

A MODEL FOR PROGRAM ARTICULATION BETWEEN
COMMUNITY COLLEGES AND VOCATIONAL-
TECHNICAL SCHOOLS

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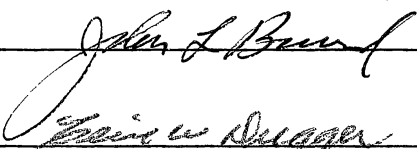



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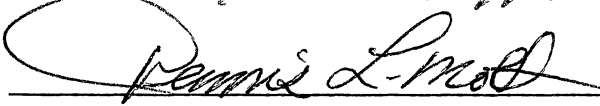
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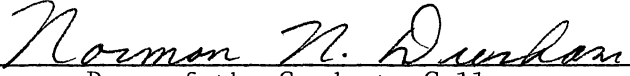


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CHAPTER I

INTRODUCTION

Articulation between educational institutions continues to be a major concern of vocational and technical educators. Educators and the community have the responsibility for developing and implementing programs which result in providing trained manpower for our society's work force. This involves all forces working together in the initiating, planning, developing, and evaluating of programs so that a sequential educational effort will exist. Therefore, programs must be coordinated and interrelated with complementary levels of education and the world of work (Kraska, 1980).

On the national level, the American Association of Community and Junior Colleges and the American Vocational Association have combined their efforts to study policies and practices related to successful articulation. Therefore, articulation models have been established as a result of this combined effort on both the state and local levels.

Many institutional areas, levels, concepts, approaches, and agencies are involved with vocational-technical education. Therefore, the possibility for overlap and duplication among these efforts is always present. Coordination and cooperation among the various agencies providing vocational-technical education is vital to the development and delivery of training programs (Godla, 1985).

Vocational and technical education, often considered to be the step-child of our American educational system, now has the potential for assuming a leadership role in the articulation process. This is due to a number of features involved in the process of vocational-technical education. These include such practices as definite outcomes in terms of competencies which are expected to be mastered by students. Perhaps of equal importance is the close affiliation which has been maintained between educators and practitioners in the community.

Statement of the Problem

Articulation between community colleges and vocational-technical schools is dependent upon cooperation between the two institutions. However, the various models and agreements that have been developed thus far have had only limited success in meeting their stated goals and objectives.

To meet the needs of society and improve articulation efforts, a continuous assessment of various perceptions of articulation models and agreements between community colleges and vocational-technical schools is needed.

Purpose of the Study

This study involved two primary purposes. The first was to gather, examine, and evaluate information pertaining to articulation in vocational-technical education between community colleges and vocational-technical schools. The second was to construct an articulation model adaptable for use by administrators based upon responses to a questionnaire survey, the review of literature, and analysis of current models

and agreements.

The specific questions this study attempted to answer concerning perceptions of articulation models were:

1. What were the perceived advantages of current practices that are conducive to articulation?
2. What are the perceived barriers toward articulation?
3. What are the perceived benefits that have resulted from articulation models and agreements?

Scope and Limitations

The scope of this study was limited to community colleges and vocational-technical schools who have developed formal articulation models and agreements. The limitations of this study were:

1. This study was limited to 19 articulation models and agreements that have been developed in various geographical areas of the United States.
2. This study was limited to articulation models and agreements that have been developed only between community colleges and vocational-technical schools.
3. This study was limited by the survey instrument's (questionnaire) ability to yield valid data.

Assumptions

The following assumptions were made:

1. The number of subjects involved in this study was represented by a cross section of the United States.
2. The survey instrument (questionnaire) was completed by the

respondents as an honest expression of their perceptions.

3. The items listed on the survey instrument (questionnaire) were representative of factors that influence effective articulation.

Definitions

The following terms are defined to provide clear and concise meanings to this study.

Articulation: The systematic coordination of program content between educational institutions to facilitate the continuous, efficient progress of students from grade to grade, school to school, and from school to the working world (Educational Resources Information Center, 1984).

Community College: An institution of higher education that typically offers the first two years of collegiate instruction which grants an associate degree and which does not grant a bachelor's degree. It is either an independently organized institution (public or non-public) or an institution which is a part of a public school system or an independently organized system of junior colleges. Offerings include college transfer programs and programs in vocational-technical education as well as continuing education (U.S. Department of Health, Education, and Welfare, 1967).

Vocational-Technical Education: Instruction designed to prepare people for occupations requiring less than a baccalaureate degree (Evans and Herr, 1978).

Vocational-Technical School: A secondary or post secondary school that provides vocational-technical education to people who plan to enter the job market as part of its mission.

Organization of the Study

Chapter I introduces the study, presents the problem, and states the purpose, limitations, assumptions, definitions, and organization of the study. Chapter II includes a review of related literature which is divided into the following sections:

1. Meaning of Articulation
2. Practices Conducive to Articulation
3. Barriers Toward Articulation
4. Benefits of Articulation
5. Related Studies
6. Summaries

Chapter III describes the population, instrumentation, data collection, analysis of data, and procedure for design of the model. Chapter IV presents the interpretation of the findings and the articulation model. Chapter V summarizes the study, states conclusions, and makes recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The review of literature pertinent to articulation in vocational-technical education between community colleges and vocational-technical schools is divided into five sections directly related to the specific objectives identified as relevant to a study of articulation of vocational-technical education. The five sections are: (1) Meaning of Articulation, (2) Practices Conducive Toward Articulation, (3) Barriers Toward Articulation, (4) Benefits of Articulation, and (5) Related Studies. A summary was presented to highlight the recommendations made by educational leaders and researchers in the field of articulation.

Meaning of Articulation

Kruska (1980) defines articulation as:

The process which permits the smooth transfer and progression of students moving from one educational level, institution, program, course, or activity to the next higher level; and which provides for a coordinated and interrelated curriculum for students enrolled in programs, courses, or activities which exist at any one educational level (pp. 53-54).

Severe budgetary restrictions face our educational systems nationwide as we continue to witness the effects of our current economy.

Public reaction borders outrage at what they perceive to be ineffective

education. Changes in our economy and in the work place necessitate a revolution of the responsibilities of education. Education must support the needs of the work place by providing a work force which is predominantly made up of products of our education system. Their success measures our success as educators. The major goal of education during current economic times should be to maximize its efforts by improving educational efficiency. "Articulation offers a viable approach toward this goal" (Nadolski, 1982, p. 3).

During the twentieth century the community college and vocational-technical schools were being refined simultaneously. Their developments have made possible not only extended education for all, but also more educational opportunities and choices. This simultaneous evolution has also created a myriad of difficulties, among which is that of achieving effective articulation between those educational levels.

Concern with the means of articulating policies and activities of secondary and post secondary schools is not a new problem of the 1980's. References have been made to this concern on a number of prior occasions which were reported by Links and Opachinch (1974).

The Morrill Act of 1862 gave impetus to the development of land grant colleges and universities which emphasized vocational skills such as engineering and agriculture after high school.

The National Education Association's Committee on College Entrance Requirements in 1899 and the Committee of Ten in 1892 concerned themselves with admissions requirements which were to insure some standard for incoming students.

In 1929 the Seventh Yearbook of the National Education Association's Committee on Superintendence was devoted to a discussion of articulation on all levels.

Articulation conferences were held in California as early as 1932.

The Six-Four-Four Plan of the 1930's involved a formalized rearrangement of the last two years of high school and the junior college in vocational technical areas.

The President's Commission on Higher Education in 1947 underscored the need to provide easier transition between high school and college (p. 1).

Part of the problem has been the unique growth of the community college. Originally, community colleges were developed dependent upon the public school which fostered them. They were part of their schools and yet separate from them. In succeeding years, community colleges sought to ally with higher education. In so doing, they developed curricula separately and without taking note of the preparation of students coming from secondary schools. They did not see any educational continuity between secondary vocational programs and post secondary vocational-technical programs (Linksz and Opachinch, 1974).

During the 1970's, a period when enrollments were leveling off and financial uncertainty was intensifying, a spiral of demands began to pressure governments at all levels to coordinate vocational-technical education.

Therefore, all levels of governments began pressuring the providers of vocational-technical education to deliver more effective and efficient programs. The lack of coordination among and between institutions became of notice to legislators and tax payers who demanded both accountability and better program coordination (Bushnell, 1978).

Bushnell (1978) stated during this period that:

Vocational educators themselves began to call for more precise definitions of the roles of the various institutions in meeting educational needs. They realized that, unless the vocational education community is prepared to differentiate among the distinctive missions of distinct sectors . . . we will vitiate our strength and lose credibility. The by-word had become articulation (p. 3).

Articulation has been defined in several different ways. Most of the definitions consist of common elements and almost all of the definitions stress the importance of cooperation and coordination.

Heuchert and Postlewaite (1975) reported to the Sun Mountain Conference on Articulation of Vocational Education that articulation is, "the relationship between educational programs which provides a smooth transition for a student moving either horizontally or vertically between programs" (p. 57).

Miller (1985, p. 175) refers to articulation as "forming or fitting into a systematic whole."

Woelfer (1980) defines articulation as:

The action resulting from policies and procedures employed to provide:(a) vocational education program alignment and continuity in a given occupational area between the high schools and the community colleges conducting the programs; (b) skills and related technical information required by the student to achieve smooth transition through the various levels of educational experiences in that program; (c) transition of the student from one educational level to another in a given occupational area without unnecessary delay or duplication of effort; and (d) improved cooperation among institutions, school systems, and communities at both the local area and state levels that share interest in the same occupational program(s) (p. 38).

Given the preceding definitive review of the articulation concept and its primary components, the following conceptual definition formulated by Hopkins (1984) will be used as the meaning of articulation for purposes of this study:

Articulation is a process, an attitude, and a goal of an educational system that is predicated on a continuum that transcends organizational units. An articulated system exhibits institutional interrelationships, cooperation, coordination, communication, and planning for the effective movement of students between educational levels. As a process, articulation is the coordination of policies and practices among sectors of the educational system to produce a smooth flow of students from one sector to

another. As an attitude, it is exemplified by the willingness of educators in all sectors to work together to transcend the individual and institutional self-interest that impedes the maximum development of the student. As a goal, it is the creation of an educational system without artificial divisions, so that the whole educational period becomes one unbroken flow, which varies in speed for each individual, and eliminates loss of credit, delays, and unnecessary duplication of effort (p. 38).

Practices Conducive Toward Articulation

A number of practices must exist for successful articulation to take place. The practices must be addressed prior to and during the articulation process. The following discussion focuses articulation of vocational-technical education as identified by the literature.

A well articulated educational process provides students an opportunity to develop to their highest potential without unnecessary duplication of instruction and delay in attaining their educational and career objectives (Manley, 1970).

In putting the pieces of an articulation program together, the developer must accept the American educational process as being composed of one system involving all levels. Archer (1984) stated that, when a concept is realized and accepted by the developer, a totally different educational endeavor emerges. "A coordinated school and college relationship becomes one system in educational articulation" (p. 178).

Cooperative arrangements among two or more local institutions or programs can take a number of forms. Bushnell (1979) stated that, while the implementation strategies employed by the two involved ranged from loosely conceived to highly systematized, there are several ingredients which appeared to be essential for effective articulation. They were: (1) Inventorying existing communication links, (2) Expanding

interaction patterns, (3) Goal clarification, and (4) Formal agreements.

Vocational educators recognize the need for cooperation among local educational agencies charged with the responsibility of providing total vocational-technical education to their students, kindergarten through adult. Sampson (1971) referred to articulation as a united effort and recommended ten objectives for effective articulation. They were:

1. To develop an understanding of the program offerings at the primary, secondary (local high school and area vocational center) and post-secondary institutions.
2. To coordinate content of course to insure effective and smooth transition of students from secondary to post secondary programs, to provide for continuity of programs from local high schools to area vocational centers, and to provide guidelines for developing primary grade instructional units.
3. To develop a systematic sequence of courses--kindergarten through adult (continuing education).
4. To generate specific information for use by counselors and guidance personnel as well as grade school, non-vocational secondary and post-secondary instructors.
5. To coordinate efforts in serving the adult populace of the area with all segments of educational services taking part.
6. To coordinate and encourage youth group activities.
7. To coordinate efforts in locating, educating, and coordinating training station employers, and to coordinate, where feasible, experience program supervision.
8. To establish a total, comprehensive, long range vocational education plan, kindergarten through adults, for the service region.
9. To communicate to teacher education institutions their needs in personnel, so that curriculum at the senior colleges may be modified as needed to remain current.

10. To establish a total vocational public relations program serving people (p. 293).

According to Vanek (1979) there are several factors that lead to effective articulation. They are:

1. Climate of understanding and cooperation.
2. Open communications.
3. Give-and-take attitude.
4. Willingness to share.
5. Concern for student's total educational process.
6. Climate allowing feedback and rapport with students.
7. Trust environment.
8. Outlets for internal and external validation of programs.
9. Administrators endorsing articulation activities.
10. Clearly defining appropriate problems and having an articulation committee that agrees to work on them.
11. Discarding the false dichotomy between things academic and things vocational.
12. Group or individual agreeing on specific responsibilities (p. 30).

In a recent study by Doty (1985) he identified seven principles for effective articulation that resulted from an intensive literature search from various professional reports and articles. The seven principles that seemed to surface were:

1. The state administrators should support articulation in word, action, and funding.
2. The instructors at both institutions, i.e. secondary and post-secondary, must be initially involved in the decision-making process.
3. The instructors involved in the articulation process should be given credit for work load and/or compensation.

4. Provision of time and compensation must be made for technical upgrading of instructors.
5. A joint advisory committee should be established for communication between institutions and to make recommendations on curricula.
6. Articulation contents must be written that specify exact responsibilities of the parties involved.
7. An atmosphere of 'good faith' must prevail throughout the articulation process (pp. 100-101).

A summary of current trends in the area of articulation, as recommended by Kintzer and Wattenburger (1985) emphasized the following practices for effective articulation.

1. The continuing demand on the part of the students for clearly stated policies and guidelines providing for smooth movement from one level of education to another.
2. The tendency for those policies and guidelines to become officially adopted by governing boards, by coordinating boards, by institutional management, by legislatures, and by other operating agencies.
3. The increased student concern for receiving full credit for all courses and other related experiences that they have completed--experiences that may be far removed from traditional degree requirements.
4. The emphasis upon improving articulation between high schools and colleges through advanced placement, dual enrollment, early admissions, and more stringent requirements for graduation.
5. A tendency to rely increasingly upon testing as a placement device, as a recognition of a level of completion, and as a basis for admission to a higher level of education.
6. An increasing concern for the development of organized procedures for recognition of experiences outside regularly organized courses (pp. 65-66).

