-question in the future. Subjects were asked to respond to each of the possible ways of answering each question rather than selecting only one; in order to obtain a comprehensive answer to a particular sub-question regarding a characteristic, it was necessary to include a number of the alternatives regarding that particular characteristic.

For example, Table 3 presents a sample sub-question and alternative responses regarding the geographic areas from which data should be gathered to establish the need for a program. Six alternative responses are presented. Most people would be willing to say that some of the 6 are more important than others in establishing the need for a program. However, most people

would also not be willing to say that only one type of data should be used. Therefore, subjects were provided with an opportunity to indicate the extent to which they felt each type of data was important.

Table 3

Sample Sub-question and Alternative Responses

Rate the following **geographic areas** in terms of their future importance in obtaining meaningful data to support the need for a program? (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

___ a. a single company or firm
___ b. local area (within 30 miles)
___ c. region (within 100 miles)
___ d. State
___ e. surrounding states
___ f. nation

Respondents were asked to rate each item using a scale from 1 to 5. A rating of one was designated "not very important," and a rating of 5 was designated "very important." In addition, respondents were asked to rate an item 0 if they felt the item should not even be considered as a possibility. The instrument contained the ten major questions, 29 significant sub-questions, and 169 alternative responses or items.

In addition to gathering information on the curriculum characteristics, demographic data were gathered on the respondents. That data included their roles in relation to the AVTIs, the vocational field with which they were most closely associated, whether they had formal training in vocational technical education curriculum development, age, and sex. These data were used to describe the respondents and to verify that they were members of the groups they were supposed to represent. The 7 page instrument was printed on green paper with the word "confidential" overprinted in red on the front page.

Populations and Samples

Data were gathered from 497 people who represented ten different decision-making groups who participate in the process of determining the direction of the AVTI curriculum. Samples were drawn from the groups to insure representation from each of the 33 AVTIs, each of the 7 vocational education fields, and rural vs. urban programs. In some cases the entire population within a group was selected. These groups included:

1. the 11 members of the Minnesota SBVTE,
2. 17 randomly chosen members of the SBVTE staff,
3. the 33 directors of the AVTIs,
4. 30 assistant directors (one from each institution which had someone with that title; where more than one person held that title, one was chosen at random),
5. the 33 adult directors,
6. 30 curriculum specialists (one from each institution that had someone designated to carry this responsibility; in cases where two or more individuals carried this responsibility, one was randomly chosen; in some cases this person carried other titles, such as Assistant Director),
7. the 33 financial aids coordinators
8. 33 counselors (one from each institution; in cases where two or more individuals had this responsibility, one was randomly chosen),
9. 200 instructors (a stratified random sample containing an equal number of instructors from the rural and urban AVTIs distributed across the seven program areas in proportion to their representation in the total population),
10. 77 employers (a stratified sample with an approximately equal number of employers from each program area, approximately an equal number of rural and urban employers, and an approximately equal number of large and small employers).

The 33 AVTIs in Minnesota were each designated as either rural (23) or urban (10) according to definitions of Standard Metropolitan Statistical Areas (SMSAs) supplied by the U.S. Census Bureau. Employers were defined as large or small on the basis of number of employees. Large employers had 50 or more employees while small employers had less than 50 employees. Each AVTI director was asked to supply names of one large and one small employer from a number of different program areas. Program areas to be represented by each AVTI were chosen after considering the types of programs offered by each AVTI and the size of the AVTI. The employers were selected by the AVTI directors from members of the program advisory committees associated with the programs within the AVTI. Program advisory committee members were used rather than randomly selecting employers because they had some knowledge and association with the programs within the AVTIs. It was felt that such people could provide more meaningful information than employers who never had an association with the goals and mission of such an educational institution.

In a number of AVTIs, certain individuals performed multiple functions (such as assistant director and curriculum supervisor, or assistant director and financial aid coordinator). In these cases, input from these individuals were entered into both categories. This was done because the study data were analyzed as a basis for comparing the differences in perceptions of key decision-making groups. Therefore, if such individuals belonged to more than one group, they would have input into the collective opinion of as many groups as they were a member. Twelve

individuals thus were entered in two groups, while two more individuals were entered in three groups.

Table 4 presents a breakdown of the numbers of instructors who were sampled from each of the seven program areas in proportion to the numbers of instructors in the AVTIs statewide within each program area, and in equal numbers from the rural and urban regions of the State.

Table 4

Number of Instructors Sampled From Each Program Area to Represent Rural and Urban Programs

Program Area	Urban	Rural
Business and Office	18	18
Agriculture	4	4
Home Economics	8	8
Nursing, Health Occ.	17	17
Trade and Industrial	33	33
Technical	13	13
Marketing	7	7
Total	100	100

Table 5 presents a breakdown of the number of employers who were sampled from each program area. Employers were originally to be sampled based on the numbers of programs in each of the vocational program areas throughout the State, and to equally reflect large and small employers from rural and urban regions. Directors of the AVTIs were asked to select employers who were members of their advisory committees from selected program areas in order to maintain this balance. Such employers could not always be identified so the actual sample did not accurately reflect the rural and urban regions of the State and large and small employers.

Data Gathering

Data were gathered from the subjects using direct mail and a telephone follow-up. One week prior to mailing the instrument, subjects were mailed a first-class preletter. The preletter indicated that they had been selected to represent their group within the study, and the rationale and importance of the study. People were asked to indicate if they would not be able to participate. The few who were not able to participate were replaced with other randomly sampled replacements where that was possible.

The instrument was mailed first-class with a cover letter which again explained the rationale for the study and its importance. A response due date was set for six weeks after the instrument was mailed. Each instrument was numbered in order to track responses. Six weeks after the first instrument was

Table 5

Number of Employers Sampled From Each Program Area to Represent Urban and Rural Programs

Program Area	Urban		Rural		Total
	Large	Small	Large	Small	
Business and office	1	2	4	2	9
Agriculture	1	2	3	4	10
Home economics	3	2	1	2	8
Nursing and health	4	3	3	2	12
Trade and industrial	3	4	5	4	16
Technical	3	2	2	4	11
Marketing	1	2	3	5	11
Totals	16	17	21	23	77

mailed, a second mailing was sent to the non-respondents. A revised cover letter again appealed for response. Those people who did not respond to the second mailing were called. The telephone conversations focused on the importance of the responses and the fact that the person was representing a group. The response rates for each of the decision-making groups and the total group of subjects are presented in Table 6.

The overall return rate was 82%. The range of response rates for the various groups was between 100% and 76%.

Data Analysis

The data were analyzed: a) to determine the perceived importance of each item relating to the curriculum characteristics for postsecondary vocational education curriculum of the future, and b) to identify significant differences among the decision-making groups' perceptions of the importance of each of the items.

The responses were analyzed using StatPac (Walonick Associates, 1986) with an IBM PC microcomputer. The data were entered twice and the files compared to ensure accuracy.

Table 6

Response Rates for Each Group Surveyed

Response Rate	Group	Number Mailed	Number Returned
.93	Director	33	31
.80	Assistant director	30	24
.87	Adult director	33	29
.86	Curriculum specialist	30	26
.90	Financial aids administrator	33	30
.81	Counselor	33	27
.78	Rural instructors	100	78
.79	Urban instructors	100	79
.77	Employers	77	60
1.00	SBVTE members	11	11
.76	SBVTE staff	17	13
.82	Totals (overall)	497	408

The perceived importance of each item related to the curriculum characteristics was determined by calculating an average mean for the item across all ten groups. Average means were used based on the assumption that each group should be given equal weight in the decision-making process. The means for each of the ten groups to a particular item were added together and divided by 10. This is in contrast to calculating the grand mean within an analysis which would give each individual in the analysis an equal weight. This study focused on the perceptions of groups and individual data were used only to arrive at group perceptions.

An item was judged to be an important consideration related to a characteristic if it received an overall average rating across the groups of 3 or above. It was judged not to be an important consideration if it received a rating below 3.

Significant differences in the perceived importance of items among the ten groups were identified using analysis of variance (ANOVA). If an ANOVA showed significant differences between groups, post-hoc t-tests were used to identify which specific groups differed significantly. The rationale for this procedure is discussed by Carmer and Swanson (1973). Differences were judged to be significant at the .05 level. Such significant differences would occur by chance only 5 times out of 100.

Data Reliability

The test-retest reliability of the instrument was determined by selecting a random sample of forty-two respondents proportionally representative of the ten groups, and sending a second identical questionnaire to each of them. Each was provided with the promise of a check for 5 dollars as a response incentive. Twenty-nine (69%) of these people returned the second questionnaire. The time between the first and second administrations of the questionnaire was about 8 months.

The reliability of the instrument was determined using two different approaches. The first was to examine the overall means for each item from the first and second administrations to determine if the decision as to whether an item was important would change. The second was to determine the reliability of each item by correlating the original responses with the responses received to the second questionnaire.

Appendix D, Reliability Analysis Summary, presents the reliability data. The first and second administration means for each item are presented along with an indication if the decision as to whether an item would be judged important vs. not important changed. The correlation between the two sets of responses to each item is also presented.

There were no changes in the decisions about the importance of 160 of the 169 items. Two items changed from not important to important and 7 items changed from important to not important. Ninety-five percent of the items did not change.

The reliability data on the extent to which decisions based on the two sets of data changed indicated that the decisions were quite stable. Only 5% of the decisions changed.

However, the individual item reliability coefficients indicated much less stability. The correlation coefficients between the responses to each of the items on the first and second administrations ranged from +.99 to +.01. One of the item reliabilities ranged from +1.00 to .90, 0 from .89 to .80, 8 from .79 to .70, 22 from .69 to .60, 39 from .59 to .50, 26

from .49 to .40, 34 from .39 to .30, 17 from .29 to .20, 15 from .19 to .10, and 7 from .09 to .00.

Ninety-nine (59%) of the coefficients were below .50. This was judged to indicate that their was a substantial shift in the ratings by the respondents to the individual items, even though those shifts were not great enough to change the decisions. It is hypothesized that these shifts were in part due to the intensive efforts of the SBVTE staff during the 8 months between the first and second administrations of the questionnaire to change the curriculum format of the AVTIs. The primary efforts were toward restructuring the AVTI programs into courses.

CHAPTER 5

SUB-STUDY THREE: RESULTS

The results of sub-study three, which investigated the perceived importance of various curriculum characteristics for postsecondary vocational education in the future, are presented in the order in which the characteristics appear on the questionnaire (see Appendix B). The results are presented by major question (characteristic category), sub-question (SQ), and alternative answer to each sub-question (item). Each major question has two or more sub-questions with the exception of major question IX, pertaining to learning resources. Each sub-question is related to a particular characteristic category. The particular dimension of a characteristic to which a sub-question pertains is highlighted within the sub-question with bold letters.

Data tables are presented for each SQ. The tables include the average mean ratings across all 10 key decision-making groups for each item pertaining to a SQ. The average mean is the index of the perceived importance of an item across all of the key decision-making groups. An item was judged to be an important consideration related to a characteristic if it received an overall average rating of 3 or above. It was judged not be an important consideration if it received a rating below 3.

If the groups differed significantly in their average responses to an item at the .05 level, an **asterisk (*) was placed next to the mean.** Where significant differences occurred between groups, they are discussed below the data summary table. With differences among ten groups being analyzed, it was possible for there to be a number of combinations of groups with differences of opinion. For example, directors might differ from instructors, and employers from adult directors, within the same analysis. Each of the significant differences is presented. An overall data analysis summary table which includes the analysis data for the entire questionnaire is presented in Appendix C.

I. Needs assessment - Which programs should be offered?

SQ 1. Rate each of the following types of data in terms of their future importance in determining which programs should be offered by the AVTIs.

ITEM	AVG. MEAN
a. Occupational demand	4.81
b. Current salary of adequately trained people	4.20

c. Salaries of people in occupations	3.10
d. Perceived value of occupations to society	2.63
e. Student demand	3.17
f. Community support for a program	2.92
g. Cost of operating a program	2.84
h. The number of companies or institutions that might employ graduates	4.27
i. The types of other institutions providing trained workers	3.64

There was general agreement among the groups on the importance of six factors that should be considered in determining the types of programs which should be offered in the AVTIs. They were: a) occupational demand, b) current salary of adequately trained people, c) salaries of people in occupations, e) student demand, h) the number of companies or institutions that might employ graduates, and i) the types of other institutions providing trained workers.

There was also general agreement among the groups that several of the factors listed should not be important considerations. They were: d) the perceived value of the occupation to society, f) community support for the program, and g) the cost of operating the program.

SQ 2. Rate the following **geographic areas** in terms of their future importance in obtaining meaningful data to support the need for a program.

ITEM	AVG. MEAN
a. Local Area (within 30 miles)	3.67
b. Region (within 100 miles)	4.04
c. State	4.14
d. Surrounding states	3.15
e. Nation	2.58
f. International	1.64

There was general agreement among the groups on the importance of four geographic factors that should be used in determining whether there is a need for a program. The geographic areas which were considered important were a) the local area (within 30 miles), b) the region (within 100 miles), c) the State, and d) surrounding states.

There was also agreement that two of the factors, e) national data and f) international data, should not be important considerations in determining the need for a program.

SQ 3. Rate the following **occupational bases** for gathering needs assessment data for programs.

ITEM	AVG. MEAN
a. Single company or firm	2.61
b. Industry (group of companies)	4.39
c. Occupational cluster (group of industries)	4.56

There was general agreement among the groups on the importance of two occupational bases that should be important in gathering needs assessment data. All groups agreed that b) industry-wide data and c) occupational cluster data should be important considerations.

The groups also agreed that a) the needs of a single company or firm should not be important in determining which programs should be offered.

SQ 4. Rate the following **considerations** in terms of their importance when deciding **which AVTI programs should** be **offered.**

ITEM	AVG. MEAN
a. How programs agree with the State's mission of the AVTIs	4.15 *
b. Availability of similar programs	4.27
c. Cost of the program	2.95 *
d. Time needed to become fully operational	2.72 *

There was general agreement among the groups on the importance of one factor that should be considered when deciding which AVTI program should be offered. All groups agreed that the availability of similar programs was an important consideration to be taken into account.

Rated as very important, but with significant disagreement among the ten groups, was a) how programs agree with the State's mission of the AVTIs. Financial aids coordinators (3.80) rated this item significantly lower than did directors (4.48), SBVTE members (4.64), and SBVTE staff (mean 4.62). Employers (3.70) rated this item significantly lower than did directors (4.48), counselors (mean 4.31), SBVTE members (4.64), and SBVTE staff (4.62).

Rated not important, but with significant disagreement among the groups were c) cost of the program and d) time needed to become fully operational. There was significant disagreement between a number of different groups on the extent to which "cost of the program" should be important. Directors (3.30) rated this factor significantly higher than did assistant directors (2.59), financial aid coordinators (2.47), and instructors (2.83). Assistant directors (2.58) rated this item significantly lower than did employers (3.17) and SBVTE members (3.55). Financial aids coordinators (2.47) rated this item significantly lower than

did employers (3.18), State Board members (3.55), and SBVTE staff (3.31).

There was also significant disagreement among a number of different groups on the importance of d) time needed to become fully operational. SBVTE staff (1.69) rated this item significantly less important than did directors (2.97), assistant directors (3.00), curriculum specialists (2.77), counselors (2.63), instructors (2.78), employers (3.09) and SBVTE members (3.36). Adult directors (2.43) rated it significantly lower than did employers (3.09). Financial aids coordinators (2.43) rated it significantly lower than did employers (3.09) and SBVTE members (3.36).

SQ 5. Rate the following factors to be considered in **geographically locating AVTI programs.**

ITEM	AVG. MEAN
a. Location of potential students	3.65
b. Location of jobs	3.42
c. Equal geographic access of students to programs	3.34
d. Availability of existing facilities/equipment/staff	3.93
e. Location of on-the-job training resources	3.31 *

There was general agreement among the groups on the importance of four of the five factors that should be considered in geographically locating AVTI programs. The four were: a) location of potential students, b) location of jobs, c) equal geographic access of students to programs, and d) availability of existing facilities, equipment, and staff.

Also rated important, but with significant disagreement among the groups was e) location of on-the-job training resources. Directors (2.81), assistant directors (2.88), and financial aids coordinators (2.83) rated this item significantly less important than did instructors (3.58), employers (3.85), and SBVTE members (3.82). Employers (3.85) rated the item significantly more important than did adult directors (3.29) and counselors (3.19).

II. Program Access - For whom should a program be designed?

SQ 1. Rate the following in terms of their future importance in determining **who should be encouraged to enroll** in each AVTI program.

ITEM	AVG. MEAN
a. People similar to those already in the occupation	1.77 *

b.	All programs should be open to <u>all</u> people	4.23
c.	Programs should be open to people based on their interests and ability to benefit from training	4.63
d.	Non-traditional students/ affirmative action	3.42 *

There was general agreement among the groups on the importance of two of the suggested approaches to encouraging persons to enroll. These two approaches were b) all programs should be open to all people, and c) programs should be open to people based on their interests and ability to benefit from training.

Also rated important, but with significant disagreement among the groups was d) non-traditional students/affirmative action. SBVTE staff (4.46) rated this item significantly more important than did assistant directors (3.46), curriculum specialists (3.42), financial aids coordinators (3.20), instructors (2.94), employers (2.27), and SBVTE members (3.18). Employers (2.27) rated it significantly less important than did directors (3.87), assistant directors (3.46), adult directors (3.68), curriculum specialists (3.42), financial aids coordinators (3.20), counselors (3.67), instructors (2.94), SBVTE members (3.18), and SBVTE staff (4.46). Instructors (2.94) also rated it significantly less important than did directors (3.87), adult directors (3.68), and counselors (3.67).

The analysis also identified one approach that received a low overall importance rating and on which the groups disagreed: a) people similar to those already in the occupation should be encouraged to enroll (e.g., females in an occupation currently employing primarily females). Instructors (2.35) rated this item as significantly more important than did curriculum specialists (1.31), financial aids coordinators (1.33), counselors (1.74), employers (1.83), and SBVTE Staff (1.31). Adult directors (2.14) rated it significantly higher than did curriculum specialists (1.31) and financial aids coordinators (1.33).

SQ 2. Rate the future importance of each of the following geographic areas from which people may be recruited to enroll in an AVTI program.

	ITEM	AVG. MEAN
a.	Single company or firm	2.99 *
b.	Local area (within 30 miles)	4.20
c.	Region (within 100 miles)	4.35
d.	State	3.94
e.	Surrounding states	2.83
f.	Nation	1.91 *

There was general agreement among the groups that three geographic areas will be important for recruiting people to

enroll in an AVTI program. The three were: b) local area (within 30 miles), c) region (within 100 miles, and d) State.

The analysis also revealed general agreement that one of the geographic categories, e) surrounding states, was not important for recruitment.

There was significant disagreement among the groups on two factors which received low overall importance ratings. They were a) single company or firm and c) nation.

With regard to a) recruiting people from a single company or firm, SBVTE staff (3.77) rated this item significantly more important than did financial aids coordinators (2.47), counselors (2.74), instructors (2.75), and employers (2.41). Employers (2.41) rated it significantly less important than did directors (3.19), adult directors (3.25), and SBVTE members (3.46).

With regard to f) recruiting people from the whole nation, directors (2.26) rated this item significantly more important than did instructors (1.69) and employers (1.28). Assistant directors (1.96), adult directors (2.23), curriculum specialists (2.12), and instructors (1.69) rated it significantly more important than did employers (1.28). State Board staff (2.69) rated it significantly more important than did financial aids coordinators (1.77), counselors (1.67), instructors (1.69), employers (1.28), and SBVTE members (1.46).

SQ 3. Rate the following in terms of their importance as criteria for determining the types of people that should be admitted to AVTI programs in the future.

ITEM	AVG. MEAN
a. Open door entry: First come, first served	3.59 *
b. Probability of success	3.47 *
c. Affirmative action criteria	2.71 *
d. Possession of prerequisite skills	3.53 *
e. Person's economic need for employment	2.35

Of the five factors suggested as possible bases for determining the types of people that should be admitted to AVTI programs in the future, three were judged to be important. However, there was significant disagreement among the groups on all three: a) open door entry: first come, first served, b) probability of success, and d) possession of prerequisite skills.

With regard to factor a) there should be an open door policy which allows people to enter on a first-come first served basis, employers (2.75) rated this item significantly less important than did directors (4.00), assistant directors (3.58), adult directors (3.68), curriculum specialists (3.58), financial aids

coordinators (3.63), counselors (3.52), instructors (3.43), and SBVTE staff (4.15).

With regard to b) people should be admitted based on their probability of success, SBVTE staff (1.92) rated this item significantly less important than did all the other groups: directors (3.55), assistant directors (3.37), adult directors (3.46), curriculum specialists (4.00), financial aids coordinators (3.23), counselors (3.67), instructors (3.53), employers (3.65), and SBVTE members (4.00). Curriculum specialists (4.00) rated it significantly higher than did financial aids coordinators (3.23).

With regard to d) people should be admitted who have the prerequisite skills needed to learn the skills taught in the program, both instructors (3.98) and employers (3.97) rated this item as significantly more important than did directors (3.32), assistant directors (3.13), curriculum specialists (3.27), and financial aids coordinators (3.17). Instructors (3.98) also rated it higher than did SBVTE staff (3.15). It was agreed that factor e) people should be admitted based on their economic need for employment, should not be an important basis for admitting students.

The analysis of factor c) people should be admitted based on affirmative action criteria (e.g., sex, race, handicapping conditions), indicated that it should not be an important consideration, but with significant disagreement among the groups. Curriculum specialists (2.89), counselors (3.33), and State Board staff (3.46) rated this item significantly more important than did instructors (2.25) and employers (2.02). Financial aids coordinators (2.37) rated it significantly less important than did counselors (3.33) and SBVTE staff (3.46).

III. Articulation - With which agencies or other institutions should the AVTIs cooperate?

SQ 1. Rate the following types of institutions in terms of how important it will be to involve them with planning programs.

ITEM	AVG. MEAN
a. Business and industry	4.94
b. Labor union and professional associations	4.13 *
c. SBVTE	4.39 *
d. Minnesota Board of Education	2.95 *
e. Minnesota Department of Jobs and Training	3.85
f. Community colleges	3.24
g. Other AVTIs	4.14
h. Private vocational schools	2.43 *
i. Four year colleges and universities	2.62

j. Secondary schools	3.06 *
k. Federal and State agencies	3.39

There was general agreement among the groups that involvement with five of the suggested types of institutions would be important in planning programs. Those five types were: a) business and industry, e) Minnesota Department of Jobs and Training, f) community colleges, g) other AVTIs, and k) federal and State agencies.

Also rated important, but with significant disagreement among the groups were: b) labor unions and professional associations, c) SBVTE, and j) secondary schools. With regard to b) labor unions and professional associations, employers (3.47) rated this item significantly less important than did directors (4.29), assistant directors (4.44), adult directors (4.46), curriculum specialists (4.20), instructors (3.85), and SBVTE staff (4.46). Instructors (3.85) rated this item significantly lower than did assistant directors (4.44) and directors (4.29).

With regard to c) SBVTE, instructors (4.00) rated this item as significantly less important than did directors (4.45), adult directors (4.55), SBVTE members (4.91), and SBVTE staff (5.00). Adult directors (4.55), SBVTE members (4.91), and SBVTE staff (5.00) rated the same item significantly higher than did financial aids coordinators (3.93) and employers (4.02).

With regard to j) secondary schools, instructors (3.40) and employers (3.57) rated this item as significantly more important that curriculum specialists (2.73) and financial aids coordinators (2.57). Directors (3.26) rated it significantly higher than did financial aids coordinators (2.57).

The analysis also yielded two types of institutions which received overall ratings indicating they were not important, and around which there was significant disagreement between the ten groups. Those two types of institutions were d) Minnesota Board of Education, and h) private vocational schools.

With regard to d) Minnesota Board of Education, directors (2.13) rated this item significantly less important than did adult directors (3.32), financial aids coordinators (2.83), counselors (3.07), instructors (3.20), employers (3.39), and SBVTE members (3.64). Assistant directors (2.54) and curriculum specialists (2.56) rated this item significantly less important that did adult directors (3.32), instructors, (3.20), employers (3.39), and SBVTE members (3.64).

With regard to h) private vocational schools, employers (3.14) rated this item significantly more important than did directors (1.45), adult directors (2.46), curriculum specialists (2.32), financial aids coordinators (2.10), and SBVTE staff (2.15). Instructors (2.74) rated it significantly more important than did financial aids coordinators (2.10) and counselors

(1.82). Assistant directors (2.75) also rated it higher than did counselors (1.82).

There was also general agreement among the groups that involvement with one of the types of institutions, i) four year colleges and universities, would not be important in planning AVTI programs.

SQ 2. Rate the following types of institutions in terms of how important it will be to involve them with actually **offering** programs to students.

ITEM	AVG. MEAN
a. Business and industry	4.43
b. Labor union and professional associations	3.69
c. SBVTE	4.19 *
d. Minnesota Board of Education	2.52 *
e. Minnesota Department of Jobs and Training	3.42
f. Community colleges	3.10
g. Other AVTIs	3.77
h. Private vocational schools	2.23 *
i. Four year colleges and universities	2.35
j. Secondary schools	2 85 *
k. Federal and State agencies	3.06

There was general agreement among the groups that it would be important to involve six of the eleven types of institutions in actually offering programs to students. Those six were: a) business and industry, b) labor unions and professional associations, e) Minnesota Department of Jobs and Training, f) community colleges, g) other AVTIs, and k) federal and state agencies.

Also rated important, but with significant disagreement among the groups was c) the SBVTE. Instructors (3.72) rated this item significantly less important than did assistant directors (4.48), adult directors (4.28), curriculum specialists (4.42), counselors (4.22), and SBVTE members (4.55).

The analysis also showed that there was general agreement between the groups that it was not very important to involve i) four year colleges and universities, in offering programs to students.

Rated unimportant, but with significant disagreement among the groups were three other types of institutions. They were: d) Minnesota Board of Education, h) private vocational schools, and j) secondary schools.

With regard to d) Minnesota Board of Education, directors (1.74) rated this item significantly less important than did

adult directors (2.68), financial aids coordinators (2.59), counselors (3.22), instructors (3.01), employers (3.27), and SBVTE members (2.82). Assistant directors (2.09) rated it significantly less important than did counselors (3.22), instructors (3.01) and employers (3.27). Financial aids coordinators (2.59) rated it significantly less important than did employers (3.27) and significantly more important than did SBVTE staff (1.58). SBVTE staff (1.53) also rated it significantly less important than did adult directors (2.68), counselors (3.22), instructors (3.01), employers (3.27), and SBVTE members (2.82). Curriculum specialists (2.20) rated it significantly less important than did counselors (3.22), instructors (3.01), and employers (3.27).

With regard to h) private vocational schools, employers (2.95) rated this item significantly more important than did directors (1.94), adult directors (2.14), curriculum specialists (2.08), financial aids coordinators (2.03), counselors (1.74), and SBVTE staff (1.92). Instructors (2.56) rated it significantly more important than did directors (1.94) and counselors (1.74).

With regard to j) secondary schools, employers (3.59) rated this item significantly more important than did assistant directors (2.78), adult directors (2.89), curriculum specialists (2.76), financial aids coordinators (2.53), instructors (3.12), SBVTE members (2.36), and SBVTE staff (2.23). Instructors (3.12) rated it significantly more important than did financial aids coordinators (2.53) and SBVTE staff (2.23).

IV. Program Purpose - What should be the primary focus of AVTI programs?

SQ 1. Rate the following vocational program **purposes** in terms of how important they will be in carrying out the mission of the AVTIs.

ITEM	AVG. MEAN
a. Initial training (preparing people for first jobs)	4.81
b. Retraining (preparing people for different jobs)	4.77 *
c. Updating (helping people develop new skills for their current jobs)	4.66 *
d. Remediation (providing skills which are needed to succeed in a vocational program)	4.16 *

There was general agreement among the groups that one program purpose should be an important consideration in carrying out the mission of the AVTIs. That purpose was a) initial training (preparing people for first jobs).

Also rated important, but with significant disagreement among the groups were: b) retraining (preparing people for different jobs), c) updating (helping people develop new skills for their current jobs), and d) remediation (providing skills which are needed to succeed in a vocational program).

With regard to b) retraining (preparing people for different jobs), employers (4.40) rated this item significantly less important than did directors (4.81), assistant directors (4.96), adult directors (4.86), curriculum specialists (4.92), counselors (4.89), instructors (4.67), and SBVTE staff (4.92). Financial aids coordinators (4.53) rated it significantly lower than did assistant directors (4.96), adult directors (4.86), curriculum specialists (4.92), counselors (4.89), and SBVTE staff (4.92). Instructors (4.67) rated it significantly less important than did assistant directors (4.96) and curriculum specialists (4.92).

With regard to c) updating (helping people develop new skills for their current jobs), financial aids coordinators (4.37), instructors (4.51), and employers (4.03) all rated this item significantly less important than did directors (4.77), assistant directors (4.91), adult directors (4.79), curriculum specialists (4.92), counselors (4.82), and SBVTE staff (4.92). Employers (4.03) also rated it significantly less important than did financial aids coordinators (4.37), instructors (4.51), and SBVTE members (4.55).

With regard to d) remediation (providing skills which are needed to succeed in a vocational program), directors (4.48) rated this item significantly more important than did financial aids coordinators (3.83), instructors (3.95), and employers (3.52). Employers (3.52) also rated it significantly less important than did assistant directors (4.39), adult directors (4.14), curriculum specialists (4.35), counselors (4.15), instructors (3.95), SBVTE members (4.27), and SBVTE staff (4.54).

SQ 2. Assuming that the primary purpose of the AVTIs is to prepare people for employment as stated in the mission statement presented earlier, rate the following **additional goals** which the AVTIs could have in terms of how important they will be in the future.

ITEM	AVG. MEAN
a. Prepare people to be good citizens	3.60 *
b. Provide a general education	2.98
c. Develop basic skills (reading, writing, arithmetic)	3.80 *

Rated important, but with significant disagreement among the groups were: a) prepare people to be good citizens, and c) develop basic skills (reading, writing, arithmetic).

With regard to a) prepare people to be good citizens, financial aids coordinators (3.10) rated this item significantly

less important than did directors (3.81), assistant directors (3.78), curriculum specialists (4.00), and counselors (3.10). Instructors (3.52) also rated it significantly less important than did counselors (4.07) and employers (3.10).

With regard to c) develop basic skills, employers (2.98) rated this item significantly less important than did directors (4.10), assistant directors (3.91), adult directors (3.83), curriculum specialists (4.15), financial aids coordinators (3.77), instructors (3.52), SBVTE members (3.91), and SBVTE staff (4.23). Instructors (3.52) rated it significantly less important than did directors (4.10) and curriculum specialists (4.15).

There was general agreement among the groups that b) providing a general education, was not important.

V. Content Identification - How should content be identified?

SQ 1. Rate the following sources of content in terms of their importance for forming the basis for a particular program.

ITEM	AVG. MEAN
a. A specific job	3.58
b. A job cluster	4.46 *
c. A subject matter area related to many jobs (e.g., mathematics, communications)	3.88
d. Specific to a particular firm or company	2.60 *
e. Generalizable to many firms or companies	4.25

There was general agreement among the groups on the importance of three sources of content that should be considered for a particular program. They were a) a specific job, c) a subject matter area related to many jobs (e.g., mathematics, communications), and e) generalizable to many firms or companies.

Also rated important, but with significant disagreement among the groups was b) a job cluster. Instructors (4.15) rated this item significantly less important than did directors (4.55), adult directors (4.52), curriculum specialists (4.56), financial aids coordinators (4.52), and SBVTE staff (4.69). Employers (4.14) rated it significantly less important than did directors (4.55), curriculum specialists (4.58), and SBVTE staff (4.69).