The practices identified, if present within an articulation model, should allow those institutions to make meaningful progress in assuring educational continuity for their students. In order to assess the

degree of existence of such practices within ongoing articulation models, specific statements were formulated from the preceding listings for use in the questionnaire for this study.

Barriers Toward Articulation

Articulation is as fundamental to quality vocational programming as hands-on instruction. Unfortunately, however, it has been a slow, difficult, and sometimes impossible process to implement. "Usually when articulation agreements are established, they are very limited and restricted to a few programs" (Whitener, 1985, p. 1).

Bushnell (1978, p. 5) states, "In spite of all forces pushing for articulation, serious philosophical, legal, political, and funding barriers still exist."

Tensions between community colleges and vocational-technical schools have their roots in the classic early twentieth century argument between Charles Prosser and John Dewey on the merits of education for specific job skills versus education for broader lifetime adaptability to changing employment areas. Such differences in philosophy create serious communications problems which become barriers to cooperation and articulation (Bushnell, 1978).

Failure to design standards acceptable to both institutions result in confusion as students seek to transfer credits or gain credit for previous course work (Bushnell, 1978).

Government structures at the state level often arbitrarily differentiate between non-degree vocational-technical institutions and degree granting higher education institutions. Local initiatives for collaborative agreements falter when confronted by such division

regulations (Bushnell, 1978).

Attempted collaboration between established power bases inevitably results in conflict. State legislators may feel pressured by their constituents to vote for vocational education facilities designed to serve a limited region, in spite of the fact that it is an unnecessary duplication from a state-wide point of view. Advisory committee members develop loyalties to the institutions they serve and may oppose collaborative efforts as evidence of a weakened power base. Without identification of boundaries at the state level to prevent overlap and duplication, articulation at the local level is difficult to achieve (Bushnell, 1978).

Through the literature reviews, interviews, surveys, and evaluation conferences conducted by Project MAVE, certain consistencies reoccur regarding barriers preventing effective articulation. These barriers to articulation have existed for many years and will continue to plague the educational system. Vanek (1979) listed certain barriers to be aware of:

1. The innate resistance of some staff members to view their individual goals as part of the total educational process.
2. Time to release staff members for articulation activities.
3. Budgetary constraints.
4. The natural desire of local settings to protect their autonomy while attempting to work with other educational levels.
5. 'Turfsmanship': institutional and educator competition.
6. Lack of communication.
7. Schedule difficulties for conducting meetings.

8. Lack of a formal articulation mechanism.
9. Proximity to other educational institutions.
10. Lack of administrative support--low priority.
11. Teacher contract barriers.
12. Lack of commitment and cooperation.
13. Declining enrollments (p. 33).

Local institutions will need to perceive their concerns and the success of current articulation activities in treating such barriers. A successful plan of action will entail a perceptive glimpse of those factors which have assisted articulation and the resolution of such problems (Vanek, 1979).

Knight (1963) reported on two case studies conducted in Florida in order to determine the effectiveness of articulation. The study revealed a picture of distrust, lack of cooperation, and competition between the community college and vocational-technical school involved in the study which prevented effective articulation.

Storm (1977) conducted a study on the effectiveness of articulation practices in California in 1977. He determined the following conclusions:

Little coordination now exists between administrative levels for purposes of vertical articulation; a lack of vertical articulation exists between counselors at community colleges and public secondary schools; vertical articulation was not apparent between industrial education teachers at the two educational levels studied; professionals who are not directly involved in the delivery of industrial education instruction in the classroom have different perceptions of vertical articulation than do teachers; industrial education faculty at both educational levels do not agree that program interaction exists between the two levels (p. 59).

Articulation must eliminate from the educational scene the many

pseudo fears, biases, barriers, and turfdom which presently exist. The needs of students and the work place must form the basis for planning and implementing effective instructional and training programs (Godla, 1985).

Knight (1983) concludes that, if vocational educators do not improve articulation voluntarily, state legislares will enact laws to force them to do so. Florida, for example, has enacted legislation that mandates coordinated programs between various levels and sets statewide standards for courses, while putting tighter controls on the offerings of community colleges and vocational institutes. Vocational education can meet the needs of students if vocational educators cooperate to increase articulation between and among their programs.

In order to assess the degree of existence of such barriers within ongoing articulation models, specific statements were formulated from the preceding barriers for use in the questionnaire for this study.

Benefits of Articulation

Project MAVE gathered information from various surveys, interviews, site visitations, and conferences, and literature reviews which provide information leading to the conclusion that there are four major components for successful articulation programs. The four elements are: (1) Building a cooperative climate, (2) Expanding communications among staff, (3) Developing sequenced programs, and (4) Coordinating services (Artis, 1979).

MAVE also listed the following benefits which result from positive articulation agreements (Artis, 1979).

1. Climate of understanding and cooperation
2. Open communications
3. Give and take attitude
4. Willingness to share
5. Concern for student's total educational process
6. Climate allowing feedback and rapport with students
7. Trusting environment
8. Outlets for internal and external validation of programs
9. Administrators endorsing articulation activities
10. Well spelled out objectives for articulation committees for real articulation for the purpose of strengthening education (p. 191).

Moore (1984) gave a conference paper at the 1984 American Association of Community and Junior Colleges Convention when he reported that Chemeketa Community College in Oregon hosts a meeting each year of secondary and college administrators to discuss articulation issues affecting high school students to develop procedures for increasing the smooth transfer of secondary students to college and to pursue projects of mutual benefit. He reported that several advantages have accrued from the project which are:

Most importantly, high school students have access and the opportunity to learn new vocational skills, have the option to receive high school and college credit for the courses and the flexibility to apply the knowledge and skills to either vocational or academic goals, and have the opportunity to receive current, up-to-date instruction using the expertise of college faculty. Another benefit, from the tax payers' perspective is that costs are reduced as there is no duplication of programs and resources. A final benefit is the positive constructive relationship fostered between the high school and college (p. 12).

Green (1985) discussed articulation at Maricopa Community College

in Arizona where the college has developed coordinated occupational education with area high schools.

Defined as the coordination of programs so the students can progress without duplication of time, effort, or expense to themselves or taxpayers, articulation is, of course, a benefit to everyone involved. The greatest benefactors are the students who save both time and money as they receive credit for previously earned skills. Further reducing the need for duplicated programs, buildings, equipment, and staff saves the taxpayers money. However, it requires communication, cooperation, and coordination between high school and college instructors and administrators. Other key benefits include the elimination of duplicated learning, better use of resources, increased student access to programs, challenging curricula, elimination of time loss for students, better trained students, a system for identifying student competencies, and improved community support for programs and institutions. Additionally, schools located within close proximity and that share resources eliminate expensive program replication (p. 44).

The rising cost of education is one factor that has caused students to seek more efficient paths to occupational competency. Articulation between secondary and post-secondary institutions can reduce the financial and time costs inherent in the repetition of courses. A well coordinated articulation agreement can benefit students and institutions (Pautler and Wilcox, 1983).

In order to assess the degree of existence of such benefits resulting from articulation models, specific statements were formulated from the preceding lists for use in the questionnaire for this study.

Related Studies

Several studies were identified with evaluated articulation between community colleges and vocational-technical schools. A brief summary of those identified are described in order to determine the status of articulation.

Alabama

The purpose of this study was to determine the status of articulation practices between secondary area vocational-technical schools and post-secondary institutions. Some of the findings of this study were: (1) There were few curriculum coordination activities between secondary and post-secondary occupational programs, (2) Very limited staff interaction was reported, (3) There was almost no sharing of resources such as highly specialized staff, expensive equipment or facilities, (4) There is limited potential for granting post-secondary credit to students for secondary occupational study, (5) There were few meetings to discuss or plan articulation, and (6) The absence of state and local leadership to promote articulation was indicated by the study (Evans, 1981).

Florida

This study was to determine to what degree curriculum articulation is practiced between school districts and community colleges in two Florida cities. It was concluded that attitudinal and communication factors affected articulation often. Unfriendly attitudes among the two faculties and administrators were centered around the feeling that academic programs were superior and that local turf must be defined at all cost. It was also recommended that, if articulation is to become a reality in Florida, interagency personnel need to develop respect, confidence, and trust in a non-threatening atmosphere. Administrators need to encourage a broader viewpoint and cooperative behavior between each other, faculties, and institutions. Faculty,

counselors, and advisory committee members should be used more effectively and be included in decision making. Local autonomy and turf defenses should be minimized by long range planning which clearly delineates training responsibilities (Knight, 1982).

Michigan

This study was to determine whether or not those skills developed during participation in secondary vocational programs were at a level which permitted advanced placement upon entry into post-secondary programs. The conclusion was determined through a series of tests which revealed that advanced placement should be permitted (Olson, 1980).

Ohio

A study to evaluate articulation between vocational-technical education programs governed by the Ohio Board of Regents and the Ohio Board of Education found that little articulation activity was occurring between the two educational levels (Hopkins, 1984).

Pennsylvania

A study to analyze effectiveness of an articulation relationship between Park West Area Vocational-Technical School and the Community College of Allegheny revealed several successes which included:

- (1) the effort that geographical proximity of the two schools helps out the success of vertical articulation by students,
- (2) the importance of equal participation by both the secondary and post-secondary faculty in curriculum development and implementation, and
- (3) the importance of involvement by practitioners from business and industry

in articulation (Lowe, 1983).

Virginia

This study was an assessment of the status of articulation between secondary schools, vocational schools, and community colleges. The study concluded that, even though there was a positive attitude toward articulation, only about 50 percent of the school participated in articulation activities. Significant differences were identified by administrators concerning college level courses being offered in high schools, and sharing of educational resources, and the utilization of college faculty in high schools. However, nearly all administrators felt that high school vocational programs should be designed to allow students to continue their specialty area at the community college (Kilgore, 1983).

Articulation of vocational education curriculum remains elusive. Although widely endorsed, it has not been widely accomplished.

In the ideal articulation model, exit-level competencies are envisioned as preparing the student for the next highest level--from high school through university. There would be no course repetition. Credit earned at one level would be accepted at another. Advanced placement would be available to students returning in mid-career. The student and administration would save time, effort, and money (Knight and Knight, 1985, p. 13).

Summary

The review of literature revealed the increased activity that has taken place in the area of articulation between community colleges and vocational-technical schools; however, they have only had limited success in meeting their stated goals and objectives.

The literature reviewed cited three areas that should be assessed

to determine the current status of articulation: (1) the successful practices conducive to articulation, (2) the major barriers that must be identified in order to devise strategies for improvement, and (3) the benefits derived from a successful articulation program.

The information presented in the review of literature was used to formulate the questionnaire to collect data for use in answering the specific objectives and to develop a model which could be adapted in most educational settings.

CHAPTER III

METHODOLOGY

This study involved two primary purposes. The first was to gather, examine, and evaluate information pertaining to articulation procedures in vocational-technical education between community colleges and vocational-technical schools. The second was to construct an articulation model adaptable for use by administrators based upon responses to a questionnaire survey, the review of literature, and analysis of current models and agreements.

This chapter presents the following sections as they related to the design of the study: Population, Instrumentation, Data Collection, Analysis of Data, and Design of the Model.

Population

The population utilized in this study was a geographic cross section of community colleges and vocational-technical schools located throughout the United States. All participants consisted of administrators from institutions having established articulation models or agreements. A sample of 40 institutions were selected which included 20 community colleges and 20 vocational-technical schools of which 29 institutions elected to participate in the study (See Appendix D).

The names of the chief vocational-technical administrators from the community colleges and vocational-technical schools were obtained

from the following sources:

1. The names of the community college vocational-technical administrators were obtained from the Board of Regents in each state.

2. The names of the vocational-technical school administrators were obtained from the State Department of Vocational-Technical Education in each state.

Instrumentation

A questionnaire was developed to measure the perceptions of community college and vocational-technical administrators relative to articulation (See Appendix B).

The instrument was prepared with two ideas in mind. First, there is a need to increase the information needed to develop an articulation model as a supplement to relevant literature; and second, a determination should be made of the advantages of articulation practices, barriers, and benefits to coordinate articulation programs.

The questionnaire developed consisted of three parts: (1) a list of perceived advantages to current articulation practices to be rated in terms of importance by the administrators, (2) a list of perceived articulation barriers to be rated in terms of importance by the administrators, and (3) a list of perceived benefits to be rated in terms of importance by the administrators.

The dependent variable in this study was the scores which were judgmentally assigned by the respondents regarding the importance of each statement. The scores of each statement were arranged on a four point continuum scale from very important to not important.

To assure content validity and to add to the content perception

statements, the instrument was reviewed by administrators from a community college and a vocational-technical school in Oklahoma who had articulation experience (See Appendix E). After the administrators reviewed the instrument, their recommendations were incorporated into the final instrument.

Data Collection

The data was collected by mailing a questionnaire directly to the institution where the respondent was employed with a letter which described the purpose of the study and requested their assistance (See Appendix A). The questionnaire was printed and consisted of two pages (See Appendix B). The respondents were asked to complete the questionnaire and return it to the researcher in a self-addressed and stamped envelope.

Three weeks were allowed for return at which time a follow-up letter was mailed to those individuals who had not responded to the questionnaire (See Appendix C).

The last step in the data collection phase was to utilize a computer for analysis of data.

Analysis of Data

The Statistical Package for the Social Sciences (SPSS) was utilized to interpret the data obtained from the questionnaires (Nie, 1975). Statistical information obtained included the calculation of frequencies, group means, grand means, percentages, and T-tests between the group means.

The independent group T-test statistical method was utilized to

determine if the relationship was significant between the two groups of administrators concerning their perceptions of articulation.

The independent groups T-test method is a parametric test used to analyze the relationship between two variables when, (1) the dependent variable is quantitative in nature and measured on a scale that approximates interval characteristics, (2) the independent variable is between subjects in nature, and (3) the independent variable has two and only two variables. When testing for the existence of a relationship between the two variables, the difference between two sample means is converted into a T value representing the estimated standard score in the sampling distribution between two means. The T value is compared with the critical values of T and the decision to accept or reject is made accordingly. This statistic represents the proportion of variability in the dependent variable that is associated with the independent variable (Jaccard, 1983).

The separate variance T formula used for comparisons is as follows:

$$t = \sqrt{\frac{\bar{X}_1 - \bar{X}_2}{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

T is the difference between two sample means, measured in terms of the standard error of those means.

All statistical comparisons were tested at the 0.05 level of significance.

\bar{X}_1 = mean of sample 1.

\bar{X}_2 = mean of sample 2.

N_1 = No. subjects in sample 1.

N_2 = No. of subjects in sample 2.

$$S_1^2 = \text{Variance of sample 1} = \frac{\sum(X_1 - \bar{X}_1)^2}{N_1}$$

$$S_2^2 = \text{Variance of sample 2} = \frac{\sum(X_2 - \bar{X}_2)^2}{N_2}$$

$$\sqrt{\frac{S_1^2}{N_1}} = \text{Standard error of the mean for sample 1.}$$

$$\sqrt{\frac{S_2^2}{N_2}} = \text{Standard error of the mean for sample 2.}$$

(Key, 1974, p. 177).

Design of the Model

The articulation model was designed based on information obtained from the questionnaire responses, the review of literature, and the analysis of various models and agreements previously developed. The model development also was based on the assumption that the researcher had accurately assessed the perceptions that were involved with successful articulation as they existed today.

The review of literature was very helpful in pointing out the advantages of current articulation practices as well as barriers for articulation practices as well as benefits for articulation; however, there were no studies found where administrators were contacted to determine perceptions of the advantages of current articulation

practices, their barriers, and benefits derived from such relationships in order to develop a workable articulation model.

The model developed could serve as a guide to help administrators improve articulation practices and have a lasting impact on students in the nature.

Summary

This chapter presented the procedures and methods utilized in the study. The development of the instrument and the collection and analysis of data was discussed as was the design of the model.

CHAPTER IV

FINDINGS AND THE ARTICULATION MODEL

Introduction

This chapter reports the results of the investigation and the articulation model.

The first section presents the return rate of the questionnaire and addresses the three major research questions.

The second section presents the articulation model in which the components and procedures for implementation are identified. The model incorporates the information obtained from the questionnaire responses, the review of literature, and from the analysis of various models and agreements previously developed.

Survey Instrument Responses

The questionnaire responses are presented in Table I. A total of 40 questionnaires were mailed in February of 1986 to administrators of 20 community colleges and 20 vocational-technical schools which were identified as having working articulation models or agreements. The returned questionnaires included 17 from community colleges and 12 from vocational-technical schools for a total of 29. The rate of return of the survey instruments was therefore 72.5 percent.

TABLE I
QUESTIONNAIRE RESPONSES

Groups	Total Population Number	Completed Questionnaires Returned	Percentage of Population Returned
Community College Administrators	20	17	85.0
Vocational Technical School Administrators	<u>20</u>	<u>12</u>	<u>60.0</u>
Totals	40	29	72.5

Perceptions of Articulation

This section presents the results of the investigation and is divided into four major parts. Each part addresses one or more of the major research questions.

The first part describes the analysis of data related to the first research question:

What are the administrators' perception of the advantages of current articulation practices between community colleges and vocational-technical schools as related to:

1. Developing sequential progression of programs?
2. Encouraging the development of a coordinated testing program?
3. Increasing faculty members' awareness of other educational levels?
4. Saving students' time and money in completing career goals?
5. Providing a system for identifying student competencies?
6. Providing schedule flexibility for exchange teaching experiences?
7. Providing for smoother student matriculation from level to level with fewer problems for students, counselors, faculty and administration?
8. Reducing misunderstanding through expansion of communication?
9. Reducing overlap of content, materials, and/or textbooks at different levels.
10. Developing interdepartmental/interdivisional curriculum coordination between institutions?

The second part describes the analysis of data related to the second research question:

What are the administrators' perception of barriers toward articulation as related to:

1. A clear understanding of the function of community college and vocational-technical school programs is lacking?
2. Administrators fail to advise other institution officials when faculty are recruited from the other system?
3. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people?
4. Competition for the adult learners?
5. Competition for funds?
6. Each institution desires to protect its own interests?
7. Restrictive guidelines for education at the state level prevent local articulation?
8. There is a lack of concern about articulation?
9. There is a lack of determination of accountability between community colleges and occupational technical schools?
10. There is a lack of direction in developing programs and in defining the acceptance of high school credit.

The third part describes the analysis of data related to the third research question:

What are the administrators' perceptions of the benefits that have resulted from articulation as related to:

1. Students will not report the same content at different levels?
2. Students will not experience disjointed, unsequenced content from educational level to level?
3. Students will not experience gaps in continuity when some

content is skipped in going from one level to another?

4. Students will matriculate from level to level because of information they receive about the next level?
5. Students will not be using the same materials and/or textbooks at different levels?
6. Student competencies will be identified at each level and communicated from one level to the next.
7. Evaluation and competencies will be comprehensive and coordinated level by level?
8. Minimizes misunderstandings due to poor communication?
9. Faculty and administrators at different levels become aware of what others are teaching?
10. Students will save time and money in completing their career goals.

The fourth part describes the analysis of data as related to the design of the articulation model:

This included additional comments made by administrators which they felt would be of help in the model design.

Data Analysis of Question Number One

This part addresses research question one: "What are the perceived advantages to current articulation practices and are there differences between administrative groups in reference to such perceptions?"

The data presented in this part is an analysis of the responses questionnaire respondents gave to the rating scales for items one through ten of the articulation questionnaire (See Appendix B).

The analysis of items one through ten, related to the perceived

advantages of current articulation practices between community colleges and vocational-technical schools that are conducive to articulation, is shown in Table II. The administrators were asked to rate the importance of each advantage by the use of a four point scale: (4) Very Important, (3) Important, (2) Slightly Important, and (1) Not Important. A corresponding analysis of survey items one through ten, related to the perceived advantages of current articulation practices as ranked by both groups of administrators together, is shown in Table III. Table IV outlines the results of T-tests performed between group mean responses to determine if differences existed between the two groups of administrators in reference to their perception of the advantages of current articulation practices.

The following is an analysis of survey item number one, "Develops sequential progression of programs." The results indicated both groups perceived this advantage to be highly desirable, with 83.3 percent of the vocational-technical administrators rating it very important while 52.9 percent of the community colleges rating this item very important and 41.2 percent rating the item as important (Table II). The data shown in Table II indicated a 65.5 percent of all administrators perceive this advantage as very important. In addition the significance test indicated no difference between administrators on this advantage (Table IV).

Survey item number two, "Encourage the development of a coordinated testing program," revealed both groups of administrators equally divided the four rankings of the perception as shown in Table II. The data also indicated that only 27.6 percent of all administrators considered this advantage as being very important (Table III). The

TABLE II
PERCEPTION OF THE ADVANTAGES OF CURRENT ARTICULATION
PRACTICES BY TYPE OF INSTITUTION

Advantages	Community College Administrators				Vocational Technical School Administrators			
	4	3	2	1	4	3	2	1
1. Develops sequential progression of programs.	52.9%	41.2%	0.0%	5.9%	83.3%	16.7%	0.0%	0.0%
2. Encourages the development of a coordinated testing program.	23.5%	35.3%	23.5%	17.6%	33.3%	33.3%	25.0%	8.3%
3. Increases faculty members' awareness of other educational levels.	70.6%	17.6%	5.9%	5.9%	58.3%	41.7%	0.0%	0.0%
4. Saves students time and money in completing career goals.	82.4%	17.6%	0.0%	0.0%	75.0%	25.0%	0.0%	0.0%
5. Provides a system for identifying student competencies.	64.7%	29.4%	5.9%	0.0%	66.7%	16.7%	8.3%	8.3%
6. Provides schedule flexibility for exchange teaching experiences.	5.9%	41.2%	35.3%	17.6%	41.7%	16.7%	16.7%	25.0%
7. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, and administrators.	76.5%	23.5%	0.0%	0.0%	83.3%	8.3%	8.3%	0.0%
8. Reduces misunderstanding through expansion of communication.	47.1%	41.2%	11.8%	0.0%	58.3%	25.0%	16.7%	0.0%
9. Reduces overlap of content, materials, and/or textbooks at different levels.	35.3%	58.8%	0.0%	5.9%	58.3%	25.0%	16.7%	0.0%
10. Develops interdepartmental/interdivisional curriculum coordination between institutions.	35.3%	58.8%	5.9%	0.0%	50.0%	33.3%	16.7%	0.0%

Community College Administrators (N = 17)
Vocational Technical School Administrators (N = 12)
Percentages rounded to the nearest tenth.

Rankings: 4 - Very Important
3 - Important
2 - Slightly Important
1 - Not Important

TABLE III

PERCEPTION OF THE ADVANTAGES OF CURRENT ARTICULATION
PRACTICES BY ALL ADMINISTRATORS OF COMMUNITY
COLLEGES AND VOCATIONAL-TECHNICAL SCHOOLS

Advantages	All Administrators			
	4	3	2	1
1. Develops sequential progression of programs.	65.5%	31.0%	0.0%	3.4%
2. Encourages the development of a coordinated testing program.	27.6%	34.5%	24.1%	13.8%
3. Increases faculty members' awareness of other educational levels.	65.5%	27.6%	3.4%	3.4%
4. Saves students time and money in completing career goals.	79.3%	20.7%	0.0%	0.0%
5. Provides a system for identifying student competencies.	65.5%	24.1%	6.9%	3.4%
6. Provides schedule flexibility for exchange teaching experiences.	20.7%	31.0%	27.6%	20.7%
7. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.	79.3%	17.2%	3.4%	0.0%
8. Reduces misunderstanding through expansion of communication.	51.7%	41.4%	6.9%	0.0%
9. Reduces overlap of content, materials, and/or textbooks at different levels.	44.8%	44.8%	6.9%	3.4%
10. Develops interdepartmental/inter-divisional curriculum coordination between institutions.	41.4%	48.3%	10.3%	0.0%

Community College and
Vocational Technical
School Administrators (N = 29)

Percentages rounded to the nearest tenth.

Rankings:

- 4 - Very Important
- 3 - Important
- 2 - Slightly Important
- 1 - Not Important

TABLE IV

PERCEPTION OF THE ADVANTAGES TO CURRENT ARTICULATION
PRACTICES BETWEEN ADMINISTRATORS OF COMMUNITY
COLLEGES AND VOCATIONAL-TECHNICAL SCHOOLS

Advantages	Administrators	*Mean	T Value	Degrees of Freedom	Two-Tailed Probability	Significance Difference at .05 Level
1. Develops sequential progression of Programs.	CC	3.41				
	VTS	3.83	-1.89	24.59	0.071	No
2. Encourages the development of a coordinated testing program.	CC	2.65				
	VTS	2.92	-0.70	24.71	0.491	No
3. Increases faculty members' awareness of other educational levels.	CC	3.53				
	VTS	3.58	-0.21	26.34	0.837	No
4. Saves student time and money in completing career goals.	CC	3.82				
	VTS	3.75	-0.45	21.63	0.654	No
5. Provides a system for identifying student competencies.	CC	3.59				
	VTS	3.42	0.53	16.94	0.604	No
6. Provides schedule flexibility for exchange teaching experiences.	CC	2.35				
	VTS	2.75	-0.93	17.83	0.364	No
7. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.	CC	3.76				
	VTS	3.75	0.07	18.48	0.945	No
8. Reduces misunderstanding through expansion of communication.	CC	3.35				
	VTS	3.58	-1.02	26.93	0.317	No
9. Reduces overlap of content, materials, and/or textbooks at different levels.	CC	3.24				
	VTS	3.42	-0.62	23.03	0.317	No
10. Develops interdepartmental/divisional curriculum coordination between institutions.	CC	3.29				
	VTS	3.33	-0.15	19.47	0.884	No

CC = Community College (N = 17)

VTS = Vocational Technical School (N = 12)

Means rounded to the nearest hundredth.

* = On a scale of 4 to 1, 4 represents the choice as very important and 1 as not important.

results also indicated there was no significant difference between both groups to this perception (Table IV).

The analysis of survey item three, "Increases faculty members' awareness of other educational levels," indicated that 70.6 percent of the community college administrators ranked this perception as very important with the vocational-technical administrators' perception being 58.3 percent as very important and 41.7 percent as important (Table II). The combined ranking of 65.5 percent as very important was given by all administrators (Table III). The T-test performed between group means indicated no significant differences between both groups (Table IV).

One of the highest ranking on advantages was survey item number four, "Saves students time and money in completing career goals." Administrators of community colleges gave this item a ranking of 82.4 percent as very important with 75.0 percent of the vocational-technical school administrators ranking this advantage as very important (Table II). The combined groups of administrators gave a 79.3 percent ranking as very important (Table III). The significance test revealed no difference between administrators (Table IV).

The analysis of data for item number five, "Provides a system for identifying student competencies," was considered very important by 64.7 percent of the community college administrators and 66.7 percent by the administrators of vocational-technical schools (Table II) with an average of 65.5 percent of all administrators considering this as being very important (Table III). The T-test also indicated no significant difference between both groups (Table IV).

Survey item number six, "Provides schedule flexibility for

exchange teaching experience," was ranked as very important by 41.7 percent of the vocational-technical administrators. However, only 5.9 percent of the community college administrators considered this as being very important and 41.2 percent considered this as an important advantage (Table II). The rankings were equally divided among all four rankings by all administrators with only 20.7 percent giving this as a very important advantage (Table III). The test of significance confirmed that there was no difference between the administrators on this advantage which may indicate exchange teaching between institutions is only done on a limited basis (Table IV).

Item number seven, "Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators," received the second highest ranking as an advantage to current articulation practices. Table II showed 76.5 percent of the community college administrators ranking this item as very important; however, 83.3 percent of vocational-technical administrators felt this was very important. Both groups ranked this advantage as 79.3 percent as being very important practices affecting articulation (Table III). The T-test again showed no difference between the two groups as far as their perception to the advantage (Table IV).

The analysis of data for survey item number eight, "Reduces misunderstanding through expansion of communications," indicates that most administrators felt this was an important advantage. Table II shows that 47.1 percent of the community colleges considered this item as being very important with 58.3 percent of the vocational-technical schools considering the item very important. The combining of all

administrators reveals that 51.7 percent considered this advantage as being very important (Table II). There were no significant differences between the administrator's perception of this advantage (Table IV).

The results of the survey for item number nine, "Reduces overlap of content materials and/or textbooks at different levels," indicated that 58.8 percent of the community college administrators felt this advantage was important; however, 58.3 percent of the vocational-technical administrators ranked this item as very important (Table II). The perception of all administrators to this advantage indicated that 44.8 percent felt the item was very important and 44.8 percent ranked the advantage as important (Table III). Again, there was no difference between the two groups as far as their perception to item number nine (Table IV).