Rated unimportant, but with significant disagreement among the groups was d) specific to a particular firm or company. SBVTE staff (3.85) rated this item significantly more important than did all the other groups: directors (2.84), assistant directors (2.48), adult directors (2.79), curriculum specialists (2.39), financial aids coordinators (2.66), counselors (2.41), instructors (2.34), employers (2.40), and SBVTE members (2.82).

Directors (2.84) rated it significantly more important than did instructors (2.34).

SQ 2. Rate the importance of the following alternative ways for identifying the job skills and knowledges to be taught within a vocational program of the future.

ITEM	AVG. MEAN
a. Review textbooks and other publications	2.77 *
b. Review task listings	3.83
c. Interview employers	4.49
d. Review job description	3.87
e. Interview people who perform the job	4.61
f. Have discussions with advisory committees	4.40
g. Observe people performing the job	3.94 *
h. Consult subject matter experts	3.20

There was general agreement among the groups on the importance of five ways of identifying the job skills and knowledges to be taught within a vocational program of the future. Those ways were: b) reviewing task listings, c) interviewing employers, d) reviewing job descriptions, e) interviewing people who perform the job, f) having discussions with advisory committees, and h) consulting subject matter experts.

Also rated important, but with significant disagreement among the groups was g) observing people performing the job. Financial aids coordinators (3.41) rated this item significantly less important than did assistant directors (4.09), curriculum specialists (4.46), counselors (4.04), instructors (3.98), and employers (3.81). Instructors (3.98) rated it significantly more important than did directors (3.55).

The analysis also revealed one way of identifying job skills and knowledges which was rated low, but upon which there was significant disagreement among the ten groups. That item was a) reviewing textbooks and other publications. Instructors (3.17) rated this item significantly more important than did directors (2.68), assistant directors (2.48), adult directors (2.57), and curriculum specialists (2.56).

SQ 3. Rate the importance of the following types of skills which might be taught in future vocational programs.

ITEM	AVG. MEAN
a. Psychomotor skills	4.43 *
b. Cognitive skills	4.54 *
c. Affective skills	4.29

There was general agreement among the groups on the importance of c) affective skills being taught in future vocational programs.

Also rated important, but with significant disagreement among the groups were: a) psychomotor and b) cognitive skills.

Regarding a) psychomotor skills, employers (4.07) rated this item significantly less important than did directors (4.55), assistant directors (4.50), curriculum specialists (4.50), financial aids coordinators (4.50), instructors (4.55), and SBVTE members (4.64). Counselors (4.15) rated it significantly less important than did instructors (4.55).

Regarding b) cognitive skills, employers (4.12) rated this item significantly less important than did directors (4.55), assistant directors (4.58), adult directors (4.72), curriculum specialists (4.62), counselors (4.48), instructors (4.54), and SBVTE staff (4.92). Financial aids coordinators (4.30) rated it significantly less important than did adult directors (4.72) and SBVTE staff (4.92).

VI. Student Evaluation - How should student learning be measured?

SQ 1. Rate the importance of the following possible goals for evaluating future vocational student learning.

ITEM	AVG. MEAN
a. To determine the extent of learning compared to other learners	2.74
b. To verify skill mastery (attaining performance capability)	4.82
c. To record student progress (grade)	3.49
d. To motivate students	3.94

There was general agreement among the groups on the importance of three goals for evaluating future vocational student learning. All groups agreed that the following were important: b) to verify skill mastery (attaining performance capability, c) to record student progress (grade), and d) to motivate students.

There was also general agreement among all the groups that one of the goals, a) to determine the extent of learning compared to other learners, was not important.

SQ 2. Rate the following types of abilities in terms of their future importance in evaluating vocational student learning.

ITEM	AVG. MEAN
a. Performance skill	4.71
b. Understanding of concepts and theory	4.50
c. Attitude evaluation	4.27 *

There was general agreement among the groups that two of the abilities were important in evaluating vocational student learning in the future: a) performance skill, and b) understanding of concepts and theory.

Also rated important, but with significant disagreement among the groups was the third factor, c) attitude evaluation. Financial aids coordinators (3.77) rated this item significantly less important than did directors (4.45), assistant directors (4.33), adult directors (4.41), curriculum specialist (4.39), instructors (4.39), employers (4.32), and SBVTE staff (4.54).

SQ 3. Rate the importance of the following **methods** for evaluating student learning in the future.

ITEM	AVG. MEAN
a. Written tests	3.77
b. Oral tests	3.66
c. Skill performance tests	4.88
d. Instructor observations	3.99
e. Attitude performance tests	3.69 *

There was general agreement among the groups that four of the suggested methods for evaluating student learning in the future were important: a) written tests, b) oral tests, c) skill performance tests, and d) instructor observations.

Also rated important, but with significant disagreement among the groups was e) attitude performance tests. Financial aids coordinators (3.07) rated this item significantly less important than did directors (3.74), assistant directors (3.88), adult directors (3.93), curriculum specialist (4.00), instructors (3.80), employers (3.75), and SBVTE staff (3.83).

VII. Program Format - What form should programs take?

SQ 1. Rate the following **locations** in terms of how important you think they will be as alternative AVTI program sites in the future.

ITEM	AVG. MEAN
a. The AVTI	4.62 *
b. Business and industry related to the program area	4.36 *
c. Students' homes	2.30 *
d. Other schools	3.04

e. Conference centers
or hotel settings 2.89 *

The analysis indicated agreement that d) other schools, would be an important location for AVTI programs in the future.

Also rated important, but with significant disagreement among the groups were two of the other locations: the AVTI itself, and business and industry related to the program area.

With regard to a) the AVTI itself, SBVTE members (4.18) and State Board staff (4.08) rated this item significantly less important than did directors (4.74), assistant directors (4.88), adult directors (4.72), financial aids coordinators (4.83), counselors (4.76), instructors (4.76), and employers (4.67). SBVTE staff (4.08) also rated it significantly lower than did curriculum specialists (4.62).

With regard to b) business and industry locations related to the program area, directors (4.61) rated this item significantly more important than did financial aids coordinators (4.13), counselors (4.08), instructors (4.14), and employers (4.12). Adult directors (4.52) rated it significantly more important than did instructors (4.14) and employers (4.12). Curriculum specialists (4.50) rated it significantly more important than did instructors (4.14). State Board staff (4.92) rated it significantly more important than did assistant directors (4.25), financial aids coordinators (4.13), counselors (4.08), instructors (4.14), and employers (4.12).

Two of the other locations received low overall ratings and there were significant differences between the groups on their importance. They were: c) students' homes, and e) conference centers or hotel settings.

With regard to c) students' homes, SBVTE staff (3.54) rated this item significantly more important than did directors (2.16), assistant directors (2.46), adult directors (2.28), financial aids coordinators (1.67), counselors (2.15), instructors (1.85), employers (1.95), and SBVTE members (2.27). Assistant directors (2.46) and curriculum specialists (2.69) rated it significantly more important than did financial aids coordinators (1.67). Curriculum specialists (2.69) also rated it significantly more important than did instructors (1.85) and employers (1.95).

With regard to e) conference centers or hotel settings, the average rating was also low, with significant disagreement among the ten groups. Financial aids coordinators (2.17) and employers (2.02) rated this item significantly less important than did directors (3.32), assistant directors (2.92), adult directors (3.32), curriculum specialists (3.42), and SBVTE staff (3.00). Employers (2.02) also rated it significantly less important than did counselors (2.85), instructors (2.59), and SBVTE members (3.00). Instructors (2.59) rated it significantly less important

than did directors (3.32), adult directors (3.32), and curriculum specialists (3.42).

SQ 2. Rate the following **times** for offering AVTI programs in terms of how important they will be in the future.

ITEM	AVG. MEAN
a. During the day from Monday through Friday	3.99
b. During the day on weekends	3.72 *
c. During the evening from Monday through Friday	4.37
d. During the evening on weekends	2.34 *
e. Twenty-four hours a day from Monday through Friday	2.40 *
f. Twenty-four hours a day on weekends	1.77 *

There was general agreement among the groups that two of the time periods suggested would be important in offering AVTI programs in the future. Those two time periods were a) during the day from Monday through Friday, and c) during the evening from Monday through Friday.

Also rated important, but with significant disagreement among the groups was: b) during the day on weekends. Instructors (2.92) rated this item significantly less important than did directors (3.58), assistant directors (3.83), adult directors (4.03), curriculum specialists (4.08), financial aids coordinators (3.87), counselors (3.78), SBVTE members (4.00), and SBVTE staff (3.85). Employers (3.29) rated it significantly less important than did adult directors (4.03) and curriculum specialists (4.08).

The analysis revealed three alternative time periods which received low (unimportant) ratings on which the groups significantly disagreed. They were: d) during the evenings on weekends, e) twenty-four hours a day from Monday through Friday, and f) twenty-four hours a day on weekends.

With regard to d) during the evenings on weekends, instructors (1.53) and employers (1.61) rated this item significantly less important than did directors (2.36), assistant directors (2.71), adult directors (2.86), financial aids coordinators (2.37), counselors (2.33), and SBVTE members (2.91). Instructors (1.53) also rated it significantly less important than did curriculum specialists (2.31).

With regard to e) twenty-four hours a day from Monday through Friday, instructors (1.76) and employers (1.29) rated this item significantly less important than did directors (2.97), assistant directors (2.63), adult directors (2.79), counselors (2.67), and SBVTE staff (2.92). Employers (1.29) also rated it significantly less important than did curriculum specialists

(2.31) and SBVTE members (2.64). Financial aids coordinators (2.00) rated it significantly less important than did directors (2.97).

With regard to f) twenty-four hours a day on weekends, instructors (1.00) and employers (0.89) rated this item significantly less important than did directors (2.19), assistant directors (1.75), adult directors (2.32), financial aids coordinators (1.70), counselors (1.96), SBVTE members (2.18), and SBVTE staff (2.23). Curriculum specialists (1.46) rated it significantly less important than did adult directors (2.32).

SQ 3. Rate the following **program formats** in terms of how important you think they will be in the future.

ITEM	AVG. MEAN
a. Programs offered as total programs	3.49 *
b. Programs broken down into courses	4.49 *
c. Programs offered as certificate programs where students get a certificate of completion or diploma when completing the program	4.04
d. Programs offered as Associate of Applied Science degree program	3.84
e. Short intensive courses to teach limited skills	4.00 *
f. Coordinated day school and adult programs where people can take components of either program and get credit toward the other	4.55 *

There was general agreement among the groups that two of the alternative program formats would be important in the future. Those two formats were: c) programs offered as certificate programs where students get a certificate of completion or diploma when completing the program, and d) programs offered as Associate of Applied Science degree programs.

The other four alternative program formats, while receiving high average ratings, were the subject of significant disagreement between the ten groups.

With regard to a) programs offered as total programs, instructors (4.12) and employers (4.17) rated this item significantly more important than did directors (3.32), assistant directors (3.04), adult directors (3.35), curriculum specialists (2.88), financial aids coordinators (3.63), counselors (3.41), and SBVTE staff (3.25). Financial aids coordinators (3.63) rated it significantly more important than did curriculum specialists (2.88).

With regard to b) programs broken down into courses, employers (3.81) rated this item significantly less important

than did directors (4.58), assistant directors (4.67), adult directors (4.62), curriculum specialists (4.50), financial aids coordinators (4.40), counselors (4.63), instructors (4.26), SBVTE members (4.64), and SBVTE staff (4.77). Instructors (4.26) rated it significantly less important than did assistant directors (4.67).

With regard to e) short intensive courses to teach limited skills, instructors (3.67) and employers (3.48) rated this item significantly less important than did directors (4.20), adult directors (4.17), curriculum specialists (4.31), and SBVTE staff (4.67). SBVTE staff (4.67) also rated it significantly more important than did assistant directors (3.88), financial aids coordinators (3.80), and counselors (3.85).

With regard to f) coordinated day school and adult programs where people can take components of either program and get credit toward the other, instructors (3.96) and employers (3.86) rated this item significantly less important than did directors (4.84), assistant directors (4.83), adult directors (4.97), curriculum specialists (4.81), financial aids coordinators (4.57), counselors (4.44), and SBVTE staff (4.85).

SQ 4. Rate the following **lesson delivery formats** in terms of how important you think they will be for delivering future vocational instruction.

ITEM	AVG. MEAN
a. Traditional format of instructor-delivered instruction	4.02 *
b. Modularized format (instruction packaged as learning modules)	3.93 *
c. Computer-assisted instruction	4.04 *
d. Teleconferencing	3.54 *

Although all of the lesson delivery formats received high importance ratings, the groups disagreed significantly on all of them. With regard to a) traditional format of instructor delivered instruction (e.g., live lectures and demonstrations), instructors (4.41) and employers (4.44) rated this item significantly more important than did directors (4.00), adult directors (3.90), financial aids coordinators (3.97), counselors (3.74), and SBVTE staff (3.85).

With regard to b) modularized format (instruction packaged as learning modules which can be either partially or fully used by individual students), instructors (3.24) rated this item significantly less important than did all other groups: directors (4.10), assistant directors (3.88), adult directors (4.17), curriculum specialists (4.08), financial aids coordinators (3.97), counselors (4.00), employers (3.60), SBVTE members (4.00), and SBVTE staff (4.23). Employers (3.60) rated it significantly less important than did adult directors (4.17).

With regard to c) computer-assisted instruction, instructors (3.51) rated this item significantly less important than did directors (4.10), assistant directors (4.04), adult directors (4.18), curriculum specialists (4.08), counselors (4.11), SBVTE members (4.55), and SBVTE staff (4.39). Financial aids coordinators (3.67) rated it significantly less important than did SBVTE members (4.55) and State Board staff (4.39). Employers (3.78) rated it significantly less important than did SBVTE members (4.55).

With regard to d) teleconferencing, instructors (2.76) and employers (2.86) rated this item significantly less important than did directors (3.81), assistant directors (3.67), adult directors (3.86), curriculum specialists (3.81), counselors (3.63), and SBVTE members (4.18). Instructors (2.76) also rated it significantly less important than did SEVTE staff (3.62). Financial aids coordinators (3.17) rated it significantly lower than did adult directors (3.86) and State Board members (4.18).

VIII. Lesson Structuring - What are the key components of lessons?

SQ 1. Rate the following **lesson components** in terms of their future importance in providing effective instruction to students.

ITEM	AVG. MEAN
a. Instruction on related theory	4.11
b. Instruction on understanding procedures	4.52
c. Demonstrations (showing)	4.67
d. Practice	4.71
e. Evaluation	4.35
f. Feedback	4.47

There was general agreement among the groups that all six of the lesson components would be important in providing effective instruction to students in the future.

SQ 2. Which of the following ways of **defining a lesson** should be used by the AVTIs?

Unlike all the other items on the instrument, on this item respondents were asked to choose between two options:

a. lessons should be defined in terms of a specific amount of instructional time (e.g., hours, one day).
b. lessons should be defined in terms of the instruction necessary for a person to master a behavior or task.

This item was analyzed using a Chi-square procedure. There were no significant differences between the groups at the .05 level. The overall analysis revealed that 14.4% of the respondents felt that lessons should be defined in terms of a

specific amount of instructional time, while 85.6% felt that lessons should be defined in terms of the instruction necessary for a person to master a behavior or task. Time to master was the majority choice for all ten groups: directors (96.8%), assistant directors (82.6%), adult directors (85.7%), curriculum specialists (84.6%), financial aids coordinators (100%), counselors (92.6%), instructors (81.5%), employers (81.0%), SBVTE members (81.8%), and SBVTE staff (92.3%).

SQ 3. Rate the following **instructional methods** in terms of their future importance for delivering effective instruction to vocational students.

ITEM	AVG. MEAN
a. Lectures	3.55 *
b. Demonstrations	4.59
c. Role-playing	3.25 *
d. Simulations	3.97
e. Reading	3.68
f. Computer-assisted instruction	4.03 *
g. On-the-job instruction	4.03
h. Practice	4.58
i. Cooperative learning	3.56
j. Individual research	2.91

There was general agreement among the groups that six of the alternative instructional methods listed would be important for delivering effective instruction to vocational students. The six were: b) demonstrations, d) simulations, e) reading, g) on-the-job instruction, h) practice, and i) cooperative learning.