The analysis of data for item number ten, "Develops interdepartmental/interdivisional curriculum coordination," indicated that 58.8 percent of the administrators of community colleges ranked this advantage as being important with 50.0 percent of the vocational-technical administrators perceiving this as a very important advantage (Table II). Table III, which combines rankings of both groups, showed this item receiving a 41.4 percent ranking as very important. The significance test revealed no difference between the groups (Table IV).

In summary, the previous analysis of the perceived advantages of ten articulation practices and the T-tests performed between group means addressed research question number one.

Most of the articulation practices were perceived as important by both groups of administrators. The following five practices were

ranked highest by all administrators:

1. Develops sequential progression of programs.
2. Increases faculty members' awareness of other educational levels.
3. Saves students time and money in completing career goals.
4. Provides a system for identifying students' competencies.
5. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.

Articulation practices receiving the lowest important rankings were:

1. Encourage the development of a coordinated testing program.
2. Provides schedule flexibility for exchange teaching experiences.

The T-tests were performed to test whether there was a difference between group means on all items with respect to research question number one at the .05 level. The results indicated no difference between the two groups' rankings to the importance of advantages to current articulation practices.

Data Analysis of Question Two

This part addresses research question two: "What are the perceived barriers toward articulation and are there differences between administrative groups in reference to such perceptions?"

The data presented in this part is an analysis of the responses questionnaire respondents gave to the rating scales for items one through ten of the articulation questionnaire (See Appendix B).

The analysis of items one through ten, related to the perceived barriers toward articulation between community colleges and vocational technical schools that are not conducive to articulation, is shown in Table V. The administrators were asked to rate each of the barriers by the use of a four point scale: (4) Crucial Barrier, (3) Important Barrier, (2) Somewhat of a Barrier, and (1) Not a Barrier. A corresponding analysis of survey items one through ten, related to the perceived barriers toward articulation as ranked by both groups of administrators together, is shown in Table VI. Table VII outlines the results of the T-tests performed between group mean responses to determine if differences existed between the two groups of administrators in reference to their perception of the barriers toward articulation.

The following is an analysis of survey item number one, "A clear understanding of the function of community college and vocational-technical school programs is lacking." The results indicated that there was a difference in how each group perceived this barrier as 23.5 percent of the college administrators felt this was a crucial barrier with 41.2 percent of the same administrators ranking this item as an important barrier. However, zero percent of the administrators of vocational-technical schools ranked this item as a crucial barrier and only 16.7 percent as an important barrier (Table V). The data shown in Table VI indicated only 13.8 percent of all administrators perceived this as a crucial barrier with 31.0 percent ranking this item as an important barrier. In addition, the significance test indicated a difference between administrators' perception on this barrier at the .05 level (Table VII).

Survey item number two, "Administrators fail to advise other

TABLE V

PERCEPTION OF THE BARRIERS TOWARD ARTICULATION BY TYPE OF INSTITUTION

Barriers	Community College Administrators				Vocational Technical School Administrators			
	4	3	2	1	4	3	2	1
1. A clear understanding of the function of community college and vocational technical school programs is lacking.	23.5%	41.2%	23.5%	11.8%	0.0%	16.7%	58.3%	25.0%
2. Administrators fail to advise other institution officials when faculty are recruited from the other system.	* 0.0%	5.9%	35.3%	52.9%	* 0.0%	8.3%	41.7%	41.7%
3. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.	17.6%	41.2%	17.6%	23.5%	8.3%	25.0%	33.3%	33.3%
4. Competition for adult learners.	5.9%	35.3%	35.3%	23.5%	16.7%	16.7%	16.7%	50.0%
5. Competition for funds.	29.4%	11.8%	35.3%	23.5%	16.7%	8.3%	33.3%	41.7%
6. Each institution desires to protect its own interests.	47.1%	29.4%	17.6%	5.9%	25.0%	50.0%	16.7%	8.3%
7. Restrictive guidelines for education at the state level prevent local articulation.	11.8%	17.6%	23.5%	47.1%	8.3%	25.0%	16.7%	50.0%
8. There is a lack of concern about articulation.	11.8%	41.2%	35.3%	11.8%	16.7%	16.7%	50.0%	16.7%
9. There is a lack of determination of accountability between community colleges and vocational technical schools.	* 5.9%	29.4%	29.4%	29.4%	8.3%	33.3%	8.3%	50.0%
10. There is a lack of direction in developing programs and in defining the acceptance of high school credit.	23.5%	23.5%	23.5%	29.4%	16.7%	0.0%	25.0%	58.3%
Community College Administrators (N = 17)	Rankings: 4 - Crucial Barrier							
Vocational Technical School Administrators (N = 12)	3 - Important Barrier							
Percentages rounded to the nearest tenth.	2 - Somewhat of a Barrier							
*Indicates one person did not respond to this item.	1 - Not a Barrier							

TABLE VI
 PERCEPTION OF THE BARRIERS TOWARD ARTICULATION
 BY ALL ADMINISTRATORS OF COMMUNITY COLLEGES
 AND VOCATIONAL-TECHNICAL SCHOOLS

Barriers	All Administrators			
	4	3	2	1
1. A clear understanding of the function of community college and vocational technical school programs is lacking.	13.8%	31.0%	37.9%	17.2%
2. Administrators fail to advise other institution officials when faculty are recruited from the other system.	** 0.0%	6.9%	37.9%	48.3%
3. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.	13.8%	34.5%	24.1%	27.6%
4. Competition for adult learners.	10.3%	27.6%	27.6%	34.5%
5. Competition for funds.	24.1%	10.3%	34.5%	31.0%
6. Each institution desires to protect its own interests.	37.9%	37.9%	17.2%	6.9%
7. Restrictive guidelines for education at the state level prevent local articulation.	10.3%	20.7%	20.7%	48.3%
8. There is a lack of concern about articulation.	13.8%	31.0%	41.4%	13.8%
9. There is a lack of determination of accountability between community colleges and vocational technical schools.	* 6.9%	31.0%	20.7%	37.9%
10. There is a lack of direction in developing programs and in the acceptance of high school credit.	20.7%	13.8%	24.1%	41.4%

Community College and
 Vocational Technical
 School Administrators (N = 29)

Rankings:

4 - Crucial Barrier
 3 - Important Barrier
 2 - Somewhat of a Barrier
 1. - Not a Barrier

Percentages rounded to the nearest
 tenth.

**Indicates two persons did not
 respond to this item.

*Indicates one person did not
 respond to this item.

TABLE VII

PERCEPTION OF BARRIERS TOWARD ARTICULATION BETWEEN ADMINISTRATORS OF
COMMUNITY COLLEGES AND VOCATIONAL-TECHNICAL SCHOOLS

Barriers	Administrators	*Mean	T Value	Degrees of Freedom	Two-Tailed Probability	Significance Difference at .05 Level
1. A clear understanding of the function of community college and vocational technical school programs is lacking.	CC	2.76	2.79	27.00	0.010	Yes
	VTS	1.92				
2. Administrators fail to advise other institution officials when faculty is recruited from the other system.	CC	1.41	-0.31	22.06	0.762	No
	VTS	1.50				
3. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.	CC	2.53	1.15	24.84	0.260	No
	VTS	2.08				
4. Competition for adult learners	CC	2.24	0.57	19.35	0.574	No
	VTS	2.00				
5. Competition for Funds.	CC	2.47	1.09	24.49	0.288	No
	VTS	2.00				
6. Each institution desires to protect its own interests.	CC	3.18	0.75	24.64	0.462	No
	VTS	2.92				
7. Restrictive guidelines for education at the state level prevent local articulation.	CC	1.94	0.06	23.90	0.953	No
	VTS	1.92				
8. There is a lack of concern about articulation.	CC	2.53	0.55	21.97	0.586	No
	VTS	2.33				
9. There is a lack of determination of accountability between community colleges and vocational technical schools.	CC	1.06	0.00	22.88	1.000	No
	VTS	1.13				
10. There is a lack of direction in developing programs and defining the acceptance of high school credit.	CC	2.41	1.52	24.32	0.141	No
	VTS	1.75				

CC = Community College (N = 17); VTS = Vocational Technical School (N = 12); Means rounded to the nearest hundredth; * = On a scale of 4 to 1, 4 represents the choice as a crucial barrier and 1 as not a barrier.

institutions' officials when faculty are recruited from the other system" revealed that most administrators do not feel this is a barrier toward articulation. Table V indicates that both groups ranked this item as zero percent as a crucial barrier. Even when combining both groups of administrators together, only 6.9 percent felt this item was an important barrier (Table VI). The results also indicated there was no significant difference between both groups to this perception (Table VII).

The analysis of survey item three, "Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people," indicated that 17.6 percent of the community college administrators ranked this perception as a crucial barrier and 41.2 percent as an important barrier. However, only 8.3 percent of the vocational-technical administrators ranked this item as a crucial barrier (Table VI). The significance test revealed no difference between administrators' perception of this barrier (Table VII).

The analysis of data for item number five, "Competition for funds," was considered as somewhat of a barrier by 35.3 percent of the college administrators; however, 41.7 percent of the administrators of vocational-technical schools ranked this item as not a barrier (Table V) with an average of 24.1 percent of all administrators considering this as a crucial barrier (Table VI). The T-test also indicated no significant difference between the groups (Table VII).

The results of survey item number six, "Each institution desires to protect its own interests," indicated this was a crucial barrier by 47.1 percent of the community college administrators; however, 50.0

percent of the vocational-technical school administrators felt this item was only an important barrier (Table V). Both groups of administrators ranked this as the number one barrier affecting articulation by ranking this item as 37.9 percent as a crucial barrier and 37.9 percent as an important barrier (Table VI). The significance test also showed no difference between both groups (Table VII).

Item number seven, "Restrictive guidelines for education at the state level prevent local articulation," was felt not to be a barrier by 47.1 percent of the college administrators and 50.0 percent by the college administrators and 50.0 percent by the administrators of vocational-technical schools (Table V). Both groups ranked this item as 48.3 percent as not being a barrier (Table VI). The T-test again showed no difference between the two groups as far as their perception of the barrier (Table VII).

The analysis of data for survey item number eight, "There is a lack of concern about articulation," indicates some concern about this item as an important barrier and 35.3 percent ranked this item as somewhat of a barrier. The item was thought to be somewhat of a barrier by 50.0 percent of the vocational-technical administrators (Table V). The combining of all administrators reveals that 41.4 percent felt this item was somewhat of a barrier (Table VI). There was no significant difference between the administrators' perception of this barrier (Table VII).

The results of the survey for item nine, "There is a lack of determination of accountability between community colleges and vocational-technical schools," indicated that 5.9 percent of the community college administrators ranked this item as being a crucial

barrier with 29.4 percent of them equally divided on the remaining rankings. However, 50.0 percent of the vocational-technical administrators ranked this item as not a barrier (Table V). The perception of all administrators to this item was that 31.1 percent ranked this item as being an important barrier; however, 37.9 percent felt this was not a barrier (Table VI). Again, there was no difference between the two groups as far as their perception to item nine (Table VII).

The analysis of data for item number ten, "There is a lack of direction in developing programs and in defining the acceptance of high school credit," indicated the administrators of community colleges equally split on this barrier; however, 58.3 percent of the vocational-technical administrators perceived this item as not being a barrier (Table V). Table VI which combines rankings of both groups showed this item receiving a 41.4 percent ranking as not being a barrier toward articulation. The significance test revealed no differences between the groups (Table VII).

In summary, the previous analysis of the perceived ten barriers toward articulation and the T-tests performed between group means addressed research question number two.

Most of the items were not ranked as being crucial barriers; however, several of the items listed below were felt to be important articulation barriers:

1. A clear understanding of the function of community college and vocational-technical school programs is lacking.
2. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.

3. Each institution desires to protect its own interests.
4. There is a lack of concern about articulation.
5. There is a lack of determination of accountability between community colleges and vocational-technical schools.

Those items that received the highest rankings as not being a barrier toward articulation were:

1. Administrators fail to advise other institution officials when faculty are recruited from the other system.
2. Restrictive guidelines for education at the state level prevent local articulation.
3. There is a lack of direction in developing programs and in acceptance of high school credit.

The T-test was performed to test whether there was a difference between the group means on all items with respect to research question number two at the .05 level. The results indicated no difference between the two groups' rankings to the barriers toward articulation with exception of item number one. This indicates there is still some question as to the role of each institution in the area of vocational-technical education.

Data Analysis of Question Number Three

This part addresses research question three: "What are the perceived benefits that have resulted from articulation and are there differences between administrative groups in reference to such perceptions?"

The data presented in this part is an analysis of the responses questionnaire respondents gave to the rating scales for items one

through ten of the Articulation Questionnaire (See Appendix B).

The analysis of items one through ten related to the benefits that have resulted from articulation between community colleges and vocational-technical schools is shown in Table VIII. The administrators were asked to rate each of the benefits by use of a four point scale: (4) Completely Agree; (3) Mostly Agree; (2) Partially Agree; (1) Completely Disagree. A corresponding analysis of survey items one through ten, related to the perceived benefits that have resulted from articulation as ranked by both groups of administrators together, is shown in Table IX. Table X outlines the results of T-tests performed between group mean responses to determine if differences existed between the two groups of administrators in reference to their perception of the benefits resulting from articulation.

The following is an analysis of survey item number one, "Students will not repeat the same content at different levels." The results indicated that both groups perceived this benefit to be highly desirable with 83.3 percent of the vocational-technical administrators completely agreeing, 58.8 percent of the community college administrators also completely agreeing, and 41.2 percent mostly agreeing (Table VIII). The data shown in Table IX indicated 69.0 percent of all administrators completely agreeing with this benefit. In addition, the significance test indicated no difference between administrators regarding this benefit (Table X).

Survey item number two, "Students will not experience disjointed, unsequenced content from educational level to level," revealed that 52.9 percent of the community college administrators completely agree with the item and 66.7 percent of the administrators of vocational-

TABLE VIII

PERCEPTION OF THE BENEFITS THAT HAVE RESULTED
FROM ARTICULATION BY TYPE OF INSTITUTION

Benefits	Community College Administrators				Vocational Technical School Administrators			
	4	3	2	1	4	3	2	1
1. Students will not repeat the same content at different levels.	58.8%	41.2%	0.0%	0.0%	83.3%	16.7%	0.0%	0.0%
2. Students will not experience disjointed, unsequenced content from educational level to level.	52.9%	35.3%	11.8%	0.0%	66.7%	16.7%	16.7%	0.0%
3. Students will not experience gaps in continuity when some content is skipped in going from one level to another.	41.2%	47.1%	5.9%	5.9%	41.7%	41.7%	8.3%	8.3%
4. Students will matriculate from level to level because of information they receive about the next level.	35.3%	41.2%	23.5%	0.0%	41.7%	50.0%	8.3%	0.0%
5. Students will not be using the same materials and/or textbooks at different levels.	35.3%	47.1%	17.6%	0.0%	50.0%	25.0%	25.0%	0.0%
6. Student competencies will be identified at each level and communicated from one level to the next.	58.8%	17.6%	23.5%	0.0%	66.7%	25.0%	8.3%	0.0%
7. Evaluation of competencies will be comprehensive and coordinated level by level.	35.3%	47.1%	17.6%	0.0%	50.0%	50.0%	0.0%	0.0%
8. Minimizes misunderstandings due to poor communications.	23.5%	70.6%	5.9%	0.0%	33.3%	41.7%	25.0%	0.0%
9. Faculty and administrators at different levels become aware of what others are teaching.	58.8%	35.3%	0.0%	5.9%	41.7%	50.0%	8.3%	0.0%
10. Students will save time and money in completing their career goals.	76.5%	11.8%	11.8%	0.0%	50.0%	50.0%	0.0%	0.0%

Community College Administrators (N = 17)
Vocational Technical School Administrators (N = 12)
Percentages rounded to the nearest tenth.

Rankings: 4 - Completely Agree
3 - Mostly Agree
2 - Partially Agree
1 - Completely Disagree

TABLE IX

PERCEPTION OF THE BENEFITS THAT HAVE RESULTED FROM
ARTICULATION BY ALL ADMINISTRATORS OF COMMUNITY
COLLEGES AND VOCATIONAL-TECHNICAL SCHOOLS

Benefits	All Administrators			
	4	3	2	1
1. Students will not repeat the same content at different levels.	69.0%	31.0%	0.0%	0.0%
2. Students will not experience disjointed, unsequenced content from educational level to level.	58.6%	27.6%	13.8%	0.0%
3. Students will not experience gaps in continuity when some content is skipped in going from one level to another.	41.4%	44.8%	6.9%	6.9%
4. Students will matriculate from level to level because of information they receive about the next level.	37.9%	44.8%	17.2%	0.0%
5. Students will not be using the same materials and/or textbooks at different levels.	41.4%	37.9%	20.7%	0.0%
6. Student competencies will be identified at each level and communicated from one level to the next.	62.1%	20.7%	17.2%	0.0%
7. Evaluation of competencies will be comprehensive and coordinated level by level.	41.4%	48.3%	10.3%	0.0%
8. Minimizes misunderstandings due to poor communications.	27.6%	58.6%	13.8%	0.0%
9. Faculty and administrators at different levels become aware of what others are teaching.	51.7%	41.4%	3.4%	3.4%
10. Students will save time and money in completing their career goals.	65.5%	27.6%	6.9%	0.0%

Community College and
Vocational Technical
School Administrators (N = 29)

Percentages rounded to the nearest tenth.

Rankings:

- 4 - Completely Agree
- 3 - Mostly Agree
- 2 - Partially Agree
- 1 - Completely Disagree

TABLE X

PERCEPTION OF THE BENEFITS THAT HAVE RESULTED FROM
ARTICULATION BETWEEN ADMINISTRATORS OF COMMUNITY
COLLEGES AND VOCATIONAL-TECHNICAL SCHOOLS

	Benefits	Administrators	*Mean	T Value	Degrees of Freedom	Two-Tailed Probability	Significance Difference at .05 Level
1.	Students will not repeat the same content at different levels.	CC VTS	3.59 3.83	-1.47	26.75	0.153	No
2.	Students will not experience disjointed, unsequenced content from educational level to level.	CC VTS	3.41 3.50	-0.31	22.06	0.762	No
3.	Students will not experience gaps in continuity when some content is skipped in going from one level to another.	CC VTS	3.24 3.17	0.20	21.95	0.841	No
4.	Students will matriculate from level to level because of information they receive about the next level.	CC VTS	3.12 3.33	-0.81	26.15	0.426	No
5.	Students will not be using the same materials and/or textbooks at different levels.	CC VTS	3.18 3.25	-0.24	21.09	0.812	No
6.	Student competencies will be identified at each level and communicated from one level to the next.	CC VTS	3.35 3.58	-0.81	26.69	0.425	No
7.	Evaluation of competencies will be comprehensive and coordinated level by level.	CC VTS	3.18 3.50	-1.39	26.98	0.175	No
8.	Minimizes misunderstandings due to poor communications.	CC VTS	3.18 3.08	0.35	17.78	0.727	No
9.	Faculty and administrators at different levels become aware of what others are teaching.	CC VTS	3.47 3.33	0.51	26.35	0.616	No
10.	Students will save time and money in completing their career goals.	CC VTS	3.65 3.50	0.65	26.88	0.523	No

CC = Community College (N = 17); VTS = Vocational Technical School (N = 12); Means rounded to the nearest hundredth; * = On a scale of 4 to 1, 4 represents the choice as completely agree & 1 as completely disagree.

technical schools also completely agree with this benefit (Table VIII). Table IX shows 58.6 percent of all administrators completely agreeing on this benefit. The results also indicated there was no significant difference between both groups to this perception (Table X).

The analysis of survey item three, "Students will not experience gaps in continuity when some content is skipped in going from one level to another," indicated that 41.2 percent of the community college administrators completely agreed with this benefit and 47.1 percent mostly agreed. Table VIII also showed 41.7 percent of the vocational-technical administrators also completely agreeing and 41.7 percent mostly agreeing with the benefit. Only 6.9 percent of all administrators completely disagreed regarding this as a benefit of articulation (Table IX). The T-test performed between group means indicated no significant difference between both groups (Table X).

The rankings on survey item number four, "Students will matriculate from level to level because of information they receive about the next level," showed 35.3 percent of the community college administrators completely agreeing on this item with 41.7 percent of the vocational-technical administrators also completely agreeing on this benefit (Table VIII). All administrators felt this item was a benefit, as zero percent ranked this item as number one (Table IX). The significance test revealed no difference between administrators' perceptions of this benefit (Table X).

The analysis of data for item number five, "Students will not be using the same material and/or textbooks at different levels," was considered a benefit by 35.3 percent of the college administrators who completely agreed with this item and 50.0 percent of the vocational-

technical schools (Table VIII). Both groups ranked this item as 41.4 percent in the completely agree category with 48.3 percent in the mostly agree category (Table IX). The T-test again showed no difference between the two groups as far as their perception of this benefit (Table X).

The analysis of data for survey item number eight, "Minimizes misunderstandings due to poor communications," was mostly agreed upon by 70.6 percent of the college administrators and 41.7 percent of the administrators of vocational-technical schools (Table VIII). Table IX showed that only 27.6 percent of all administrators completely agreed on this benefit. There was no significant difference between the administrators' perception of this benefit (Table X).

The results of the survey for item nine, "Faculty and administrators at different levels become aware of what others are teaching," indicated that 58.8 percent of the community college administrators completely agree with this benefit and 41.7 percent of the vocational-technical administrators completely agree with this item (Table VIII). When combined, 51.7 percent of all administrators completely agreed that this is a benefit of articulation (Table IX). Again, there were no differences between the two groups as far as their perception to this item (Table X).

The analysis of data for item number ten, "Students will save time and money in completing their career goals," was completely agreed upon by 76.5 percent of the community college administrators and 50.0 percent of the administrators of vocational-technical schools (Table VIII). Together, 65.6 percent of all administrators completely agreed with this benefit resulting from articulation (Table IX). The significance test

revealed no difference between the groups (Table X).

In summary, the previous analysis of the perceived ten benefits resulting from articulation and the T-test performed between group means addressed research question number three.

Most of the benefits resulting from articulation were agreed upon by both groups of administrators. The following five benefits were ranked highest by all administrators:

1. Students will not repeat the same content at different levels.
2. Students will not experience disjointed, unsequenced content from educational level to level.
3. Students' competencies will be identified at each level and communicated from one level to the next.
4. Faculty and administrators at different levels become aware of what others are teaching.
5. Students will save time and money in completing their career goals.

Articulation benefits receiving the lowest rankings were:

1. Students will matriculate from level to level because of information they receive about the next level.
2. Minimizes misunderstandings due to poor communications.

The T-tests were performed to test whether there was a difference between group means on all items with respect to research question three at the .05 level. The results indicated no differences between the two groups' rankings to the benefits that resulted from articulation.

The last questions, as shown on Table XI, is a ranking of the critical variables in administrative perception of the advantages,

TABLE XI
 RANK OF CRITICAL VARIABLES IN ADMINISTRATIVE
 PERCEPTION OF THE ADVANTAGES, BARRIERS,
 AND BENEFITS OF ARTICULATION

Rank	Advantages of Articulation	*Mean
1	Saves students time and money in completing career goals.	3.79
2	Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.	3.76
3	Develops sequential progression of programs.	3.59
4	Increases faculty members' awareness of other educational levels.	3.55
5	Provides a system for identifying student competencies.	3.52
6	Reduces misunderstanding through expansion of communication.	3.45
7	Reduces overlap of content, materials, and/or textbooks at different levels.	3.31
7	Develops interdepartmental/interdivisional curriculum coordination between institutions.	3.31
8	Encourages the development of a coordinated testing program.	2.76
9	Provides schedule flexibility for exchange teaching experiences.	2.52
Rank	Barriers Toward Articulation	*Mean
1	Each institution desires to protect its own interests.	3.07
2	There is a lack of concern about articulation.	2.45
3	A clear understanding of the function of community college and vocational technical school programs is lacking.	2.41
4	Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.	2.35
5	Competition for funds.	2.28

TABLE XI (Continued)

Rank	Barriers Toward Articulation	*Mean
6	Competition for adult learners.	2.14
6	There is a lack of direction.	2.14
7	There is a lack of determination of accountability between community colleges and vocational technical schools.	2.00
8	Restrictive guidelines for education at the state level prevent local articulation.	1.93
9	Administrators fail to advise other institution officials when faculty are recruited from the other system.	1.45
Rank	Benefits Resulting from Articulation	*Mean
1	Students will not repeat the same content at different levels.	3.69
2	Students will save time and money in completing their career goals.	3.59
3	Students will not experience disjointed, unsequenced content from educational level to level.	3.45
3	Student competencies will be identified at each level and communicated from one level to the next.	3.45
4	Faculty and administrators at different levels become aware of what others are teaching.	3.41
5	Evaluation of competencies will be comprehensive and coordinated level by level.	3.31
6	Students will not experience gaps in continuity when some content is skipped in going from one level to another.	3.21
6	Students will matriculate from level to level because of information they receive about the next level.	3.21
6	Students will not be using the same materials and/or textbooks at different levels.	3.21
7	Minimizes misunderstandings due to poor communication.	3.14

*On a scale of 4 to 1, 4 represents the choice as most critical and 1 as least critical issue.

barriers, and benefits of articulation. The data showed agreement in that 29 of the 30 items cited in the survey were agreed upon by both groups of administrators.

Additional comments made by respondents which may be helpful in designing an articulation model are shown in Appendix L.

The Articulation Model

This section presents the articulation model in which the organizational structure and steps involved in the implementation of the model are identified. The model was developed after a current review of literature related to articulation and following a survey among 29 administrators of community colleges and vocational-technical schools who were involved in some phase of an articulation process. In addition, an analysis was made of various models and agreements previously developed.

This model is designed to be utilized by administrators of community colleges and vocational-technical schools who are faced with the problem of developing or refining articulation procedures between their institutions. The ultimate goals of the model are to help institutions:

1. Develop articulation procedures which allow for granting of college credit for competencies acquired at the vocational-technical school level.
2. Develop and improve competency-based instruction in technical-occupational programs at both the post-secondary and secondary levels.
3. Develop communication links between community colleges and vocational-technical schools at both the administrative and

faculty levels.

4. Develop articulation documents to be utilized by both educational systems.
5. Develop awareness of the availability of articulated technical-occupational programs which will save time and money for students in completing their career goals.

Articulation Organizational Structure

The organizational structure shown in Figure 1 would operate at the local level and will interface its work with individuals from both institutions. The members of this structure would draw upon educators already on board which would avoid the creation of any new positions.

The organizational structure would be constituted on an ad-hoc basis and would consist of two levels of committees. The articulation coordinating committee would be composed of administrators from the two institutions with the articulation program committees composed of faculty from each of the institutions.

The specific membership for the articulation coordinating committee would include:

1. Assistant Superintendent - Instruction
2. Technical Occupational Dean/Director
3. Department Heads
4. Division Chairmen

The membership for the articulation program committees would consist of all faculty for each program being articulated from both institutions. The number of members will be determined by the programs to be articulated.