Also rated important, but with significant disagreement among the groups were: a) lectures, c) role-playing, and f) computer-assisted instruction. With regard to a) lectures, instructors (3.86) and employers (3.76) rated this item significantly more important than did directors (3.29) and counselors (3.22). Instructors (3.86) also rated it as significantly more important than did financial aids coordinators (3.43) and SBVTE members (3.09).

With regard to c) role playing, directors (2.97) rated this item significantly less important than did curriculum specialists (3.64) and SBVTE staff (3.83). Financial aids coordinators (2.87), instructors (3.01), and SBVTE members (2.64) rated it significantly less important than did assistant directors (3.58), curriculum specialists (3.64), employers (3.45), and SBVTE staff (3.83).

With regard to f) computer-assisted instruction, instructors (3.61) rated this item significantly less important than did directors (4.10), adult directors (4.07), counselors (4.15), and SBVTE staff (4.25). Instructors (3.61), financial aids coordinators (3.63), and employers (3.67) rated it significantly less important than did curriculum specialists (4.23) and SBVTE

members (4.55). Employers (3.67) rated it significantly less important than did counselors (4.15).

There was also agreement among the groups that j), individual research, would not be important.

IX. Learning Resources - What technology should be used to present lessons?

SQ 1. Rate the following types of **learning resources** in terms of how important you feel they will be for delivering effective instruction to vocational students.

ITEM	AVG. MEAN
a. Learning modules	3.91 *
b. Video tapes	4.28
c. Computers	3.44 *
d. Transparencies	3.32
e. Slides	3.10
f. Audio tapes	3.03
g. Textbooks	3.62 *
h. Instructor-developed instruction sheets	3.99
i. Journal articles	3.01
j. Manufacturers' manuals	3.82 *
k. Telecommunications	3.68 *
l. Interactive video	3.93 *
m. Goods and materials (job related)	4.33
n. Tools and equipment (job related)	4.50

All of the learning resources received high average importance ratings. There was agreement among the ten groups on the importance of eight of the suggested learning resources for delivering effective instruction to vocational students. They were: b) video tapes, d) transparencies, e) slides, f) audio tapes, h) instructor-developed instruction sheets, i) journal articles, m) goods and materials (job related), and n) tools and equipment (job related).

There were significant differences between groups on the importance of six of the learning resources, a) learning modules, c) computers, g) textbooks, j) manufacturers' manuals, k) telecommunications, and l) interactive video. With regard to a) learning modules, instructors (3.39) rated this item significantly less important than did adult directors (4.24), curriculum specialists (3.92), financial aids coordinators (4.07), counselors (3.96), and employers (3.97).

With regard to c) computers, instructors (3.97) and employers (3.93) rated this item significantly less important than did directors (4.55), adult directors (4.71), SBVTE members (4.70), and SBVTE staff (4.58). Financial aids coordinators (4.03) rated it significantly less important than directors

(4.55) and adult directors (4.71). Instructors (3.97) rated it significantly less important than did assistant directors (4.39).

With regard to g) textbooks, instructors (3.97) and employers (4.00) rated this item significantly more important than did adult directors (3.48), counselors (3.44), and SBVTE members (3.10). Financial aids coordinators (3.83) also rated it significantly more important than did SBVTE members (3.11).

With regard to j) manufacturers' manuals, employers (3.36) rated this item significantly less important than did directors (3.84), assistant directors (4.00), adult directors (3.89), curriculum specialists (4.08), and SBVTE members (4.20). Instructors (3.54) also rated it significantly less important than did curriculum specialists (4.08).

With regard to k) telecommunications, instructors (3.10) and employers (3.14) rated this item significantly less important than did directors (4.10), adult directors (3.86), curriculum specialists (3.92), SBVTE members (4.20), and SBVTE staff (3.92). Directors (4.10) rated it significantly more important than did financial aids coordinators (3.37). Assistant directors (3.65) rated it significantly more important than did instructors (3.10).

With regard to l) interactive video, instructors (3.40) rated this item significantly less important than did directors (4.32), adult directors (4.10), curriculum specialists (4.00), counselors (3.85), SBVTE members (4.20), and SBVTE staff (4.33). Directors (4.32) also rated it significantly more important than did financial aids coordinators (3.63) and employers (3.67).

X. Program Evaluation - How should the programs be evaluated?

SQ 1. Rate the following in terms of their future importance for judging the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN
a. Individual AVTIs	3.79
b. SBVTE	3.48 *
c. Other vocational educators	3.36
d. U.S. Office of Education	1.67
e. Employers of graduates	4.66
f. Potential employers of graduates	3.82
g. Program graduates	4.41

The analysis revealed general agreement that five of the suggested groups or agencies should be involved with judging the overall effectiveness of an AVTI program. Those five were: a) individual AVTIs, c) other vocational educators, e) employers of graduates, f) potential employers of graduates, and g) program graduates.

Also rated important, but with significant disagreement among the groups was the importance of the SBVTE. SBVTE staff (4.62) rated this item significantly more important than did directors (3.58), assistant directors (3.30), adult directors (3.36), curriculum specialists (3.36), financial aids coordinators (3.40), counselors (2.96), instructors (2.89), and employers (3.39). Instructors (2.89) also rated this item significantly less important than did directors (3.58), financial aids coordinators (3.40), employers (3.39), and SBVTE members (3.90). Counselors (2.96) also rated it significantly less important than did SBVTE members (3.90).

There was also general agreement that one of the suggested evaluators, the U.S. Office of Education, would not be important in judging the overall effectiveness of an AVTI program.

SQ 2. Rate the following **types of data** in terms of how important you think they will be for judging the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN
a. The extent to which graduates are placed in related jobs	4.27
b. Employers' ratings of graduates	4.59
c. Graduates' ratings of the program	4.25
d. Ratings of the program by other educators	3.02
e. Student program completion rates	3.20 *
f. Student achievement upon program completion	3.97
g. Graduates' job satisfaction	3.80
h. Benefit to graduate in the workplace of having completed the program	3.92 *

All eight of the types of data that might be used to judge the overall effectiveness of an AVTI program were judged to be important.

The analysis revealed agreement among the groups on the importance of six of the types of data suggested as criteria for judging the overall effectiveness of an AVTI program. They were: a) the extent to which graduates are placed in related jobs, b) employers' ratings of graduates, c) graduates ratings of the program, d) ratings of the program by other educators, f) student achievement upon program completion, and g) graduates' job satisfaction.

The analysis revealed significant disagreements between the groups on the importance of two of the possible criteria, e) student program completion rates, and h) the benefit to the graduate in the workplace of having completed the program.

With regard to e) student program completion rates, curriculum specialists (2.50) rated this item significantly less

important than did adult directors (3.35), financial aids coordinators (3.30), counselors (3.48), employers (3.14), SBVTE members (3.50), and SBVTE staff (3.77). Instructors (2.80) rated it significantly less important than did adult directors (3.35), financial aids coordinators (3.30), counselors (3.48), and SBVTE staff (3.77). Directors (3.00) rated it significantly less important than did SBVTE staff (3.77).

With regard to h) the benefit to the graduate in the workplace of having completed the program, directors (3.58) rated this item significantly less important than did instructors (4.07) and employers (4.09). SBVTE staff (2.92) rated it significantly less important than did assistant directors (4.14), adult directors (4.11), curriculum specialists (4.00), financial aids coordinators (3.90), counselors (4.07), instructors (4.07), employers (4.09), and SBVTE members (4.30).

SQ 3. Rate the following **times** in terms of their importance for gathering data to judge the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN
a. During the program	3.57 *
b. At the conclusion of the program	3.99
c. One year or more after a class has graduated	4.64

The groups agreed on the importance of two of the time frames suggested for gathering data to judge the overall effectiveness of an AVTI program. Those two were: b) at the conclusion of the program, and c) one year or more after a class has graduated.

Also rated important, but with significant disagreement among the groups was a) during the course of the program. Directors (3.77) rated this item significantly more important than did assistant directors (3.04) and instructors (3.17). SBVTE staff (4.54) rated it significantly more important than did assistant directors (3.04), adult directors (3.55), curriculum specialists (3.62), financial aids coordinators (3.30), counselors (3.44), instructors (3.17), and employers (3.47).

Summary of Disagreements Among the Key Decision-Making Groups

There were 169 response alternatives in the questionnaire. Therefore, the number of times one group could disagree with any **one other** group was 169 times. Table 7 presents a summary of the number of times each of the ten key decision-making groups significantly disagreed with another group on items related to a future characteristic of AVTI programs.

Table 7

Matrix of the Number of Times Each of the Ten Decision-Making Groups Disagreed Significantly With Each Other (Number Possible = 169)

	AVTI Dir	Asst Dir	Adult Dir	Curr Spec	Fin Aid	Couns	Instr	Empl	SBM	SBS
AVTI Dir	x	2	2	1	16	3	38	37	4	8
Asst Dir		x	1	0	9	2	20	26	5	10
Adult Dir			x	4	10	0	26	33	1	8
Curr Spec				x	12	2	29	32	3	9
Fin Aid					x	5	21	25	8	24
Couns						x	24	20	2	12
Instr							x	17	15	34
Empl								x	24	38
SBM									x	9
SBS										x

Key to Abbreviations

AVTI Dir:	AVTI Director	Couns:	Counselor
Asst Dir:	Assistant Director	Instr:	Instructor
Adult Dir:	Adult Director	Empl:	Employer
Curr Spec:	Curriculum Specialist	SBM:	SBVTE Member
Fin Aid:	Financial Aid Coordinator	SBS:	SBVTE Staff

Table 8 presents the same information as Table 7 with the numbers of disagreements between groups arranged in descending order from the largest number of disagreements to the smallest number. Table 8 also presents the percent of items on which various combinations of the groups disagreed. The percentages were calculated by dividing the number of significant disagreements by the number of items on which the groups could disagree (169).

The numbers of significant disagreements between groups ranged from 38 (22.5%) to 0 (0%). The largest numbers of significant disagreements were between instructors and AVTI directors (38), employers and SBVTE staff (38), employers and AVTI directors (37), and instructors and the SBVTE staff (34). There were no significant disagreements between the assistant directors and curriculum specialists, or between the adult directors and counselors.

Table 9 presents the number of times each decision-making group disagreed with **any** of the other groups and the percentage of possible disagreements this represents. This table represents the degree to which each group differed with all of the other groups. The potential number of disagreements possible among a group and all other groups was 1,521. This number was derived by multiplying the number of separate items people were asked to respond to (169) times the number of groups with which a given group could disagree (9). A group could not disagree with itself. The percentage of disagreements was calculated by dividing the number of disagreements by 1,521. The total number of possible disagreements among all groups was 15,210.

The total number of statistically significant disagreements among all of the groups was 1,262. This represented 8.3% of the total number of possible disagreements (1,262/15,210).

The two groups that significantly disagreed with the other groups most often were the employers (16.6%) and the instructors (14.8%). The two groups that disagreed with the other groups least often were the counselors (4.6%) and the SBVTE members (4.7%).

Table 8

Numbers and Percentages of Significant Disagreements Between Decision-Making Groups Arranged in Descending Order (Number Possible = 169)

Number	Percentage	Party I	Party II
38	22.50	Instructors	AVTI Directors
38	22.50	Employers	SBVTE Staff
37	21.89	Employers	AVTI Directors
34	20.12	Instructors	SBVTE Staff
33	19.53	Employers	Adult Directors
32	18.93	Employers	Curriculum Specialists
29	17.16	Instructors	Curriculum Specialists
26	15.38	Employers	Assistant Directors
26	15.38	Instructors	Adult Directors
25	14.79	Employers	Financial Aids Coordinators
24	14.20	SBVTE Staff	Financial Aids Coordinators
24	14.20	Instructors	Counselors
24	14.20	Employers	SBVTE Members
21	12.43	Instructors	Financial Aids Coordinators
20	11.83	Instructors	Assistant Directors
20	11.83	Employers	Counselors
17	10.06	Employers	Instructors
16	9.47	AVTI Directors	Financial Aids Coordinators
15	8.88	Instructors	SBVTE Members
12	7.10	Curriculum Spec.	Financial Aids Coordinators
12	7.10	SBVTE Staff	Counselors
10	5.92	SBVTE Staff	Assistant Directors
10	5.92	Adult Directors	Financial Aids Coordinators
9	5.33	Asst. Directors	Financial Aids Coordinators
9	5.33	SBVTE Staff	Curriculum Specialists
9	5.33	SBVTE Staff	SBVTE Members
8	4.73	SBVTE Staff	AVTI Directors
8	4.73	SBVTE Staff	Adult Directors
8	4.73	State Bd. Members	Financial Aids Coordinators
5	2.96	Asst. Directors	SBVTE Members
5	2.96	Counselors	Financial Aids Coordinators
4	2.37	AVTI Directors	SBVTE Members
4	2.37	Adult Directors	Curriculum Specialists
3	1.78	Directors	Counselors
3	1.78	Curriculum Spec.	SBVTE Members
2	1.18	AVTI Directors	Assistant Directors
2	1.18	AVTI Directors	Adult Directors
2	1.18	Asst. Directors	Counselors
2	1.18	Counselors	Curriculum Specialists
2	1.18	Counselors	SBVTE Members
1	0.59	AVTI Directors	Curriculum Specialists
1	0.59	Asst. Directors	Adult Directors
1	0.59	Adult Directors	SBVTE Members
0	0.00	Asst. Directors	Curriculum Specialists
0	0.00	Adult Directors	Counselors

Table 9

Numbers and Percentages of Times a Decision-Making Group Significantly Disagreed With Any Other Group (Number Possible = 1,521)

Group	Number	Percentage
Employers	252	16.6
Instructors	224	14.8
SBVTE Staff	152	10.0
Financial Aids Coord.	130	8.5
AVTI Directors	111	7.3
Curriculum Specialists	92	6.0
Adult Directors	85	5.6
Assistant Directors	75	4.9
SBVTE Members	71	4.7
Counselors	70	4.6
	1,262	

CHAPTER 6

SUB-STUDY THREE: CONCLUSIONS ABOUT THE FUTURE CHARACTERISTICS OF POSTSECONDARY VOCATIONAL CURRICULUM AND AGREEMENT AMONG THE PERCEPTIONS OF KEY DECISION-MAKING GROUPS

This chapter presents conclusions about the extent to which selected potential characteristics of postsecondary vocational education in Minnesota will, or will not, be adopted in the year 2000. It also presents conclusions about the extent to which key decision-making groups agree in their perceptions of these characteristics. The conclusions are based on the detailed results presented in Chapter 5 and the following four premises that governed the design of this study. The first premise is that those curriculum characteristics which are viewed as important by all of the decision-making groups involved are the most likely to be included in the vocational curriculum of the future. The second premise is that those characteristics which are considered unimportant by all groups are most likely not to be included.

The third premise is that, although the groups may differ significantly on the importance of an item, the average rating across groups is an effective indicator of the extent to which an item is important or unimportant.

The fourth premise is that if disagreements among groups are large, with some decision-making groups considering an item to be very important and others considering it to be not very important, the likelihood of adopting the characteristic will be substantially reduced.

Future Characteristics

Each of the ten major characteristic categories and dimension of a characteristic reflected in sub-questions of the survey instrument are presented below. Under each SQ dimension are presented the items which reflect alternative answers to the SQ. The alternative answers are arranged in descending order of likelihood of their being adopted as a future characteristic of the AVTI curriculum in the year 2000. The descending order is based on the four premises. Three descending categories of alternative answers are presented. First, those alternatives that all groups agree are important are presented; second, those on which groups widely differ (some groups think they are important and others think they are not) are presented; and third, those that all groups agree are not important are presented.

I. Needs Assessment. It is most likely that the needs assessment process used in the future to determine which programs should be offered in the AVTI curriculum will include the following elements.

Types of data:

Important:
1. Occupational demand
2. The number of companies or institutions that might employ graduates
3. The current supply of adequately trained people
4. The types of other institutions providing trained workers
5. Student demand
6. Salaries of the people in the occupations.