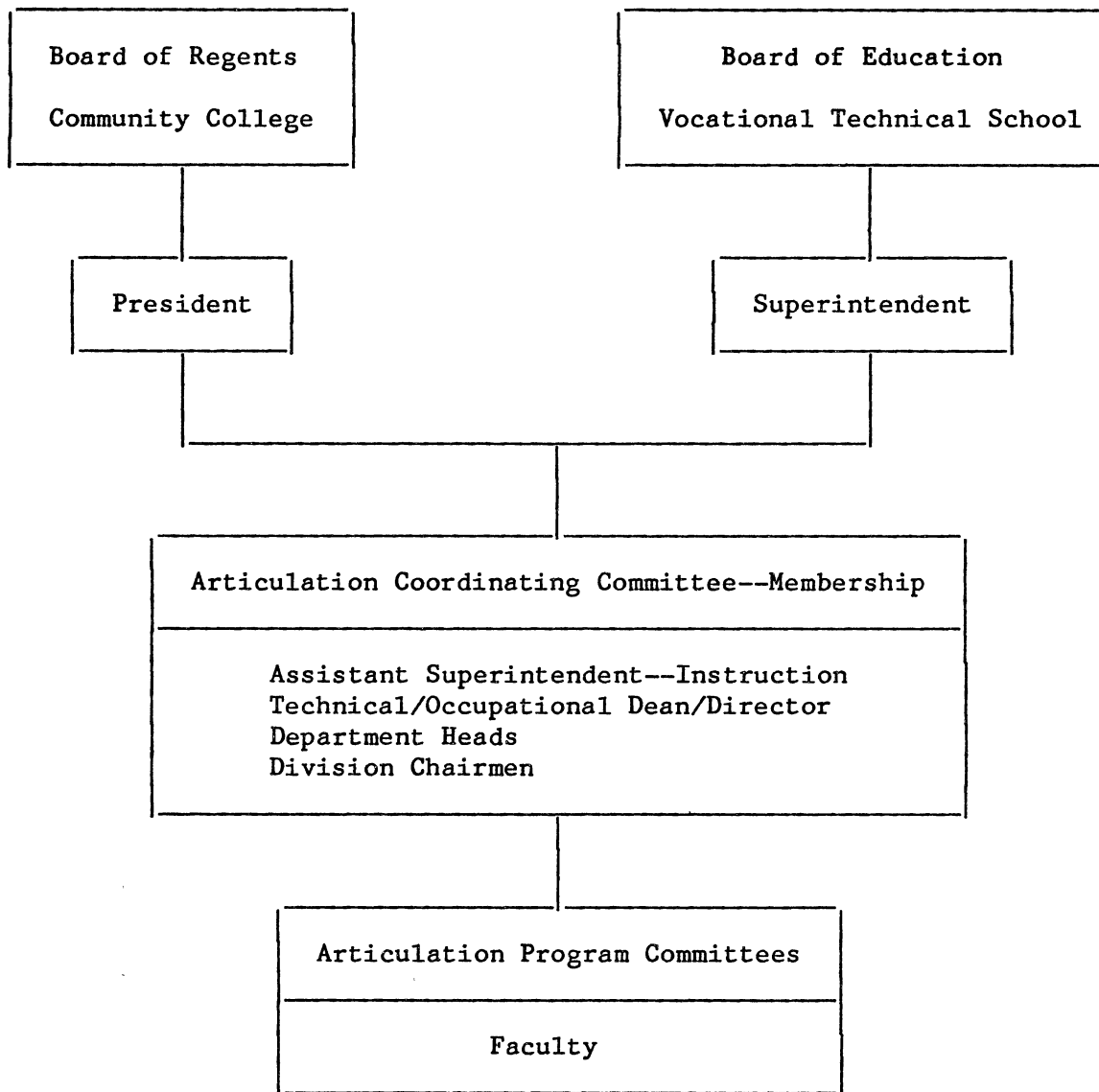


Figure 1. Articulation Organizational Chart

The articulation model shown in Figure 2 is composed of the following major phases: (1) Organizational Phase, (2) Developmental Phase, (3) Functional Phase, and (4) Review Phase. A description of the elements of each phase follows.

Organizational Phase

Joint Resolution Agreement Supporting Articulation by Board of Education and Board of Regents. The method for establishing cooperation between community colleges and vocational-technical schools will be influenced by the opinions held by local administrators concerning articulation. These viewpoints should be presented at a combined meeting of both boards.

The joint meeting should provide the point of departure for the articulation process. It is suggested a decision to approve a joint resolution agreement fully endorsing articulation between the institutions which will depend, to a large extent, on the board members' perceptions of the benefits that would accrue from such a joint venture (See Appendix F).

The contents of the resolution agreement should be written to reflect some flexibility to permit the articulation coordinating committee the option to adapt the procedures as the process develops

In addition, the appropriate state agencies should be informed of the articulation effort between the institutions in order to determine what interfacing should exist according to state laws.

Establishing Articulation Coordinating Committee. The coordinating committee consisting of administrators from both institutions would be responsible to the community college president and vocational-technical

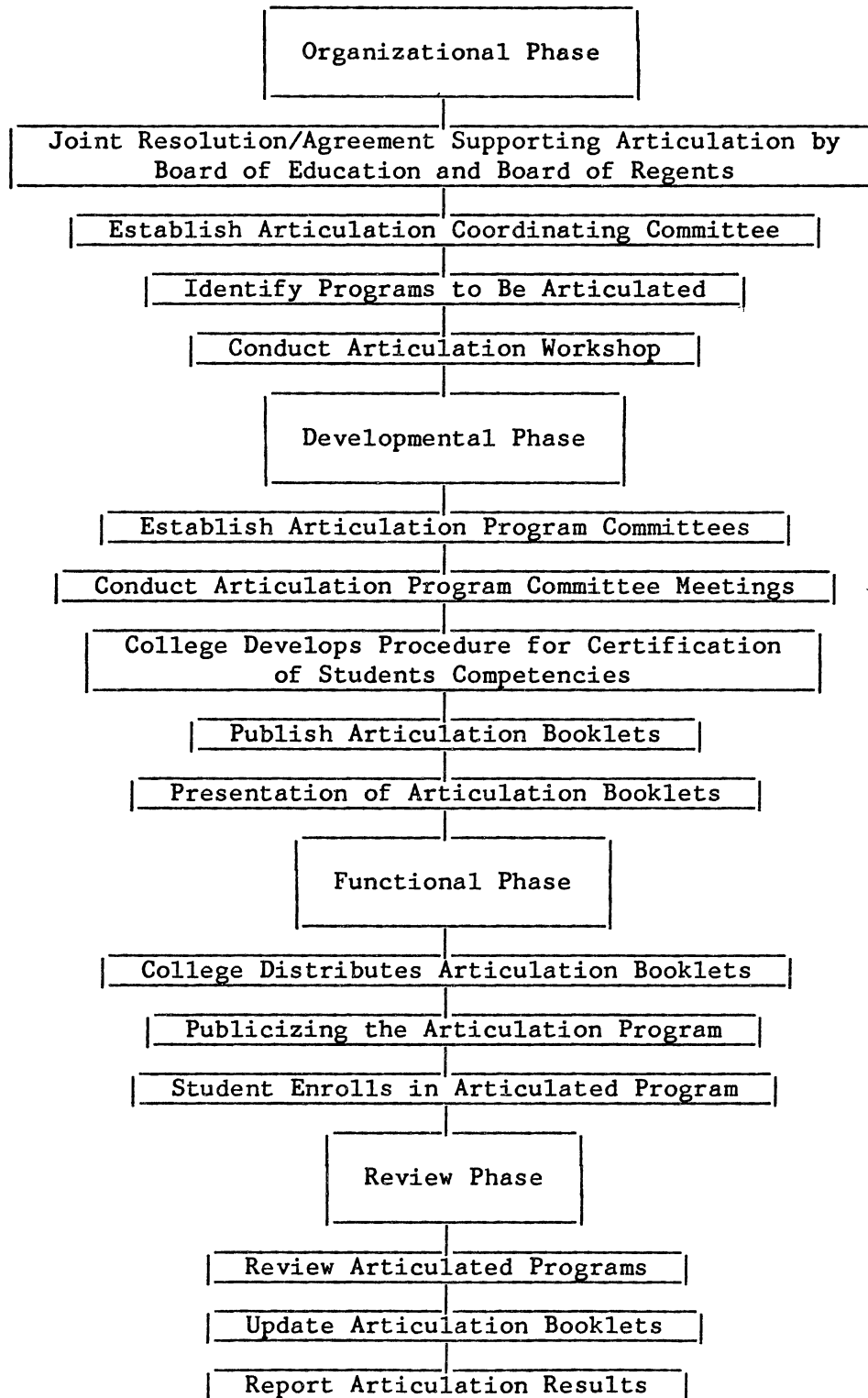


Figure 2. Articulation Model

school superintendent as shown on the organizational chart.

The committee should administer the articulation effort as expressed in the guidelines they establish (See Appendix G). These guidelines should focus on resolving issues that create barriers to articulation. The guidelines should delineate the responsibilities of each institution in regard to such items as:

Admissions

Curriculum Evaluation

Publicity

Testing and Evaluation

Transfer of Credit

The guidelines should also be broad-based in order to provide guidance that would be needed to accommodate diversity in the community college and vocational-technical school.

It is also suggested that a timetable be developed by the committee so that the articulation process will be functional within a one year period (See Appendix H).

Identify Programs to be Articulated. Articulation is an involved and time consuming process. In order to justify the commitment of time by personnel, the programs to be selected first should be those which attract a significant number of students at both institutions.

Another point to consider is that competency-based programs be developed through the articulation process. The college, as the receiving institution, must be receptive to this mode of instruction. Resistance at either institutional level to such a curriculum indicates that other programs should be considered for articulation.

At this point in the process the articulation coordinating committee should meet to establish communication, to make a selection of the programs to articulate, and to make plans for the articulation workshop.

Conduct Articulation Workshop. The purpose of the articulation workshop is to familiarize the articulation coordinating committee and the tentatively identified articulation program committee members with the joint resolution agreement, guidelines, timetable, and outcomes of the articulation process resulting from the model.

The workshop should be held at one of the institutions to save time and money. The president of the college and the superintendent of the vocational-technical school should attend in order to show their support for the articulation process. Personnel from other state agencies should be invited as a means of communication.

Support from administrators at every level is most important. The instructors developing the articulation documents will need strong support from their leaders in the form of coordination, establishments of priorities, support services, as well as a demonstrated interest and encouragement. The outcomes of the workshop should establish lines of communications, and a commitment to implement the articulation process between both institutions.

The organizational phase contains the most important activities in the entire articulation process. With careful planning, future problems are anticipated and solutions planned.

Developmental Phase

Establish Articulation Program Committees. There should be an articulation program committee developed for each program that is to be

articulated. Membership on these committees should consist of faculty members from the community college and vocational-technical school. As shown on the organizational chart (Figure 1), the program committees are responsible to the articulation coordinating committee in carrying out their functions.

The faculty recommendations should come from the department heads and division chairmen at a meeting of the articulation coordinating committee. It would be helpful at this point for the assistant superintendent of instruction and the technical-occupational dean to point out to instructional leaders that faculty would not lose teaching time in order to participate in the articulation process.

Conduct Articulation Program Committee Meetings. Three meetings should be scheduled for program committee meetings during the next three months of the project according to the timetable (See Appendix H). Because of conflicting work schedules and personal commitments, it is recommended that late afternoon meetings be held at alternating institutions and be scheduled for about three hours. Suggested agendas for each of the three meetings are shown in Appendix I. Much of the work can be completed by faculty members outside the scheduled meetings. The final articulation documents should be given to the dean/director of technical-occupational programs for the community college who will be responsible for the publishing of the articulation documents.

Publish Articulation Documents. The dean/director of technical-occupational programs will then review the final documents for those courses in programs that were articulated. The documents should be edited for format and completeness prior to printing (See Appendix J).

The documents would later become part of an articulation booklet that would be published later in the articulation process.

College Develops Procedure for Certification of Student Competencies.

The college staff will develop the procedure for students to follow if they desire to take advantage of the advanced standing credit examinations for courses previously taken at the vocational-technical school. The procedure will be published in the college catalog and the articulation booklet resulting from the articulation process (See Appendix K).

Publish Articulation Booklets. The materials developed together by the professional staffs of the community college and vocational-technical school will then be combined into an articulation booklet to be printed and distributed in the service area.

The information in the booklet may be used by administrators, counselors, faculty, and students which are designed to help students move from one educational level to the next level in a smooth process.

Presentation of Articulation Booklets. This meeting is designed to express appreciation to all individuals who participated in the articulation effort as well as to inform others of the result.

The agenda for the meeting should include a presentation of the published articulation booklet in addition to a presentation of the proposed functional phase of the model.

Functional Phase

College Distributes Articulation Booklets. The community college will communicate the details of the articulation procedures and will distribute the booklets to administrators, counselors, and faculty at

both educational levels.

Publicizing the Articulation Program. The community college and vocational-technical school will then develop methods of publicizing the articulated programs in order for students to take advantage of this opportunity.

Student Enrolls in Articulated Program. Once a student declares an interest in entering an articulated program, the community college will take the responsibility of assisting the student in completing the articulation process.

Review Process

Review Articulated Programs. Each articulated program should be reviewed by members of the articulation program committee. The review should be performed periodically, but not until at least one academic year has been completed. The committee should address the articulation document's strong and weak points and identify and update necessary changes to improve the cooperative arrangement. The overall goals of articulation should be part of the criteria that is used in the review phase.

The updated articulation documents and recommendations should then be forwarded to the articulation coordinating committee who would initiate changes to improve the articulation process.

Update Articulation Booklets. The articulation booklets should be revised and printed and be distributed to the professional staffs at both institutions.

Report Articulation Results. The articulation coordinating committee should prepare a report to the community college president and the vocational-technical school superintendent and should represent the culmination of the joint cooperative effort to make articulation work for the student. The report should include recommendations made by the individual articulation program committee where appropriate in order to make needed changes to improve the articulation process.

Summary

This chapter has addressed three elements that have set the pace of articulation and then examined these elements as they related to articulation between community colleges and vocational-technical schools. The investigation of three elements, (1) advantages of current articulation practices, (2) barriers toward articulation, and (3) benefits resulting from articulation, combined with the results of the questionnaire imparted prior to the development of the articulation model.

The articulation model developed for articulating technical-occupational programs between community colleges and vocational-technical schools described a step-by-step approach using a chart with an explanation of each step. The model was intended to provide guidelines for those administrators of community colleges and vocational-technical schools who are faced with the problem of developing or refining articulation models between their institutions.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter contains the following four sections: (1) Summary of the Study, (2) Summary of the Findings, (3) Conclusions, and (4) Recommendations. The findings include a discussion of the results of the responses to the questionnaire. The recommendations suggest further action to be taken by educators who are interested in improving articulation between community colleges and vocational-technical schools.

Summary of the Study

The purpose of this developmental study was to determine and analyze articulation procedures that could be incorporated into a model to be utilized by administrators of community colleges and vocational-technical schools.

The specific questions this study attempted to answer were perceptions of articulation as perceived by administrators of community colleges and vocational-technical schools. Specifically, the questions of the study were: (1) What are the perceived advantages to current articulation practices; (2) What are the perceived barriers toward articulation; (3) What are the perceived benefits that have resulted from articulation; and (4) Were there any significant differences among the administrative groups?

The population utilized for this study included administrators from colleges and vocational-technical schools from a cross section of the United States. The participants were from institutions having ongoing articulation models or agreements. The sample consisted of administrators from 20 community colleges and 20 vocational-technical schools, whose institutions were identified in the review of literature. The total sample consisted of 40 administrators of which 29 responded.

A mail survey questionnaire containing 30 articulation advantages, barriers, and benefits was used for the study.

The dependent variable was the scores which were judgmentally assigned by the respondents regarding the respondents' perception of the elements of articulation. The scores of each statement were arranged on a four-point continuum scale.

The responses on the returned questionnaire were then coded for computer processing.

The analysis of data were done through frequencies, percentages, and the independent group T-test was applied to determine significant differences between the administrators of community colleges and vocational-technical schools. The T statistic at the .05 level of significance was used to determine contrasts of the mean scores of each statement.

Summary of the Findings

Research question one involved the ranking of the advantages to current articulation practices on a rating scale of four to one with four being very important and one being not important.