Widely differing opinions (both important and not important):
(None)

Not important:
7. Perceived value of the occupation to society
8. Community support for a program
9. Cost of operating a program

Geographic areas that could support the need for a program:

Important:
1. State-wide
2. Region (within 100 miles)
3. Local area (within 30 miles)
4. Surrounding states

Widely differing opinions (both important and not important):
(None)

Not important:
5. National
6. International

Occupational bases:

Important:
1. Occupational cluster (group of industries)
2. Industry (group of companies)

Widely differing opinions (both important and not important):
(None)

Not important:
3. Single company or firm

Considerations for deciding which programs should be offered:

Important:
1. The availability of similar programs
2. How programs agree with the State's mission for the AVTIs

Widely differing opinions (both important and not important):
3. The cost of the program
4. The time needed for a program to become fully operational

Not important:
(None)

Geographic location of programs:

Important:
1. The availability of existing facilities/equipment/staff
2. The location of potential students
3. The location of jobs
4. The equal geographic access of students to programs

Widely differing opinions (both important and not important):
5. The location of on-the-job training resources

Not Important:
(None)

II. Program Access. It is most likely that dimensions of program access will be addressed considering the following elements in the future.

Who should be encouraged to enroll:

Important:
1. Programs should be open to people based on their interests and their ability to benefit from training.
2. All programs should be open to all people.

Widely differing opinions (both important and not important):
3. Non-traditional students should be encouraged to enroll in programs for occupations which have tended not to employ members of their group in the past as an affirmative action

Not important:
4. People similar to those already in the occupation should be encouraged to enroll

Recruitment: Geographic areas

Important:
1. Region (within 100 miles)
2. Local area (within 30 miles)
3. State

Widely differing opinions (both important and not important):
4. Single company or firm

Not important:
5. Nation

Admissions:

Important:
(None)

Widely differing opinions (both important and not important):
1. There should be an open door policy which allows people to enter on a first-come first served basis
2. People should be admitted who have the prerequisite skills needed to learn the skills taught in the program
3. People should be admitted based on their probability of success
4. People should be admitted based on affirmative action criteria (e.g., sex, race, handicapping conditions)

Not important:
5. People should be admitted based on their economic need for employment

III. Articulation. It is most likely that AVTIs will cooperate with the following institutions in the future in the following ways.

Involvement with planning:

Important:
1. Business and industry
2. SBVTE
3. Other AVTIs
4. Labor unions and professional associations
5. Minnesota Department of Jobs and Training
6. Federal and state agencies
7. Community colleges

Widely differing opinions (both important and not important):
8. Secondary schools
9. Minnesota Board of Education
10. Private vocational schools

Not important:
11. Four year colleges and universities

Involvement with actually offering programs:

Important:
1. Business and industry
2. SBVTE
3. Other AVTIs
4. Labor unions and professional associations

5. Minnesota Department of Jobs and Training
6. Community colleges
7. Federal and state agencies

Widely differing opinions (both important and not important):
8. Minnesota Board of Education
9. Secondary schools

Not important:
10. Four year colleges and universities
11. Private vocational schools

IV. Program Purpose. It is most likely that decision-makers will view the purpose, or primary focus, of the AVTI programs in the future within the following priorities.

Program purpose:

Important:
1. Initial training (preparing people for first jobs)
2. Retraining (preparing people for different jobs)
3. Updating (helping people develop new skills for their current jobs)
4. Remediation (providing skills which are needed to succeed in a vocational program)

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

Additional goals:

Important:
1. Prepare people to be good citizens

Widely differing opinions (both important and not important):
2. Develop basic skills

Not important:
3. Provide a general education

V. Content Identification. It is most likely that the content of the AVTI curriculum of the future will be identified within the following considerations.

Sources of content for a particular program:

Important:
1. Job cluster
2. Generalizable to many firms or companies
3. A subject matter area related to many jobs (e.g., mathematics, communications)
4. A specific job

Widely differing opinions (both important and not important):
5. Specific to a particular firm or company

Not important:
(None)

Alternative ways for identifying the job skills and knowledges to be taught:

Important:
1. Interviewing people who perform the job
2. Interviewing employers
3. Having discussions with advisory committee members
4. Observing people performing the job.
5. Reviewing job descriptions
6. Reviewing task listings
7. Consulting subject matter experts

Widely differing opinions (both important and not important):
8. Reviewing textbooks and other publications

Not important:
(None)

Types of skills:

Important:
1. Cognitive skills (e.g., what people do primarily with their mind such as decision-making)
2. Psychomotor skills (e.g., what people do primarily with their hands such as type a letter)
3. Affective skills (e.g., the emotional tones which people communicate to one another and toward things such as warmth toward a patient)

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

VI. Student Evaluation. It is most likely that the AVTI curriculum of the future will involve the following approaches to measuring student learning.

Goals for evaluation:

Important:
1. To verify skill mastery (attaining performance capability)
2. To motivate students
3. To record student process (grade)

Widely differing opinions (both important and not important):
(None)

Not important:
4. To determine the extent of learning compared to other learners

Types of abilities to be evaluated:

Important:
1. Performance skill
2. Understanding of concepts and theory
3. Attitude

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

Methods for evaluating student learning:

Important:
1. Skill performance tests
2. Instructor observations
3. Written tests
4. Oral tests
5. Attitude performance tests

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

VII. Program Format. It is most likely that the AVTI curriculum in the future will reflect the following program format priorities.

Locations:

Important:
1. The AVTI
2. Business and industry related to the program area
3. Other schools

Widely differing opinions (both important and not important):
4. Conference centers or hotel settings
5. Students' homes

Not important:
(None)

Times:

Important:
1. During the evening from Monday through Friday
2. During the day from Monday through Friday

Widely differing opinions (both important and not important):
3. During the day on weekends

Not important:
4. Twenty-four hours a day from Monday through Friday
5. During the evening on weekends
6. Twenty-four hours a day on weekends

Program formats:

Important:
1. Programs broken down into courses
2. Programs offered as certificate programs (where students get a certificate of completion or diploma when completing the program)
3. Short intensive courses to teach limited skills
4. Associate of Applied Science degree programs

Widely differing opinions (both important and not important):
5. Coordinated day school and adult programs, where people can take components of either program and get credit toward the other
6. Offering programs as total programs.

Not important:
(None)

Lesson delivery formats:

Important:
1. Computer-assisted instruction.
2. Traditional format of instructor delivered instruction (e.g., live lectures and demonstrations)
3. Modularized instruction (instruction packaged as learning modules which can be either partially or fully used by individual students)

Widely differing opinions (both important and not important):
4. Teleconferencing

Not important:
(None)

VIII. Lesson structuring. Lessons will most likely be structured in the future in the following ways.

Lesson components:

Important:
1. Practice
2. Demonstrations (showing)
3. Instruction on understanding procedures
4. Feedback
5. Evaluation
6. Instruction on related theory

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

Ways of defining a lesson:

Important:
1. Lessons should be defined in terms of the instruction necessary for a person to master a behavior or task

Widely differing opinions (both important and not important):
(None)

Not important:
2. Lessons should be defined in terms of a specific amount of instructional time (e.g., hours, one day)

Instructional methods:

Important:
1. Demonstrations
2. Practice
3. On-the-job instruction
4. Computer-assisted instruction
5. Simulations
6. Reading
7. Cooperative learning
8. Lectures

Widely differing opinions (both important and not important):
9. Role-playing

Not important:
10. Individual research

IX. Learning Resources. It is most likely that resources for delivering instruction to vocational students in the future will be viewed within the following priorities.

Important:
1. Tools and equipment (job related)
2. Goods and materials (job related)
3. Video tapes

4. Instructor developed instruction sheets
5. Interactive video
6. Learning modules
7. Manufacturers' manuals
8. Telecommunications
9. Textbooks
10. Computers
11. Transparencies
12. Slides
13. Audio tapes
14. Journal articles

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

X. Program Evaluation. It is most likely that evaluation of AVTI programs in the future will involve the following elements:

Participants in judging the overall effectiveness of a program:

Important:
1. Employers of graduates
2. Program graduates
3. Potential employers of graduates
4. Individual AVTIs
5. Other vocational educators

Widely differing opinions (both important and not important):
6. SBVTE

Not important:
7. The U.S. Office of Education

Types of data:

Important:
1. Employers' ratings of graduates
2. The extent to which graduates are placed in related jobs
3. Graduates' ratings of the program
4. Student achievement upon program completion
5. Graduates' job satisfaction
6. Ratings of the program by other educators

Widely differing opinions (both important and not important):
7. Benefit to graduate in the workplace of having completed the program
8. Student completion rates

Not important:
(None)

Times for gathering data for evaluating programs:

Important:
1. One year or more after a class has graduated
2. At the conclusion of the program
3. During the program

Widely differing opinions (both important and not important):
(None)

Not important:
(None)

The Agreement in the Perceptions of Key Decision-Making Groups

There was a potential for 15,210 disagreements between the 10 groups on the 169 items. The total number of significant disagreements was only 1,262 (8.3%). In many cases the disagreements were over the extent of importance and not between whether an item was important or not important. One or more groups differed significantly between whether an item was important vs. not important on only 20 of the 169 items (11.8%). Overall, the amount of disagreement about the importance of the items was relatively low. This indicates that the concept of curriculum portrayed by the data in this study are generally supported throughout the AVTI system. Those things that have been defined as important tend to be generally viewed as important and those things defined as unimportant are generally viewed as unimportant.

However, the two groups that disagreed with other groups most often raises some concern: employers (16.6%) and instructors (14.8%). The concern becomes even more important when one examines the groups with which these two groups disagree most often: AVTI directors and SBVTE staff (20.1%, 22.5%). It appears that those who are the consumers of the students of the curriculum (employers), and the primary deliverers (instructors) disagree with policy developers and implementors (AVTI directors and SBVTE staff) in terms of the future characteristics of the AVTI curriculum.

It is not unexpected that the instructors might disagree with the SBVTE staff and AVTI directors. Policy developers and implementors are charged with bringing about and managing change. The instructors are the people who actually implement changes in the classroom. Some level of tension is to be expected. The key question is how can this tension be managed to bring about change with a minimum of disruption.

The disagreement between the employers, and the SBVTE staff and AVTI directors is not as easily understood. Further study is needed to determine why the consumers of the product of the AVTIs (student graduates) perceive the curriculum differently than the policy makers and implementors.

CHAPTER 7

SUMMARY AND CONCLUSIONS: IMPLICATIONS FOR POLICY

This study was designed to identify the probable future characteristics of the postsecondary AVTI curriculum in Minnesota in the year 2000. It had three parts. The first was to identify futuristic assumptions regarding society that might impact the curriculum. The second was to identify characteristics which could be intentionally varied by curriculum designers as they developed curriculum. The third was to determine the importance of the various characteristics to key decision-making groups who will decide upon how the curriculum will be designed. The underlying premise of the third sub-study was that those characteristics which are viewed as important by the decision-making groups will most likely be those that will be implemented in the future.

Sub-Study One: Identification of Curriculum Determinants and Related Assumptions About the Future

Literature was reviewed and 7 categories of assumptions about society that might impact postsecondary curriculum were identified. Those categories were labeled curriculum determinants. It was important to separate those categories of assumptions that might impact curriculum from the unlimited assumptions that are made about all aspects of society in order to focus the search for implications.

Once the categories were identified, an extensive review of the literature was conducted to identify assumptions regarding each of the determinants. The review yielded 92 assumptions.

The categories and the associated assumptions were validated though a meeting of the project advisory committee composed of people representing many of the key decision-making groups that will eventually decide upon the direction of the curriculum. Committee members and their affiliations are presented in Appendix A.

A brief summary of the essence of those assumptions regarding future society which might impact postsecondary vocational education curriculum is as follows. In general, the assumptions indicated that there will be slow but steady economic growth, increased personal consumption of goods and services, and a decline in the proportion of jobs in the goods producing sector of our economy. There will be an expansion of the service sector of the economy, with a pluralistic, multicultural social mix in

the United States. There will be an increase in mass communications and advanced information technologies with the importance of the individual being expressed in trends towards participative styles in organizations, values of self-fulfillment and self-actualization at all levels of society. With the increasing automation of repetitive tasks, workers at all levels will need to be increasingly competent in cognitive and affective, as well as psychomotor skills. Educational institutions will incorporate technology to increase effectiveness and efficiency, and employers and private groups will increasingly deliver educational services.

Sub-Study Two:
Identification of Curriculum Characteristics

The second sub-study was designed to identify categories of curriculum characteristics which could be manipulated by decision-makers as they develop and implement vocational curriculum. Literature was reviewed and eleven categories of curriculum characteristics were identified. The list of categories and their definitions can be found at the end of chapter 3. Within these eleven categories 29 sub-questions were developed pertaining to various dimensions of the characteristics along with 169 alternative answers to those questions. The categories, sub-questions and alternative answers were validated by the project advisory committee. They are presented in the sample instrument presented in appendix B.

Sub-Study Three:
Perceptions of Key Decision-Makers Concerning the Desired Characteristics of the AVTI Curriculum in the Year 2000

Ten key-decision making groups which will influence the future direction of the AVTI curriculum were identified and samples were drawn from each. The ten groups included AVTI directors, assistant directors, adult directors, curriculum specialists, financial aid coordinators, counselors, instructors, employers, SBVTE members and SBVTE staff. A total of 497 people were sampled. The questionnaire was mailed and eventually 82% of the people responded.

People were asked to rate each of the 169 alternative answers to the questions on a scale from 1 to 5. A rating of 1 indicated an item was "not very important" and a rating of 5 indicated that it was "very important". In addition, people were asked to rate an item 0 if they felt the item should not even be considered as a possibility.

The overall importance of an item for future curriculum was determined by calculating the average mean from the means of the individual groups. This technique was used in order to give each of the ten groups equal emphasis in determining the importance of an item. In addition to calculating the average mean, differences in the ratings of the various groups were tested for significance using analysis of variance (ANOVA).

There was the possibility of the ten groups disagreeing with each other a total of 15,210 times. They in fact only significantly disagreed with each other 1,262 times (8.3%). They disagreed substantially on 20 of the 169 items with at least one group rating an item as important and at least one group rating it as unimportant. The groups that disagreed with other groups most often were the instructors (14.8%) and the employers, (16.8%). The instructors and employers most frequently disagreed with the AVTI directors and the SBVTE members.

Scenario for the AVTI Curriculum in the Year 2000

This scenario is organized in two parts. First it presents how the postsecondary vocational technical education curriculum in Minnesota **will probably be** implemented in the year 2000 unless conscious and deliberate decisions are made to do things differently.

Second, it presents those things that **will probably not be** done unless conscious and deliberate decisions are made to do things differently.

What Probably Will Be Done

Needs Assessment

Needs assessment data to determine which programs should be offered in the AVTI curriculum will include labor market data, data on student demand, and current supply information. Salaries of people in occupations will also be considered. Priority will be given to data gathered within the State, region and local area. Surrounding state information will also be used. The data will be gathered based on an occupational cluster or industry.

Once data have been gathered and evaluated, areas will be selected for program development based on the availability of similar programs and how potential programs agree with the State's mission for the AVTIs. There will be continuing disagreement regarding whether to consider the cost of the program or the time needed for a program to become fully operational.

Factors affecting where a program will be located will be the availability of existing facilities/equipment/staff, the location of potential students, the location of jobs, and equal geographic access of students to programs. There will be continuing debate on whether the location of on-the-job training resources should be a factor in this decision.

Program Access

Program access will be governed by the following 2 principles: a) programs should be open to people based on their interests and their ability to benefit from training, and b) all

programs should be open to all people. There will be continuing debate over whether non-traditional students should be encouraged to enroll in programs for occupations which have tended not to employ members of their group in the past as an affirmative action.

Student recruitment will be concentrated on the region, local area, and State. There will be continuing debate on whether to focus recruitment on a single company or firm.

Admissions policy will be a controversial issue. There will be no agreement on which of the following criteria to use to admit students. Different groups will be promoting different criteria.

1. There should be an open door policy which allows people to enter on a first-come first served basis.
2. People should be admitted who have the prerequisite skills needed to learn the skills taught in the program.
3. People should be admitted based on their probability of success.
4. People should be admitted based on affirmative action criteria (e.g., sex, race, handicapping conditions).

Articulation

Program planning will include the cooperation of a number of different groups besides the individual AVTI. It will include business and industry, SBVTE, other AVTIs, labor unions and professional associations, the Minnesota Department of Jobs and Training, federal and state agencies, and the community colleges. There will be continuing debate over whether to include secondary schools, the Minnesota State Board of Education, or private vocational schools.

The seven groups that are involved with program planning will also be involved with actually offering programs. There will be controversy over whether to involve the Minnesota State Board of Education or the secondary schools.

Program Purpose

Programs will be developed with four primary purposes in mind: initial training, retraining, updating, and remediation. One additional goal will be to prepare students to be good citizens. There will be continued controversy over whether a goal should be to help students develop basic skills.

Content Identification

The actual content to be taught in programs will be identified by focusing on: job clusters, content generalizable to many firms or companies, subject matter area related to many jobs, as well as specific jobs. There will be continuing debate

over whether to focus on content specific to a particular firm or company.

The content will be identified using a variety of different methods: interviewing people who perform the job, interviewing employers, having discussions with advisory committee members, observing people performing the job, reviewing job descriptions, reviewing task listings, and consulting subject matter experts. There will be continuing debate on whether to use textbooks and other publications as a basis for identifying content.

All three major domains of content will be included in a program: cognitive skills, psychomotor skills, and affective skills.

Student Evaluation

Students in programs will be evaluated with the following evaluation goals in mind: to verify skill mastery, to motivate students, and to record student process. Evaluations will assess performance skill, understanding of concepts and theory, and attitude. Methods for evaluating student learning will include skill performance tests, instructor observations, written tests, oral tests, and attitude performance tests.

Program Format

Most programs will be located at the AVTI itself, in business and industry related to the program area, or other schools. There will be continuing debate whether to use conference centers, hotel settings, or students' homes.

Programs will be offered during the evening from Monday through Friday, and during the day from Monday through Friday. There will be continued debate over whether to offer programs during the day on weekends.

Four program formats will be used to organize the programs:

1. programs broken down into courses,
2. programs offered as certificate programs (where students get a certificate of completion or diploma when completing the program),
3. short intensive courses to teach limited skills, and
4. Associate of Applied Science degree programs.

There will be continued debate about whether to offer coordinated day school and adult programs, where people can take components of either program and get credit toward the other; or to offer programs as total programs.

Lessons within the programs will be delivered using a number of lesson delivery formats:

1. computer-assisted instruction,
2. traditional format of instructor delivered instruction (e.g., live lectures and demonstrations), and
3. modularized instruction (instruction packaged as learning modules which can be either partially or fully used by individual students).

There will be continuing debate over whether to use teleconferencing.

Lesson Structuring

Lessons to present content to learners will include practice, demonstrations (showing), instruction on understanding procedures, feedback, evaluation, and instruction on related theory. Lessons will be defined in terms of the instruction necessary for a person to master a behavior or task.

A variety of methods will be used to delivery the content including demonstrations, practice, on-the-job instruction, computer-assisted instruction, simulations, reading, cooperative learning, and lectures. There will be continuing debate whether to use role-playing.

Learning Resources

A wide variety of learning resources will be used to implement instruction. They will include the following listed in priority order:

1. tools and equipment (job related)
2. goods and materials (job related)
3. video tapes
4. instructor developed instruction sheets
5. interactive video
6. learning modules
7. manufacturers' manuals
8. telecommunications
9. textbooks
10. computers
11. transparencies
12. slides
13. audio tapes
14. journal articles

Program Evaluation

A number of groups will participate in judging the overall effectiveness of programs. They include employers of graduates, program graduates, potential employers of graduates, the individual AVTIs, and other vocational educators. There will be continuing debate over the role of the SBVTE in evaluating programs.

Program evaluation data will include:

1. employers' ratings of graduates,
2. the extent to which graduates are placed in related jobs,
3. graduates' ratings of the program,
4. student achievement upon program completion,
5. graduates' job satisfaction, and
6. ratings of the program by other educators.

There will be continual debate on whether to use data about benefits to graduates in the workplace of having completed the program, or student completion rates.

The program evaluation data will be gathered at a variety of times: one year or more after a class has graduated, at the conclusion of the program, and during the program.

What Will Probably Not Be Done

Needs Assessment

Needs assessment data to determine which programs should be offered in the AVTI curriculum will not include information on the perceived value of the occupation to society, community support for a program, or the cost of operating a program. National or international data will not be considered. A single company or firm will not be the basis on which the need for a program is established.

Program Access

Program access will not be governed by the principle that people similar to those already in the occupation should be encouraged to enroll. Student recruitment will not be done on a national basis. Admissions policy will not consider that people should be admitted based on their economic need for employment.

Articulation

Program planning will not include the cooperation of four year colleges and universities. Also, four year colleges and universities and private vocational schools will not be involved with actually offering programs.

Program Purpose

Programs will not be developed with the purpose of providing a general education.

Student Evaluation

Students in programs will not be evaluated with the goal of determining the extent of learning compared to other learners.

Program Format

Programs will **not** be offered t enty-four hours a day from Monday through Friday, during the evening on weekends, or twenty-four hours a day on weekends.

Lesson Structuring

Lesson will **not** be defined in terms of a specific amount of instructional time (e.g., hours, one day).

Individual research will **not** be used as an instructional method.

Program F raluation

The U.S. Office of Education will **not** participate in judging the overall effectiveness of programs.

Relationship Between the Scenario and the Assumptions About the Future

The majority of the expected characteristics presented in the scenario correspond well with the assumptions about the future identified by this study. This section of the summary is aimed at highlighting differences between assumptions about the environment within which postsecondary vocational education is expected to occur and the preferred characteristics of the curriculum as revealed by this study. This section is not meant to be critical or judgmental in terms of whether the differences are good or bad. Sometimes it might be wise to develop curriculum based on the assumptions; sometimes it might not be. Each discrepancy needs to be reflected upon and evaluated.

1. The assumptions about the future clearly reflect an increased participation of multiple groups in the decision-making processes. Yet it was not considered important to involve community groups, private vocational schools, or four year colleges and universities in the curriculum processes of the AVTIs.
2. The assumptions indicated that labor markets are becoming more national and international in scope. Yet the needs assessment and recruitment components of the curriculum processes suggested do not view these markets as important considerations.
3. The assumptions indicate that in light of limited resources, investments of resources must be judged based on cost-effectiveness. Yet program cost was not considered to be important in determining which programs should be included in the AVTI curriculum.
4. The assumptions indicate that adult populations will be needing additional education at relatively unusual times in order for them to prepare for and maintain employment. Yet

programs based on the suggested characteristics would not be available 24 hours a day or on evenings during weekends.

Policy Implications

1. The analysis of disagreements among all of the key decision-making groups about the importance of various characteristics revealed relatively little disagreement. However, the disagreements between the instructors and employers and the rest of the groups were substantial. This disagreement is alarming when one considers the groups with which they had the most disagreement (AVTI directors and SBVTE staff). Apparently the policy makers (AVTI directors and SBVTE staff) did not agree with the curriculum implementers (instructors) and the people who purchase the product of the curriculum (employers).

   Tension between the instructors, and SBVTE staff and AVTI directors is somewhat expected. Instructors would be called upon to institute changes directed by the policy makers and implementors (SBVTE staff and AVTI directors). Understanding and managing this tension will be important. The discrepancy between the employers, and the SBVTE staff and AVTI directors is not as understandable. Further investigation is needed to determine why these tensions exist. It may be that policy makers must provide better information and rationale to the employers and instructors. Or, it may be that the groups really do disagree in terms of the best curriculum to serve the needs of the students and that policy makers may need to re-evaluate their directions in terms of what will satisfy the needs of the employer groups to be served.

   Another explanation may be that instructors do not know how to implement the new curriculum directions and are afraid to venture forth. Therefore, there may be a need for more and improved staff development.
2. The role of the SBVTE in the evaluation of vocational programs was not clear. Some groups rated the SBVTE role as important while others rated it as unimportant. Clarification of the roles and responsibilities of the Board regarding evaluation might be useful.
3. Although this study sheds light on the nature of the assumptions that might affect vocational curriculum, and the types of characteristics which can be manipulated to bring about curriculum change, little systematic information about these topics is available in the literature. If curriculum is at the heart of providing an educational program, it would appear that having information about what factors in society might impact that curriculum and how to implement desired change would be essential. Therefore, it is recommended that additional funds and research be directed at these areas.
4. Even after years of policy and affirmative action information concerning the need to incorporate non-traditional students into programs, there was still a substantial disagreement among groups regarding the desirability of doing so. Additional efforts in this area may be needed.

5. The data revealed that there was significant controversy over whether or not to design vocational programs for specific firms. Policy which is promoting this practice may need to be clarified or re-thought.
6. The groups did not agree on the importance of any of the criteria for admission. This total lack of agreement on admission criteria may need resolution as a basis for clearly communicating with potential students and the public.
7. The groups differed substantially on 20 of the 169 items regarding vocational curriculum. Some groups rated these items as important while others rated them as unimportant. If any of these items are viewed by policy makers as important, procedures should be put in place to resolve the tension between groups.

A Closing Thought

'Before I draw nearer to that stone to which you point,' said Scrooge, 'answer me one question. Are these the shadows of things that Will be, or are they shadows of the things that May be only?...

'Men's courses will foreshadow certain ends, to which, if persevered in, they must lead,' said Scrooge. 'But if the courses be departed from, the ends will change.'

--Charles Dickens
A Christmas Carol

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APPENDIX A

Advisory Committee

Directors:
Nuri Hassumani, Anoka AVTI
Stanley Edin, Staples AVTI

Curriculum Specialists:
Joseph Zetah, Minneapolis TI
Ted Saunders, Dakota County

Instructors:
Nancy Schaible, Minneapolis TI
Joanne Simser, Anoka AVTI
Ralene Kroenke, Alexandria AVTI

Adult Directors:
Linda Thedens, St. Paul TVI
Roger Palmer, Duluth AVTI

Financial Aids:
Geri Dotzler, Dakota County AVTI
Marla Friederichs, 916 AVTI

Counselors:
Dave Johnson, Mankato AVTI

State Board of Vocational Technical Education
Deena Allen, Instructional Services
Craig Froke, Instructional Services
Glenda Moyers, Voc-Tech Educational System
William Stock, Planning and Research

Joint Council of Vocational Teacher Educators
Gary Leske, University of Minnesota - St. Paul
William Ardren, University of Minnesota - Duluth

APPENDIX B

Curriculum Futures Questionnaire

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CURRICULUM FUTURES QUESTIONNAIRE

Background Information

Please check the descriptor(s) which most closely fit(s) your role within the AVTI system:

_____ Director
_____ Assistant Director
_____ Adult Director
_____ Curriculum specialist
_____ Financial aids administrator
_____ Counselor
_____ Instructor
_____ Program advisory committee member
_____ State Board member
_____ State Board staff

If you are an instructor or program advisory committee member, please check the program area with which you are affiliated:

_____ Business and Office
_____ Agriculture
_____ Home Economics
_____ Nursing/Health
_____ Trade and Industrial
_____ Technical
_____ Marketing

Have you had any formal training in vocational technical education curriculum development?

_____ Yes _____ No

Please indicate your age. _____

Please indicate your sex: _____ Male _____ Female

WHAT CHARACTERISTICS SHOULD THE AVTI CURRICULUM HAVE IN THE YEAR 2000?

Directions

Please respond to each of the items that follow. Indicate how important each item should be in the development and implementation of the AVTI curriculum **in the year 2000.** Rate each item from one (1) to five (5). One (1) is not very important and five (5) is very important. Indicate zero (0) if you feel it should not even be a consideration in the future. Please note that you are not ranking the items relative to each other; several items within a section may receive the same rating.

This instrument was developed based on the following mission statement for vocational and technical education in Minnesota as stated in the Minnesota State Plan for Vocational and Technical Education (Minnesota State Plan, 1985, p.9). As you respond to each item, keep this mission in mind.

> "The misson of vocational technical education in Minnesota is to offer and provide Minnesota citizens with quality education and training through a process of general orientation, specific preparation, retraining, and upgrading. Education and training for employment is provided in occupations in all fields and at levels other than those requiring a baccalaureate degree."

Needs Assessment: Which programs should be offered?

1. Rate each of the following **types of data** in terms of their future importance in determining which programs should be offered by the AVTIs. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration).

_____ a. occupational demand
_____ b. current supply of adequately trained people
_____ c. salaries of people in occupations
_____ d. perceived value of occupations to society
_____ e. student demand
_____ f. community support for a program
_____ g. cost of operating a program
_____ h. the number of companies or institutions that might employ graduates
_____ i. the types of other institutions providing trained workers
_____ j. other: _____

2. Rate the following **geographic areas** in terms of their future importance in obtaining meaningful data to support the **need** for a program? (A rating of 5 is very important. A rating of 1 is not very importar. A rating of zero means it should not be a consideration.)

_____ a. local area (within 30 miles)
_____ b. region (within 100 miles)
_____ c. State
_____ d. surrounding states
_____ e. nation
_____ f. international

3. Rate the following **occupational bases** for gathering needs assessment data for programs. (A rating of 5 is very important. A rating of 1 is not very important A rating of zero means it should not be a consideration.)

_____ a. single company or firm
_____ b. industry (group of companies)
_____ c. occupational cluster (group of industries)

4. Rate the following **considerations** in terms of their importance when deciding **which AVTI programs should be offered.** (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. how programs agree with the State's mission of the AVTIs
_____ b. the availability of similar programs
_____ c. cost of the program
_____ d. time needed to become fully operational

5. Rate the following factors to be considered in **geographically locating AVTI programs.** (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. location of potential students
_____ b. location of jobs
_____ c. equal geographic access of students to programs
_____ d. availability of existing facilities/equipment/staff
_____ e. location of on-the-job training resources

Program Access: For whom should a program be designed?

1 Rate the following in terms of their future importance in determining **who should be encouraged to enroll** in each AVTI program. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. people similiar to those already in the occupation should be encouraged to enroll (e.g., females in an occupation currently employing primarily females)
_____ b. all programs should be open to **all** people
_____ c. programs should be open to people based on their interests and ability to benefit from training
_____ d. non-traditional students should be encouraged to enroll in programs for occupations which have tended not to employ members of their group in the past as an affimative action (e.g., males in occupations which currently employ primarily females)

2 Rate the future importance of each of the following geographic areas from which people may be **recruited** to enroll in an AVTI program? (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. a single company or firm
_____ b. local area (within 30 miles)
_____ c. region (within 100 miles)
_____ d. State
_____ e. surrounding states
_____ f. nation

3. Rate the following in terms of their importance as criteria for determining the types of people that should be **admitted** to AVTI programs in the future. (A rating of 5 is very important A rating of 1 is not very important. A rating of zero means is should not be a consideration.)

_____ a. there should be an open door policy which allows people to enter on a first-come first-served basis
_____ b. people should be admitted based on their probability of success
_____ c. people should be admitted based on affirmative action criteria (e.g., sex, race, handicapping conditions)
_____ d. people should be admitted who have the prerequisite skills needed to learn the skills taught in the program
_____ e. people should be admitted based on their economic need for employment
_____ f. other: _____

Articulation: With which agencies or other institutions should the AVTIs cooperate?

1. Rate the following types of institutions in terms of how important it will be to involve them with **planning** programs. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. business and industry
_____ b. labor unions and professional associations
_____ c. State Board of Vocational Technical Education
_____ d. Minnesota Board of Education
_____ e. Minnesota Department of Jobs and Training
_____ f. community colleges
_____ g. other AVTIs
_____ h. private vocational schools
_____ i. four year colleges and universities
_____ j. secondary schools
_____ k. federal and state agencies (e.g., Division of Vocational Rehabilitation, Bureau of Apprenticeship Training)
_____ l. other: _____

2. Rate the following types of institutions in terms of how important it will be to involve them with actually **offering** programs to students. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. business and industry
_____ b. labor unions and professional associations
_____ c. State Board of Vocational Technical Education
_____ d. Minnesota Board of Education
_____ e. Minnesota Department of Jobs and Training
_____ f. community colleges
_____ g. other AVTIs
_____ h. private vocational schools
_____ i. four year colleges and universities
_____ j. secondary schools
_____ k. federal and state agencies (e.g., DVR, BAT)
_____ l. other: _____

Program Purpose: What should be the primary focus of AVTI programs?