An examination of the mean scores indicated that both groups of

administrators were in agreement. Of the ten statements utilized in the study, eight statements had mean scores at 3.31 or higher, thus indicating a high direction of agreement.

The T-test used to test the mean scores between each group of administrators indicated there are no significant differences among the perceptions and they were tested at the .05 level of significance.

The ten advantages are listed below in the order of their importance to articulation.

1. Saves students time and money in completing career goals.
2. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.
3. Develops sequential progression of programs.
4. Increases faculty members' awareness of other educational levels.
5. Provides a system for identifying student competencies.
6. Reduces misunderstanding through expansion of communication.
7. Reduces overlap of content, materials, and/or textbooks at different levels.
8. Develops interdepartmental/interdivisional curriculum coordination between institutions.
9. Encourages the development of a coordinated testing program.
10. Provides schedule flexibility for exchange teaching experiences.

Research question two involved the ranking of the barriers toward articulation on a rating scale of four to one with four being a crucial barrier and one not a barrier.

An examination of the mean scores indicated that both groups of

administrators were mostly in agreement. Of the ten statements utilized in the study, nine statements had mean scores of 2.45 or less, thus indicating a high direction of agreement.

The T-test used to test the mean scores between each group of administrators indicated there are no significant differences in nine of the ten perceptions, and they were tested at the .05 level of significance.

The ten barriers are listed below in the order of their effect toward articulation.

1. Each institution desires to protect its own interests.
2. There is a lack of concern about articulation.
- 3.* A clear understanding of the function of community college and vocational-technical school programs is lacking.
4. Programs are evaluated and funded by the number of people enrolled, and both institutions will be competing for the same people.
5. Competition for funds.
6. Competition for adult learners.
7. There is a lack of direction.
8. There is a lack of determination of accountability between community colleges and vocational-technical schools.
9. Restrictive guidelines for education at the state level prevent local articulation.
10. Administrators fail to advise other institution officials when faculty are recruited from the other agency.

*Significant difference at .05 level.

Research question three involved the ranking of the benefits resulting from articulation on a rating scale of four to one with four being in complete agreement with the benefit and one being for complete disagreement with the benefit.

An examination of the mean scores indicated that both groups were in agreement. Of the ten statements utilized in the study, all ten statements had mean scores of 3.14 or higher, thus indicating a high direction of agreement.

The T-test used to test the mean scores between each group of administrators indicated there is no significant difference in the ten perceptions, and they were tested at the .05 level of significance.

The ten benefits are listed below in the order of their importance.

1. Students will not repeat the same content at different levels.
2. Students will save time and money in completing their career goals.
3. Students will not experience disjointed, unsequenced content from educational level to level.
4. Student competencies will be identified at each level and communicated from one level to the next.
5. Faculty and administrators at different levels become aware of what others are teaching.
6. Evaluation of competencies will be comprehensive and coordinated level by level.
7. Students will not experience gaps in continuity when some content is skipped in going from one level to another.
8. Students will matriculate from level to level because

- of information they receive about the next level.
9. Students will not be using the same materials and/or textbooks at different levels.
 10. Minimizes misunderstandings due to poor communication.

Conclusions

The following conclusions were reached based on the review of literature, results of the questionnaire and other articulation agreements/models that were studied.

1. Articulation should begin with the appointment of a coordinating committee with equitable representation from both institutions.
2. Faculty from each institution should be represented on program committees to evaluate programs to be articulated.
3. Program committees should continually meet to review objectives and competencies of programs that are articulated.
4. The community college should communicate their policies for awarding credit to students, whether it be through advanced standing tests or other procedural methods.
5. Articulation guidelines should be published and communicated to administrators, counselors, faculty, and students.
6. The articulation process should be reviewed annually in order to update and revise the various policies and procedures previously adopted in the published guidelines.
7. The suggested model for articulating technical-occupational programs between community colleges and vocational-technical schools is intended only to be guidelines for the replication

of the articulation process.

8. The main intent of an articulation model is to provide a vehicle for vocational-technical students to enter common community college programs and eliminate the needless repetition of skills previously acquired.
9. Articulation provides incentives for students to strive for excellence and move from one level to the next level in order to complete degree requirements at the community college level.
10. The articulation process supports the concept of competency-based programs which implies that education exists for the express purpose of assisting students to perform at a predetermined proficiency level.
11. The articulation process allows administrators and faculty for both institutions the opportunity to establish communication links and develops a spirit of continuing cooperation.
12. The articulation process should strive to eliminate barriers between institutions which will result in the ultimate benefit of allowing students to progress from one level to the next in order to save time and money for the students.

Recommendations

The following recommendations are suggested for those people who may wish to continue this study of articulation.

1. Replicate this study to include administrators and faculty between community colleges and four-year colleges.
2. Replicate this study to include administrators and faculty between secondary schools and community colleges in the area

of general education.

3. Replicate this study by surveying faculty representing the community college and vocational-technical school and compare with the results of this study.
4. Implement the articulation model developed in this study.

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APPENDIXES

APPENDIX A

LETTER ACCOMPANYING QUESTIONNAIRE



Tulsa Junior College

Current Date

Dear _____:

In order to improve recruitment, retention, and articulation of technical/occupational programs between Tulsa County Vocational Technical School and Tulsa Junior College, I am attempting to determine the current status of articulation within vocational technical education between community colleges and vocational technical schools.

The attached questionnaire is being sent to twenty administrators in community colleges and vocational technical schools throughout the United States who have been identified as having articulation models/agreements. As an administrator of one of these institutions, I would appreciate your participation in this study.

The results of the questionnaire will be also mailed to you and analyzed for input into an articulation model which will be developed during the second phase of this study. Your responses will be treated anonymously.

Therefore, could you take a few minutes to complete and return the questionnaire in the enclosed self-addressed, stamped envelope by _____, 1986?

Your assistance is most appreciated. If I can ever be of assistance to you, feel free to contact me.

Sincerely,

George W. Wells, Jr., Dean
 Technical/Occupational Programs

GWW:dh

Enclosures (2)

6111 East Skelly Drive Tulsa, Oklahoma 74135 (918) 622-5100

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APPENDIX B
THE QUESTIONNAIRE

PART I

In responding to the following items, place an X in the blank which applies to you.

1. Type of Institution:

Community College
 Vocational Technical School

2. Your Position:

President/Dean
 Superintendent/Director

PART II

Using the scale shown below, please give your perception of the advantages of articulation between community colleges and vocational technical schools. Circle only one number per statement.

	Very Important	Important	Slightly Important	Not Important
1. Develops sequential progression of programs.	4	3	2	1
2. Encourages the development of a coordinated testing program.	4	3	2	1
3. Increases faculty members' awareness of other educational levels.	4	3	2	1
4. Saves students time and money in completing career goals.	4	3	2	1
5. Provides a system for identifying student competencies.	4	3	2	1
6. Provides schedule flexibility for exchange teaching experiences.	4	3	2	1
7. Provides for smoother student matriculation from level to level with fewer problems for students, counselors, faculty, and administrators.	4	3	2	1
8. Reduces misunderstanding through expansion of communication.	4	3	2	1
9. Reduces overlap of content, materials, and/or textbooks at different levels.	4	3	2	1
10. Develops interdepartmental/divisional curriculum coordination between institutions.	4	3	2	1

PART III

Using the scale shown below, please give your perception of barriers toward articulation. Circle only one number per statement.

	Crucial Barrier	Important Barrier	Somewhat of a Barrier	Not a Barrier
1. A clear understanding of the function of community college and vocational technical school programs is lacking.	4	3	2	1
2. Administrators fail to advise other institution officials when faculty are recruited from the other system.	4	3	2	1
3. Programs are evaluated and funded by the number of people enrolled and both institutions will be competing for the same people.	4	3	2	1
4. Competition for adult learners.	4	3	2	1
5. Competition for funds.	4	3	2	1
6. Each institution desires to protect its own interests.	4	3	2	1

	<u>Crucial Barrier</u>	<u>Important Barrier</u>	<u>Somewhat of a Barrier</u>	<u>Not a Barrier</u>
7. Restrictive guidelines for education at the state level prevent local articulation.	4	3	2	1
8. There is a lack of concern about articulation.	4	3	2	1
9. There is a lack of determination of accountability between community colleges and vocational technical schools.	4	3	2	1
10. There is a lack of direction in developing programs and in defining the acceptance of high school credit.	4	3	2	1

PART IV

Using the scale shown below, please give your perception of the benefits that have resulted from articulation. Circle only one number per statement.

	<u>Completely Agree</u>	<u>Mostly Agree</u>	<u>Partially Agree</u>	<u>Completely Disagree</u>
1. Students will not repeat the same content at different levels.	4	3	2	1
2. Students will not experience disjointed, unsequenced content from educational level to level.	4	3	2	1
3. Students will not experience gaps in continuity when some content is skipped in going from one level to another.	4	3	2	1
4. Students will matriculate from level to level because of information they receive about the next level.	4	3	2	1
5. Students will not be using the same materials and/or textbooks at different levels.	4	3	2	1
6. Student competencies will be identified at each level and communicated from one level to the next.	4	3	2	1
7. Evaluation of competencies will be comprehensive and coordinated level by level.	4	3	2	1
8. Minimizes misunderstandings due to poor communications.	4	3	2	1
9. Faculty and administrators at different levels become aware of what others are teaching.	4	3	2	1
10. Students will save time and money in completing their career goals.	4	3	2	1

PART V

Using the spaces below, please add any additional comments which you feel would be helpful in the design of an articulation model.

APPENDIX C

FOLLOW-UP LETTER



Tulsa Junior College

Current Date

Dear _____:

In February, I sent you a questionnaire designed to determine your perceptions of the current status of articulation within vocational technical education between community colleges and vocational technical schools.

Since the sample of individuals is relatively small, your responses are extremely important to the success of this study.

Therefore, could you complete the attached questionnaire and return it to me by March 14, 1986, in the enclosed self-addressed, stamped envelope?

Your participation and assistance is most appreciated.

Sincerely,

George W. Wells, Jr., Dean
Technical/Occupational Programs

GW:dh

Attachment

6111 East Skelly Drive Tulsa, Oklahoma 74135 (918) 622-5100

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APPENDIX D

PARTICIPATING INSTITUTIONS

Community Colleges

James Sprunt Institute
Box 398
Kenansville, NC 28349

Bellevue Community College
3000 Landerholm Circle SE
Bellevue, WA 98009

Community College of Allegheny
Center North
1130 Perry Highway
Pittsburgh, PA 15237

Southeast Community College
8800 O Street
Lincoln, NE 68520

Somerset Community College
Box 3300
Somerville, NJ 08876

Dallas County Community College
District
701 Elm Street
Dallas, TX 75202

American River College
4700 College Oak Drive
Sacramento, CA 95841

Kellogg Community College
450 North Avenue
Battle Creek, MI 49016

Maricopa Community Colleges
3910 East Washington
Phoenix, AZ 85034

Hagerstown Junior College
751 Robinwood Drive
Hagerstown, MD 21740

Williamsport Area
Community College
1005 West Third Street
Williamsport, PA 17701

Greenville Technical
College
Box 5616-Section B
Greenville, SC 29606

Florida Junior College
501 West State Street
Jacksonville, FL 382202

Thornton Community College
15800 South State Street
South Holland, IL 60473

Indian Hills Community
College
Grandview and Elm
Ottumwa, IA 52501

Brevard Community College
1519 Clearlake Road
Cocoa, FL 32922

Sinclair Community College
444 West Third Street
Dayton, OH 45402

Vocational Technical Schools

Duplin County Public Schools
Kenansville, NC 28349

Carroll Area Vocational Center
Freeport, IL 61032

Parkway West Area Technical
School
Pittsburgh, PA 15237

Lincoln Public Schools
Lincoln NE 68520

Dallas Public Schools
Dallas, TX 75202

Calhoun Area Vocational Center
Battle Creek, MI 49016

Phoenix Public Schools
Phoenix, AZ 85034

Washington County Public
Schools
Hagerstown MD 21740

Delta-Schoolcraft Schools
810 North Lincoln Road
Escanaba, MI 49829

Sun Area Vocational/Tech-
nical School
815 East Market Street
New Berlin, PA 17855

Green County Schools
Box 2848
Greenville, SC 29606

Duval County Public
Schools
Jacksonville, FL 32202

APPENDIX E

LETTERS VALIDATING QUESTIONNAIRE



Tulsa Junior College

January 30, 1986

George W. Wells' Doctoral Advisory Committee
School of Occupational and Adult Education
Oklahoma State University
Stillwater, Oklahoma 74074

Dear Advisory Committee Members:

I am appreciative of Mr. George Wells' efforts to measure the current perception of vocational technical school and community college leaders concerning articulation between vocational technical schools and community colleges.

I have reviewed the prepared articulation questionnaire and suggested some minor modifications which Mr. Wells has incorporated into the final instrument. I believe that a detailed analysis of the questionnaire results will provide reliable information to strengthen working relationships between vocational technical schools and community colleges.

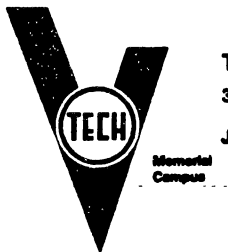
Sincerely,

Dean P. VanTrease
Executive Vice President

DPV/ga

6111 East Skelly Drive Tulsa, Oklahoma 74135 (918) 622-5100

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TULSA COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL DISTRICT NO. 18

3420 South Memorial Drive, Tulsa Oklahoma 74145-1390

Telephone (918) 827-7200

Joe W. Lemley, Ed.D., Superintendent

Alfred L. Gibbs
Assistant Superintendent for Instruction

January 29, 1986

George W. Wells' Doctoral Advisory Committee
School of Occupational and Adult Education
Oklahoma State University
Stillwater, Oklahoma 74074

Dear Advisory Committee Members:

A draft of the Articulation Questionnaire that Mr. George Wells will utilize in his study on articulation has been reviewed by me. Some suggestions were made which he plans to use in the completed instrument. With these suggestions, it is my opinion that the questionnaire adequately contains inquiries which will obtain the desired results. These results will be beneficial in assisting institutions desiring to develop an articulation program or in refining one presently in existence.

Yours truly,

Alfred L. Gibbs

ALG/pjb

APPENDIX F

ARTICULATION RESOLUTION/AGREEMENT

ARTICULATION RESOLUTION/AGREEMENT BETWEEN _____

BOARD OF EDUCATION AND _____ COLLEGE

Whereas it is the desire of the above named parties to

provide expanded technical/occupational educational opportunities to the citizens of _____.