1. Rate the following vocational program **purposes** in terms of how important they will be in carrying out the mission of the AVTIs. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. initial training (preparing people for first jobs)
_____ b. retraining (preparing people for different jobs)
_____ c. updating (helping people develop new skills for their current jobs)
_____ d. remediation (providing skills which are needed to succeed in a vocational program)

2. Assuming that the primary purpose of the AVTIs is to prepare people for employment as stated in the mission statement presented earlier, rate the following **additional goals** which the AVTIs could have in terms of how important they will be in the future. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. prepare people to be good citizens
_____ b. provide a general education
_____ c. develop basic skills (reading, writing, arithmetic)

Content Identification: How should content be identified?

1. Rate the following **sources of content** in terms of their importance for forming the basis for a particular program. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. specific job
_____ b. a job cluster
_____ c. a subject matter area related to many jobs (e.g., mathematics, communications)
_____ d. specific to a particular firm or company
_____ e. generalizable to many firms or companies

2. Rate the importance of the following alternative ways for **identifying the job skills and knowledges** to be taught within a vocational program of the future. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. review textbooks and other publications
_____ b. review task listings
_____ c. interview employers
_____ d. review job description
_____ e. interview people who perform the job
_____ f. have discussions with advisory committees
_____ g. observe people performing the job
_____ h. consult subject matter experts

3. Rate the importance of the following **types of skills** which might be taught in future vocational programs. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. psychomotor skills (e.g., what people do primarily with their hands such as type a letter)
_____ b. cognitive skills (e.g., what people do primarily with their mind such as decision-making)
_____ c. affective skills (e.g., the emotional tones which people communicate to one another and toward things such as warmth toward a patient)

Student Evaluation: How should student learning be measured?

1. Rate the importance of the following possible **goals** for evaluating future vocational student learning. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. to determine the extent of learning compared to other learners
_____ b. to verify skill mastery (attaining performance capability)
_____ c. to record student progress (grade)
_____ d. to motivate students

2. Rate the following types of **abilities** in terms of their future importance in evaluating vocational student learning. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. performance skill
_____ b. understanding of concepts and theory
_____ c. attitude evaluation

3. Rate the importance of the following **methods** for evaluating student learning in the future (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. written tests
_____ b. oral tests
_____ c. skill performance tests
_____ d. instructor observations
_____ e. attitude performance tests

Program Format: What form should programs take?

1. Rate the following **locations** in terms of how important you think they will be as alternative AVTI program sites in the future. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a the AVTI
_____ b. business and industry related to the program area
_____ c. students' homes
_____ d. other schools
_____ e. conference centers or hotel settings.

2. Rate the following **times** for offering AVTI programs in terms of how important they will be in the future. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. during the day from Monday through Friday
_____ b. during the day on weekends
_____ c. during the evening from Monday through Friday
_____ d. during the evenings on weekends
_____ e. twenty-four hours a day from Monday through Friday
_____ f. twenty-four hours a day on weekends

3. Rate the following **program formats** in terms of how important you think they will be in the future. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. programs offered as total programs
_____ b. programs broken down into courses
_____ c. programs offered as certificate programs where students get a certificate of completion or diploma when completing the program
_____ d. programs offered as Associate of Applied Science degree programs
_____ e. short intensive courses to teach limited skills
_____ f. coordinated day school and adult programs where people can take components of either program and get credit toward the other

4. Rate the following **lesson delivery formats** in terms of how important you think they will be for delivering future vocational instruction. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. traditional format of instructor delivered instruction (e.g., live lectures and demonstrations)
_____ b. modularized format (instruction packaged as learning modules which can be either partially or fully used by individual students
_____ c. computer-assisted instruction
_____ d teleconferencing

Lesson Structuring: What are the key components of lessons?

1. Rate the following **lesson components** in terms of their future importance in providing effective instruction to students. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. instruction on related theory
_____ b. instruction on understanding procedures
_____ c. demonstrations (showing)
_____ d. practice
_____ e. evaluation
_____ f. feedback

2. Which of the following ways of **defining a lesson** should be used by the AVTIs? (Check one)

_____ a. lessons should be defined in terms of a specific amount of instructional time (e.g., hours, one day)
_____ b. lessons should be defined in terms of the instruction necessary for a person to master a behavior or task

3. Rate the following **instuctional methods** in terms of their future importance for delivering effective instruction to vocational students. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. lectures
_____ b. demonstrations
_____ c. role-playing
_____ d. simulations
_____ e. reading
_____ f. computer-assisted instruction
_____ g. on-the-job instruction
_____ h. practice
_____ i. cooperative learning
_____ j. individual research
_____ k. other _____

Learning Resources: What technology should be used to present lessons?

Rate the following types of **learning resources** in terms of how important you feel they will be for delivering effective instruction to vocational students. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. learning modules
_____ b. video-tapes
_____ c. computers
_____ d. transparencies
_____ e. slides
_____ f. audio tapes
_____ g. textbooks
_____ h. instructor developed instruction sheets
_____ i. journal articles
_____ j. manufacturers' manuals
_____ k. telecommunications
_____ l. interactive video
_____ m. goods and materials (job-related)
_____ n. tools and equipment (job-related)
_____ o. other _____

Program Evaluation: How should the programs be evaluated?

1. Rate the following in terms of their future importance for **judging the overall effectiveness** of an AVTI program. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. individual AVTIs
_____ b. the State Board of Vocational Technical Education
_____ c. other vocational educators
_____ d. the U.S. Office of Education
_____ e. employers of graduates
_____ f. potential employers of graduates
_____ g. program graduates

2. Rate the following **types of data** in terms of how important you think they will be for judging the overall effectiveness of an AVTI program. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. the extent to which graduates are placed in related jobs
_____ b. employers ratings of graduates
_____ c. graduates' ratings of the program
_____ d. ratings of the program by other educators
_____ e. student program completion rates
_____ f. student achievement upon program completion
_____ g. graduates' job satisfaction
_____ h. benefit to graduate in the workplace of having completed the program

3. Rate the following **times** in terms of their importance for gathering data to judge the overall effectiveness of an AVTI program. (A rating of 5 is very important. A rating of 1 is not very important. A rating of zero means it should not be a consideration.)

_____ a. during the program
_____ b. at the conclusion of the program
_____ c. one year or more after a class has graduated

APPENDIX C

Analysis Summary

I. NEEDS ASSESSMENT
Which programs should be offered?

SQ 1. Rate each of the following types of data in terms of their future importance in determining which programs should be offered by the AVTIs.

ITEM	AVG. MEAN
a. Occupational demand	4.81
b. Current salary of adequately trained people	4.20
c. Salaries of people in occupations	3.10
d. Perceived value of occupations to society	2.63
e. Student demand	3.17
f. Community support for a program	2.92
g. Cost of operating a program	2.84
h. The number of companies or institutions that might employ graduates	4.27
i. The types of other institutions providing trained workers	3.64

SQ 2. Rate the following geographic areas in terms of their future importance in obtaining meaningful data to support the need for a program.

ITEM	AVG. MEAN
a. Local Area (within 30 miles)	3.67
b. Region (within 100 miles)	4.04
c. State	4.14
d. Surrounding states	3.15
e. Nation	2.58
f. International	1.64

SQ 3. Rate the following occupational bases for gathering needs assessment data for programs.

ITEM	AVG. MEAN
a. Single company or firm	2.61
b. Industry (group of companies)	4.39
c. Occupational cluster (group of industries)	4.56

SQ 4. Rate the following considerations in terms of their importance when deciding which AVTI programs should be offered.

ITEM	AVG. MEAN
a. How programs agree with the State's mission of the AVTIs	4.15 *
b. Availability of similar programs	4.27
c. Cost of the program	2.95 *
d. Time needed to become fully operational	2.72 *

SQ 5. Rate the following factors to be considered in geographically locating AVTI programs.

ITEM	AVG. MEAN
a. Location of potential students	3.65
b. Location of jobs	3.42
c. Equal geographic access of students to programs	3.34
d. Availability of existing facilities/equipment/staff	3.93
e. Location of on-the-job training resources	3.31 *

II. PROGRAM ACCESS
For whom should a program be designed?

SQ 1. Rate the following in terms of their future importance in determining who should be encouraged to enroll in each AVTI program.

ITEM	AVG. MEAN
a. People similar to those already in the occupation	1.77 *
b. All programs should be open to all people	4.23
c. Programs should be open to people based on their interests and ability to benefit from training	4.63
d. Non-traditional students/ affirmative action	3.42 *

SQ 2. Rate the future importance of each of the following geographic areas from which people may be recruited to enroll in an AVTI program.

ITEM	AVG. MEAN
a. Single company or firm	2.99 *
b. Local area (within 30 miles)	4.20
c. Region (within 100 miles)	4.35
d. State	3.94
e. Surrounding states	2.83
f. Nation	1.91 *

SQ 3. Rate the following in terms of their importance as criteria for determining the types of people that should be admitted to AVTI programs in the future.

ITEM	AVG. MEAN
a. Open door entry: First come, first served	3.59 *
b. Probability of success	3.47 *
c. Affirmative action criteria	2.71 *
d. Possession of prerequisite skills	3.53 *
e. Person's economic need for employment	2.35

III. ARTICULATION
With which agencies or other institutions should the AVTIs cooperate?

SQ 1. Rate the following types of institutions in terms of how important it will be to involve them with planning programs.

ITEM	AVG. MEAN
a. Business and industry	4.94
b. Labor union and professional associations	4.13 *
c. State Board of Vocational Technical Education	4.39 *
d. Minnesota Board of Education	2.95 *
e. Minnesota Department of Jobs and Training	3.85
f. Community colleges	3.24
g. Other AVTIs	4.14
h. Private vocational schools	2.43 *
i. Four year colleges and universities	2.62
j. Secondary schools	3.06 *
k. Federal and State agencies	3.39

SQ 2. Rate the following types of institutions in terms of how important it will be to involve them with actually offering programs to students.

ITEM	AVG. MEAN
a. Business and industry	4.43
b. Labor union and professional associations	3.69
c. State Board of Vocational Technical Education	4.19 *
d. Minnesota Board of Education	2.52 *
e. Minnesota Department of Jobs and Training	3.42
f. Community colleges	3.10
g. Other AVTIs	3.77
h. Private vocational schools	2.23 *
i. Four year colleges and universities	2.35
j. Secondary schools	2.85 *
k. Federal and State agencies	3.06

IV. PROGRAM PURPOSE

What should be the primary focus of AVTI programs?

SQ 1. Rate the following vocational program purposes in terms of how important they will be in carrying out the mission of the AVTIs.

ITEM	AVG. MEAN
a. Initial training (preparing people for first jobs)	4.81
b. Retraining (preparing people for different jobs)	4.77 *
c. Updating (helping people develop new skills for their current jobs)	4.66 *
d. Remediation (providing skills which are needed to succeed in a vocational program)	4.16 *

SQ 2. Assuming that the primary purpose of the AVTIs is to prepare people for employment as stated in the mission statement presented earlier, rate the following additional goals which the AVTIs could have in terms of how important they will be in the future.

ITEM	AVG. MEAN
a. Prepare people to be good citizens	3.60 *
b. Provide a general education	2.98
c. Develop basic skills (reading, writing, arithmetic)	3.80 *

V. CONTENT IDENTIFICATION
How should content be identified?

SQ 1. Rate the following sources of content in terms of their importance for forming the basis for a particular program.

ITEM	AVG. MEAN
a. A specific job	3.58
b. A job cluster	4.46 *
c. A subject matter area related to many jobs (e.g., mathematics, communications)	3.88
d. Specific to a particular firm or company	2.60 *
e. Generalizable to many firms or companies	4.25

SQ 2. Rate the importance of the following alternative ways for identifying the job skills and knowledges to be taught within a vocational program of the future.

ITEM	AVG. MEAN
a. Review textbooks and other publications	2.77 *
b. Review task listings	3.83
c. Interview employers	4.49
d. Review job description	3.87
e. Interview people who perform the job	4.61
f. Have discussions with advisory committees	4.40
g. Observe people performing the job	3.94 *
h. Consult subject matter experts	3.20

SQ 3. Rate the importance of the following types of skills which might be taught in future vocational programs.

ITEM	AVG. MEAN
a. Psychomotor skills	4.43 *
b. Cognitive skills	4.54 *
c. Affective skills	4.29

VI. STUDENT EVALUATION
How should student learning be measured?

SQ 1. Rate the importance of the following possible goals for evaluating future vocational student learning.

ITEM	AVG. MEAN
a. To determine the extent of learning compared to other learners	2.74
b. To verify skill mastery (attaining performance capability)	4.82
c. To record student progress (grade)	3.49
d. To motivate students	3.94

SQ 2. Rate the following types of abilities in terms of their future importance in evaluating vocational student learning.

ITEM	AVG. MEAN
a. Performance skill	4.71
b. Understanding of concepts and theory	4.50
c. Attitude evaluation	4.27 *

SQ 3. Rate the importance of the following methods for evaluating student learning in the future.

ITEM	AVG. MEAN
a. Written tests	3.77
b. Oral tests	3.66
c. Skill performance tests	4.88
d. Instructor observations	3.99
e. Attitude performance tests	3.69 *

VII. PROGRAM FORMAT
What form should programs take?

SQ 1. Rate the following locations in terms of how important you think they will be as alternative AVTI program sites in the future.

ITEM	AVG. MEAN
a. The AVTI	4.62 *
b. Business and industry related to the program area	4.36 *
c. Students' homes	2.30 *
d. Other schools	3.04
e. Conference centers or hotel settings	2.89 *

SQ 2. Rate the following **times** for offering AVTI programs in terms of how important they will be in the future.

ITEM	AVG. MEAN
a. During the day from Monday through Friday	3.99
b. During the day on weekends	3.72 *
c. During the evening from Monday through Friday	4.37
d. During the evening on weekends	2.34 *
e. Twenty-four hours a day from Monday through Friday	2.40 *
f. Twenty-four hours a day on weekends	1.77 *

SQ 3. Rate the following **program formats** in terms of how important you think they will be in the future.

ITEM	AVG. MEAN
a. Programs offered as total programs	3.49 *
b. Programs broken down into courses	4.49 *
c. Programs offered as certificate programs where students get a certificate of completion or diploma when completing the program	4.04
d. Programs offered as Associate of Applied Science degree programs	3.84
e. Short intensive courses to teach limited skills	4.00 *
f. Coordinated day school and adult programs where people can take components of either program and get credit toward the other	4.55 *

SQ 4. Rate the following **lesson delivery formats** in terms of how important you think they will be for delivering future vocational instruction.

ITEM	AVG. MEAN
a. Traditional format of instructor-delivered instruction	4.02 *
b. Modularized format (instruction packaged as learning modules)	3.93 *
c. Computer-assisted instruction	4.04 *
d. Teleconferencing	3.54 *

VIII. LESSON STRUCTURING
What are the key components of lessons?

SQ 1. Rate the following **lesson components** in terms of their future importance in providing effective instruction to students.

ITEM	AVG. MEAN
a. Instruction on related theory	4.11
b. Instruction on understanding procedures	4.52
c. Demonstrations (showing)	4.67
d. Practice	4.71
e. Evaluation	4.35
f. Feedback	4.47

SQ 2. Which of the following ways of defining a **lesson** should be used by the AVTIs? (check one)

Unlike all the other items on the instrument, on this item respondents were asked to choose between two options. See text for discussion.

SQ 3. Rate the following **instructional methods** in terms of their future importance for delivering effective instruction to vocational students.

ITEM	AVG. MEAN
a. Lectures	3.55 *
b. Demonstrations	4.59
c. Role-playing	3.25 *
d. Simulations	3.97
e. Reading	3.68
f. Computer-assisted instruction	4.03 *
g. On-the-job instruction	4.03
h. Practice	4.58
i. Cooperative learning	3.56
j. Individual research	2.91

IX. LEARNING RESOURCES

What technology should be used to present lessons?

SQ 1. Rate the following types of learning resources in terms of how important you feel they will be for delivering effective instruction to vocational students.

ITEM	AVG. MEAN	
a. Learning modules	3.91	*
b. Video tapes	4.28	
c. Computers	3.44	*
d. Transparencies	3.32	
e. Slides	3.10	
f. Audio tapes	3.03	
g. Textbooks	3.62	*
h. Instructor-developed instruction sheets	3.99	
i. Journal articles	3.01	
j. Manufacturers' manuals	3.82	*
k. Telecommunications	3.68	*
l. Interactive video	3.93	*
m. Goods and materials (job related)	4.33	
n. Tools and equipment (job related)	4.50	

X. PROGRAM EVALUATION

How should the programs be evaluated?

SQ 1. Rate the following in terms of their future importance for judging the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN	
a. Individual AVTIs	3.79	
b. State Board of Vocational Technical Education	3.48	*
c. Other vocational educators	3.36	
d. U.S. Office of Education	1.67	
e. Employers of graduates	4.66	
f. Potential employers of graduates	3.82	
g. Program graduates	4.41	

SQ 2. Rate the following types of data in terms of how important you think they will be for judging the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN
a. The extent to which graduates are placed in related jobs	4.27
b. Employers' ratings of graduates	4.59
c. Graduates' ratings of the program	4.25
d. Ratings of the program by other educators	3.02
e. Student program completion rates	3.20 *
f. Student achievement upon program completion	3.97
g. Graduates' job satisfaction	3.80
h. Benefit to graduate in the workplace of having completed the program	3.92 *

SQ 3. Rate the following times in terms of their importance for gathering data to judge the overall effectiveness of an AVTI program.

ITEM	AVG. MEAN
a. During the program	3.57 *
b. At the conclusion of the program	3.99
c. One year or more after a class has graduated	4.64

APPENDIX D

Reliability Analysis Summary
N=29

I. NEEDS ASSESSMENT
Which programs should be offered?

SQ 1. Rate each of the following **types** of data in terms of their future importance in determining which programs should be offered by the AVTIs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Occupational demand	4.89	4.71	no	.25
b. Current salary of adequately trained people	4.29	4.11	no	.43
c. Salaries of people in occupations	2.79	2.57	no	.50
d. Perceived value of occupations to society	2.61	2.32	no	.58
e. Student demand	3.43	3.24	no	.48
f. Community support for a program	3.28	3.07	no	.31
g. Cost of operating a program	2.68	2.57	no	.31
h. The number of companies or institutions that might employ graduates	4.66	4.45	no	.33
i. The types of other institutions providing trained workers	3.63	3.41	no	.54

SQ 2. Rate the following **geographic areas** in terms of their future importance in obtaining meaningful data to support the need for a program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Local Area (within 30 miles)	3.97	3.93	no	.67
b. Region (within 100 miles)	4.32	4.18	no	.30
c. State	4.04	4.07	no	.57
d. Surrounding states	3.35	3.00	no	.56
e. Nation	2.50	2.21	no	.49
f. International	1.68	1.32	no	.73

SQ 3. Rate the following **occupational bases** for gathering needs assessment data for programs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Single company or firm	3.00	2.69	I-N**	.35
b. Industry (group of companies)	4.50	4.36	no	.28
c. Occupational cluster (group of industries)	4.17	4.28	no	.33

SQ 4. Rate the following considerations in terms of their importance when deciding which AVTI programs should be offered.

ITEM	FIRST	SECOND	CHANGE	REL.
a. How programs agree with the State's mission of the AVTIs	4.00	4.14	no	.13
b. Availability of similar programs	4.14	4.04	no	.47
c. Cost of the program	2.83	2.86	no	.55
d. Time needed to become fully operational	2.64	2.57	no	.59

SQ 5. Rate the following factors to be considered in geographically locating AVTI programs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Location of potential students	3.79	3.90	no	.30
b. Location of jobs	3.48	3.45	no	.60
c. Equal geographic access of students to programs	3.38	3.17	no	.40
d. Availability of existing facilities/equipment/staff	4.07	4.00	no	.62
e. Location of on-the-job training resources	3.07	3.00	no	.49

II. PROGRAM ACCESS
For whom should a program be designed?

SQ 1. Rate the following in terms of their future importance in determining who should be encouraged to enroll in each AVTI program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. People similar to those already in the occupation	2.00	1.93	no	.22
b. All programs should be open to all people	4.41	4.03	no	.30
c. Programs should be open to people based on their interests and ability to benefit from training	4.69	4.59	no	.26
d. Non-traditional students/ affirmative action	3.64	3.54	no	.19

SQ 2. Rate the future importance of each of the following geographic areas from which people may be recruited to enroll in an AVTI program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Single company or firm	3.11	3.36	no	.40
b. Local area (within 30 miles)	4.35	4.52	no	.59
c. Region (within 100 miles)	4.41	4.52	no	.60

d. State	3.75	4.00	no	.52
e. Surrounding states	2.39	2.68	no	.57
f. Nation	1.67	1.63	no	.62

SQ 3. Rate the following in terms of their importance as criteria for determining the types of people that should be admitted to AVTI programs in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Open door entry: First come, first served	3.89	4.07	no	.68
b. Probability of success	3.21	3.62	no	.18
c. Affirmative action criteria	2.83	3.14	N-I*	.68
d. Possession of prerequisite skills	3.89	3.61	no	.42
e. Person's economic need for employment	2.57	2.54	no	.51

III. ARTICULATION
With which agencies or other institutions should the AVTIs cooperate?

SQ 1. Rate the following types of institutions in terms of how important it will be to involve them with planning programs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Business and industry	5.00	4.86	no	.99
b. Labor union and professional associations	4.18	4.00	no	.63
c. State Board of Vocational Technical Education	4.14	4.00	no	.35
d. Minnesota Board of Education	3.04	2.64	I-N*	.56
e. Minnesota Department of Jobs and Training	4.04	3.79	no	.51
f. Community colleges	3.14	3.07	no	.58
g. Other AVTIs	4.00	4.04	no	.05
h. Private vocational schools	2.64	2.46	no	.58
i. Four year colleges and universities	2.64	2.54	no	.57
j. Secondary schools	3.38	3.35	no	.59
k. Federal and State agencies	3.57	3.68	no	.15

SQ 2. Rate the following types of institutions in terms of how important it will be to involve them with actually offering programs to students.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Business and industry	4.68	4.50	no	.54
b. Labor union and professional associations	3.57	3.56	no	.71

c. State Board of Vocational Technical Education	4.11	4.33	no	.43
d. Minnesota Board of Education	2.56	2.44	no	.46
e. Minnesota Department of Jobs and Training	3.70	3.48	no	.17
f. Community colleges	3.07	3.04	no	.57
g. Other AVTIs	3.70	3.59	no	.55
h. Private vocational schools	2.30	2.19	no	.44
i. Four year colleges and universities	2.37	2.33	no	.73
j. Secondary schools	3.19	2.93	I-N**	.22
k. Federal and State agencies	3.27	3.19	no	.21

IV. PROGRAM PURPOSE

What should be the primary focus of AVTI programs?

SQ 1. Rate the following vocational program purposes in terms of how important they will be in carrying out the mission of the AVTIs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Initial training (preparing people for first jobs)	4.89	4.79	no	.08
b. Retraining (preparing people for different jobs)	4.77	4.85	no	.65
c. Updating (helping people develop new skills for their current jobs)	4.62	4.54	no	.52
d. Remediation (providing skills which are needed to succeed in a vocational program)	4.33	3.96	no	.41

SQ 2. Assuming that the primary purpose of the AVTIs is to prepare people for employment as stated in the mission statement presented earlier, rate the following additional goals which the AVTIs could have in terms of how important they will be in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Prepare people to be good citizens	3.86	3.68	no	.16
b. Provide a general education	3.19	3.11	no	.19
c. Develop basic skills (reading, writing, arithmetic)	3.96	3.93	no	.37

V. CONTENT IDENTIFICATION

How should content be identified?

SQ 1. Rate the following sources of content in terms of their importance for forming the basis for a particular program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. A specific job	3.70	3.59	no	.42
b. A job cluster	4.36	4.43	no	.12
c. A subject matter area related to many jobs (e.g., mathematics, communications)	3.92	3.85	no	.58
d. Specific to a particular firm or company	2.68	3.07	N-I*	.46
e. Generalizable to many firms or companies	4.29	4.21	no	.01

SQ 2. Rate the importance of the following alternative ways for identifying the job skills and knowledges to be taught within a vocational program of the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Review textbooks and other publications	2.54	2.68	no	.66
b. Review task listings	3.82	3.96	no	.63
c. Interview employers	4.74	4.48	no	.32
d. Review job description	3.96	3.81	no	.54
e. Interview people who perform the job	4.56	4.67	no	.37
f. Have discussions with advisory committees	4.15	4.07	no	.29
g. Observe people performing the job	4.00	4.07	no	.64
h. Consult subject matter experts	3.22	3.30	no	.58

SQ 3. Rate the importance of the following types of skills which might be taught in future vocational programs.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Psychomotor skills	4.57	4.57	no	.30
b. Cognitive skills	4.74	4.57	no	.10
c. Affective skills	4.43	4.25	no	.58

VI. STUDENT EVALUATION
How should student learning be measured?

SQ 1. Rate the importance of the following possible goals for evaluating future vocational student learning.

ITEM	FIRST	SECOND	CHANGE	REL.
a. To determine the extent of learning compared to other learners	2.64	2.93	no	.11
b. To verify skill mastery (attaining performance capability)	4.86	4.86	no	.42

c. To record student progress (grade)	3.39	3.46	no	.62
d. To motivate students	4.29	3.86	no	.22

SQ 2. Rate the following types of abilities in terms of their future importance in evaluating vocational student learning.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Performance skill	4.75	4.64	no	.58
b. Understanding of concepts and theory	4.54	4.43	no	.40
c. Attitude evaluation	4.14	4.14	no	.30

SQ 3. Rate the importance of the following methods for evaluating student learning in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Written tests	3.79	3.57	no	.21
b. Oral tests	3.54	3.04	no	.41
c. Skill performance tests	4.93	4.82	no	.23
d. Instructor observations	4.11	3.96	no	.18
e. Attitude performance tests	3.82	3.46	no	.28

VII. PROGRAM FORMAT
What form should programs take?

SQ 1. Rate the following locations in terms of how important you think they will be as alternative AVTI program sites in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. The AVTI	4.75	4.57	no	.08
b. Business and industry related to the program area	4.44	4.30	no	.42
c. Students' homes	1.96	2.36	no	.60
d. Other schools	3.18	2.96	I-N**	.37
e. Conference centers or hotel settings	3.04	2.89	I-N**	.77

SQ 2. Rate the following times for offering AVTI programs in terms of how important they will be in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. During the day from Monday through Friday	4.57	4.68	no	.61
b. During the day on weekends	3.54	3.64	no	.33
c. During the evening from Monday through Friday	4.32	4.32	no	.46
d. During the evening on				

weekends	2.04	2.44	no	.65
e. Twenty-four hours a day from Monday through Friday	2.33	2.48	no	.27
f. Twenty-four hours a day on weekends	1.63	1.85	no	.44

SQ 3. Rate the following program formats in terms of how important you think they will be in the future.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Programs offered as total programs	3.57	3.61	no	.53
b. Programs broken down into courses	4.64	4.57	no	.33
c. Programs offered as certificate programs where students get a certificate of completion or diploma when completing the program	4.35	4.21	no	.58
d. Programs offered as Associate of Applied Science degree programs	3.50	3.68	no	.51
e. Short intensive courses to teach limited skills	4.18	3.82	no	.24
f. Coordinated day school and adult programs where people can take components of either program and get credit toward the other	4.44	4.26	no	.75

SQ 4. Rate the following lesson delivery formats in terms of how important you think they will be for delivering future vocational instruction.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Traditional format of instructor-delivered instruction	3.90	4.28	no	.31
b. Modularized format (instruction packaged as learning modules)	3.89	4.00	no	.48
c. Computer-assisted instruction	3.89	3.89	no	.59
d. Teleconferencing	3.66	3.07	no	.59

VIII. LESSON STRUCTURING

What are the key components of lessons?

SQ 1. Rate the following lesson components in terms of their future importance in providing effective instruction to students.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Instruction on related theory	4.00	3.90	no	.36
b. Instruction on understanding procedures	4.57	4.50	no	.45
c. Demonstrations (showing)	4.62	4.66	no	.48
d. Practice	4.59	4.66	no	.50

e. Evaluation	4.28	4.14	no	.48
f. Feedback	4.24	4.10	no	.08

SQ 2. Which of the following ways of defining a lesson should be used by the AVTIs? (check one)

Unlike all the other items on the instrument, on this item respondents were asked to choose between two options. See text for discussion. The reliability was .30. (In reliability study, both mean responses were 1.97)

SQ 3. Rate the following instructional methods in terms of their future importance for delivering effective instruction to vocational students.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Lectures	3.55	3.48	no	.53
b. Demonstrations	4.50	4.46	no	.03
c. Role-playing	3.14	3.03	no	.51
d. Simulations	4.36	3.86	no	.51
e. Reading	3.61	3.68	no	.30
f. Computer-assisted instruction	3.89	3.89	no	.62
g. On-the-job instruction	4.29	3.93	no	.62
h. Practice	4.64	4.43	no	.17
i. Cooperative learning	3.44	3.37	no	.17
j. Individual research	2.71	2.50	no	.71

IX. LEARNING RESOURCES

What technology should be used to present lessons?

SQ 1. Rate the following types of learning resources in terms of how important you feel they will be for delivering effective instruction to vocational students.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Learning Modules	3.93	3.93	no	.32
b. Video Tapes	4.25	4.25	no	.58
c. Computers	4.29	4.36	no	.31
d. Transparencies	3.07	3.32	no	.35
e. Slides	3.10	2.90	I-N**	.31
f. Audio Tapes	3.04	2.86	I-N**	.36
g. Textbooks	3.75	3.79	no	.34
h. Instructor-developed instruction sheets	4.03	4.07	no	.40
i. Journal articles	2.75	2.68	no	.63
j. Manufacturers' manuals	3.46	3.50	no	.33
k. Telecommunications	3.61	3.11	no	.77
l. Interactive video	4.00	3.39	no	.64
m. Goods and materials (job related)	4.55	4.14	no	.56
n. Tools and equipment (job related)	4.66	4.41	no	.56

X. PROGRAM EVALUATION
How should the programs be evaluated?

SQ 1. Rate the following in terms of their future importance for **judging the overall effectiveness** of an AVTI program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. Individual AVTIs	3.61	3.79	no	.50
b. State Board of Vocational Technical Education	3.21	3.25	no	.24
c. Other vocational educators	3.43	3.36	no	.24
d. U.S. Office of Education	1.96	2.07	no	.26
e. Employers of graduates	4.66	4.69	no	.73
f. Potential employers of graduates	4.11	3.93	no	.63
g. Program graduates	4.31	4.17	no	.38

SQ 2. Rate the following **types of data** in terms of how important you think they will be for judging the overall effectiveness of an AVTI program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. The extent to which graduates are placed in related jobs	4.07	4.10	no	.65
b. Employers' ratings of graduates	4.61	4.75	no	.33
c. Graduates' ratings of the program	4.37	4.22	no	.26
d. Ratings of the program by other educators	3.00	3.07	no	.37
e. Student program completion rates	3.15	3.04	no	.13
f. Student achievement upon program completion	4.07	3.96	no	.54
g. Graduates' job satisfaction	4.11	3.64	no	.34
h. Benefit to graduate in the workplace of having completed the program	4.19	3.89	no	.15

SQ 3. Rate the following **times** in terms of their importance for gathering data to judge the overall effectiveness of an AVTI program.

ITEM	FIRST	SECOND	CHANGE	REL.
a. During the program	3.61	3.61	no	.37
b. At the conclusion of the program	4.03	3.93	no	.41
c. One year or more after a class has graduated	4.68	4.75	no	.07

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* N-I = Not Important to Important
** I-N = Important to Not Important