Whereas it is the intent of the above named parties to

reduce overlap and duplication of instruction in technical occupational programs of study that are similar in content.

Be it herewith resolved that the following resolution/agreement is entered into:

An articulation coordinating committee composed of administrators within the two educational systems and institutional faculty will meet to determine whether similarities in vocational educational experiences provided to students of the two systems appear to result in an overlapping or duplication of instruction when a student completes a vocational program of study and enters a collegiate program of study. Where overlapping or duplication of instruction appears to exist, an attempt will be made on the part of the College to identify a method of granting college credit for past experiences.

Signature

Signature

President
Title Date

President
Title Date

Board of Education

Board of Regents

APPENDIX G

ARTICULATION GUIDELINES

ARTICULATION GUIDELINES BETWEEN _____
COMMUNITY COLLEGE AND _____
VOCATIONAL TECHNICAL SCHOOL

The following guidelines shall govern the articulation process between _____ Community College and _____ Vocational Technical School.

1. The articulation coordinating committee and the instructional faculty within the two educational systems will meet to determine whether similarities in educational experiences provided to students of the two systems appear to result in an overlapping or duplication of instruction when a student completes a vocational educational program of study and enters a collegiate program of study. Where overlapping or duplication of instruction appears to be evident, an attempt will be made on the part of the College to identify methods of the granting of credit for past learning experiences.
2. _____ Community College will establish prerequisites for entrance into program areas if it appears prerequisites are desirable.
3. An absence of specifications for articulation between programs will not preclude advance placement nor exclude credit by examination for programs of study at _____ Community College where such specifications have not been formalized. Requests for admission into programs not

articulated will be processed individually and given all possible consideration.

4. Advance placement criteria for students who have successfully completed a vocational program of study will be established by _____ Community College to enable students to be placed beyond the entrance level of programs of study where feasible. Minimum levels of proficiency may be determined by certification of the level of proficiency by representatives of the vocational technical school, or may be determined through credit by examination by _____ Community College. Credit by examination may include either cognitive or psychomotor demonstrations of proficiency, or both.
5. Students who enroll in the college program will be expected to pay the appropriate tuition and fees that will be assessed by _____ Community College for their programs of study based on the current charges made by the college for all students enrolled.
6. Students who are applying for credit by examination will be expected to pay the fee that is assessed by _____ Community College for the administration, evaluation, and recording of the examination.
7. As new programs are offered at either level of education, articulation efforts will be explored and implemented where feasible.
8. Individual program course documents will be developed between all program areas where articulation can take place.

These documents will become a part of the articulation booklet after they have been approved through the appropriate administrative channels.

9. Publicity of the articulation process.

The two institutions will cooperate toward developing, disseminating, and presenting occupational information to students within the school system concerning the process of choosing a career. Such information will include, as a minimum, an orientation on career programs at the secondary and post-secondary levels and the articulation agreements that have been made between the two systems of education.

APPENDIX H

ARTICULATION TIMETABLE

<u>Activity</u>	<u>Proposed Completion Date</u>
1. Joint Resolution/Agreement Approved	September
2. Articulation Guidelines Completed	September
3. Identification of Programs to Be Articulated	October
4. Articulation Workshop	October
5. Program Committee Meetings	November
6. Program Committee Meetings	December
7. Program Committee Meetings	January
8. Completion of Articulation Documents	February
9. Procedure for Certification of Student Competencies Completed	March
10. Presentation of Articulation Booklet at Meeting Between Program Committees and Articulation Coordinating Committee	March
11. College Distributes Articulation Booklet	April
12. Publicizing of Articulation Program	May
13. Students Enroll at College	June/August
14. Review of Articulated Programs	August
15. Update Articulation Booklet	September
16. Report Articulation Results	October

APPENDIX I

ARTICULATION PROGRAM COMMITTEES

SUGGESTED MEETING AGENDAS

- I. First Meeting
 - A. Role of Program Committee
 - B. Review of Articulation Document
 - C. Tour of Program Laboratories
 - D. Sharing of Program Course Outlines, Textbooks, and Related Materials
 - E. Roundtable

- II. Second Meeting
 - A. Tour of Program Laboratories
 - B. Committee Recommendations on Common Courses in Programs
 - C. Assignment of Articulation Documents
 - D. Roundtable

- III. Third Meeting
 - A. Review and Update of Articulation Documents by Committee Members
 - B. Roundtable



APPENDIX J

PROGRAM ARTICULATION DOCUMENT

_____ Community College

Machinist Technology Program

Advanced placement in the Machinist Technology Program of _____ Community College will be determined on the basis of competencies which the prospective student demonstrates according to the following:

<u>Students Demonstrating Competency</u>	<u>Will Receive Credit Hours in The Amount of</u>	<u>For College Course No.</u>	<u>Course Title</u>
1	3	MT 1313	Machine Blueprint Reading
2	6	MT 1326	Machine Shop Technology I
3	6	MT 1336	Machine Shop Technology II

The faculty members of the Machinist Technology Program have the responsibility for conducting and evaluating examinations to determine the competency level of students requesting consideration under this agreement.

Examinations used for evaluation purposes will be updated from time to time although every effort will be made to maintain their consistency with the competencies identified in this agreement.

This agreement cannot, however, be considered a contract between _____ Community College and any prospective student. The College reserves the right to make changes in courses required, courses offered, credits waived, credits granted, and in any other matters it deems necessary without revision of this agreement and without notice. Prospective students wishing consideration under this agreement should contact the Counseling Center.

MT 1313
MACHINE BLUEPRINT READING

TASK:

Upon satisfactory completion of this task, the student will have demonstrated their proficiency in the following competency areas:

1. Identify basic views used on machinist drawings.
2. Identify symbols and abbreviations.
3. Identify alphabet of lines.
4. Read and interpret blueprints by visualization process.

CONDITIONS AND LIMITATIONS:

When given a set of machine drawings and/or blueprints, the student will be able to read and interpret blueprints and/or drawings.

PERFORMANCE CRITERIA:

The student must be able to pass (at an accuracy level of at least 70 percent) a comprehensive, written achievement test given over a set of machine drawings and/or blueprints.

MT 1326
MACHINE SHOP TECHNOLOGY I

TASK:

Upon satisfactory completion of this task, the student will have demonstrated their proficiency in the following competency areas:

1. Safety
 - a. Demonstrate ability to work safely
 - b. Demonstrate ability to keep a clean and orderly work area
2. Math
 - a. Solve problems using common fractions and decimals
 - b. Find ratios and proportions
 - c. Solve geometry problems
 - d. Solve right-angle trigonometry problems
 - e. Solve problems involving tapers and threading
 - f. Calculate speeds and feeds for drilling, turning, and milling operations
3. Measuring tools
 - a. Use and read outside vernier micrometers to ± 0.002
 - b. Use and read inside micrometers to ± 0.001
 - c. Use and read depth micrometers to ± 0.001
 - d. Use and read inside/outside calipers to ± 0.001
 - e. Use and read height gauge ± 0.001
 - f. Use and read bevel protractor $\pm 0^{\circ} 5'$
 - g. Calculate number and size Johansen gauge blocks to constant given dimensions
 - h. Use telescoping and small-hole gauges
 - i. Use dial indicators
 - j. Demonstrate proper care of precision measuring tools
4. Materials
 - a. Identify different types of metals
 - b. Use SAE and AISI numbers for calculating speed and feeds
5. Cutting fluids
 - a. Mix cutting fluids
 - b. Apply cutting fluids

6. Hand tools and bench work
 - a. Identify basic hand tools
 - b. Use tools safely and carefully
 - c. Cut material using hacksaw
 - d. Demonstrate proper use of a file
 - e. Cut internal threads with a tap
 - f. Cut external threads with a hand die
7. Layout
 - a. Prepare work surfaces
 - b. Apply layout fluid
 - c. Layout a job
8. Pedestal grinders
 - a. Select grinding wheel
 - b. Properly mount wheel on grinder
 - c. Dress wheel
 - d. Grind lathe tools
 - e. Operate safely, care for, and clean grinders
9. Cut-off band saw
 - a. Select blades according to jobs
 - b. Set guides and stock stop
 - c. Cut stock to required length
 - d. Weld blade
 - e. Mount blade on machine
 - f. Select and set band speed
 - g. Remove blade and coil for storage
 - h. Operate safely, care for, and clean band saw
10. Drilling machines
 - a. Identify types of drilling machines
 - b. Set up job for drilling using holding devices
 - c. Select speed-feed flow for job
 - d. Drill hole
 - e. Ream hole
 - f. Tap a hole using a drill press
 - g. Use a tapping attachment
 - h. Countersink a hole
 - i. Operate safely, care for, and clean drilling machine
11. Engine lathe
 - a. Identify lathe parts
 - b. Identify attachments and accessories
 - c. Use high-speed steel (HSS) cutting tools to conform to standard shapes for turning, facing, threading, and cut-off operations

- d. Mount chuck, face plate, and collect holder
- e. Select tool holder
- f. Select and set feed
- g. Calculate cutting speed and set RPM
- h. Use 3" jaw chuck
- i. Use 4" jaw chuck
- j. Turn between centers
- k. Perform facing work
- l. Perform knurling operations
- m. Bore to specified diameters and depth
- n. Turn tapers with compound
- o. Set lathe for threading
- p. Cut external threads
- q. Cut internal threads
- r. Set and use tape attachments
- s. Align tail stock
- t. Centerdrill, drill, and ream
- u. Perform form-turning operation
- v. Operate safely, care for, and clean engine lathe

CONDITIONS AND LIMITATIONS:

The student must be able to pass a four-hour written competency achievement test covering content areas of safety, math, measuring tools, materials, cutting fluids, hand tools and bench work, pedestal grinders, band saw, drilling machines, and engine lathe. The student will also be required to take a four-hour performance test related to the fabrication of a part using the engine lathe or any other related tools.

PERFORMANCE CRITERIA:

The student must be able to pass the written achievement test at an accuracy level of at least 70 percent. The performance test will be limited to a maximum of four hours and the evaluation will cover both process and product evaluation. The student must perform job at an accuracy level of 70 percent.

MT 1336
MACHINE SHOP TECHNOLOGY II

TASK:

Upon satisfactory completion of this task, the student will have demonstrated proficiency in the following competency areas:

1. Safety
 - a. Demonstrate ability to work safely
 - b. Demonstrate ability to keep a clean and orderly work area
2. Math
 - a. Solve problems involving simple indexing
 - b. Demonstrate the ability to use a calculator
3. Blueprints--read and interpret advanced machine drawings and/or blueprints
4. Materials--interpret SAE and AISI numbering systems for ferrous metals as to the metal composition
5. Layout--perform precision layout
6. Vertical band saw
 - a. Select blades according to jobs
 - b. Set guides and stock stop
 - c. Weld blades
 - d. Mount blade on machine
 - e. Select and set band speed
 - f. Contour saw to layout line
 - g. Remove blade and coil for storage
 - h. Operate safely, care for, and clean band saw
7. Milling machine--vertical and horizontal
 - a. Align head perpendicular to table
 - b. Align work-holding devices
 - c. Calculate proper feed and speed
 - d. Select proper feeds and speeds
 - e. Mount work-holding devices
 - f. Mount cutter in collet or end-mill holders
 - g. Mill slots, grooves, and key ways
 - h. Machine a dovetail

- i. Drill, ream, and bore
- j. Use a geometric boring head
- k. Use a dividing head
- l. Perform end-milling work
- m. Perform side-milling work
- n. Set up right-angle attachments
- o. Set up slotting (broaching) attachments
- p. Perform rotary table operations
- q. Perform layout operations using graduated colors of machines
- r. Perform tapping operations
- s. Operate safely, care for, and clean machine

CONDITIONS AND LIMITATIONS:

The student must be able to pass a four-hour written competency achievement test covering content areas of safety, math, advanced machine shop drawings and blueprints, layout, vertical band saw, and milling machines, both vertical and horizontal. The student will be required to take a four-hour performance test related to the fabrication of a part using the vertical and/or horizontal milling machine or any other related tools.

PERFORMANCE CRITERIA:

The student must be able to pass the written achievement test at an accuracy of 70 percent. The performance test will be limited to a maximum of four hours and the evaluation will cover both process and product evaluation. The student must perform job at an accuracy level of 70 percent.

APPENDIX K

PROCEDURE FOR CERTIFICATION OF
STUDENT COMPETENCIES

ADVANCED PLACEMENT POLICY STATEMENT

Students should be recognized and rewarded for previous educational and occupational experience when that experience results in competence in areas normally addressed by the courses and programs of the College and that advanced standing may be awarded with full credit, up to limits established by the College.

The College has established the following method to enable students to gain advanced standing:

The College encourages students who feel that through previous training or experience they are qualified to establish college credit. At least one-fourth of the total credit hours required for any degree or certificate must be earned in residency and may not be earned through any form of advanced standing, transfer credit, or extension courses. No more than one-half of the total credits required for the degree or certificate may be earned through advanced standing credit. Students who establish credit through advanced standing examinations will be assigned a grade of "S" on their record to indicate successful completion.

All advanced standing credit must be validated by successful completion of twelve semester hours of resident academic work. Fees for advanced standing credit are listed in another section of the College catalog. No refund of fees will be given for advanced standing examinations that are not passed.

Questions relating to advanced standing credit should be directed to the College Counseling and Testing Office.

APPENDIX L

ADDITIONAL COMMENTS MADE BY ADMINISTRATORS
WHICH MAY BE HELPFUL IN THE DESIGN
OF AN ARTICULATION MODEL

Community Colleges

1. If advisory committees are used, articulating institutions should utilize the same one instead of each having their own.
2. The design must be developed in concert with those faculty who will be impacted by it, i.e. those who will be using it.
3. An important part of the model should be the communication link (on going) between the secondary and post secondary institutions.
4. There must be something in it for all who participate. Thinking of oneself and not the community is a big barrier.
5. The role of each institution must be clearly stated and agreed upon.
6. The process works best when based upon competencies.
7. Business and vocational/occupational program articulation should be (articulated, coordinated, planned, etc.) with potential employers as well as with educational institutions and programs so that appropriate training objectives and standards are identified and so that secondary and post secondary training links with on the job training.
8. An objective motivator of the "articulation process" can improve implementation.
9. The "articulation process" must be integrated into instructional programs (institutional operations) as a normal process.
10. The administration should not permit meetings to be held without a formal agenda.
11. Definite goals should be set and specific activities with dates for accomplishments should be established.
12. Responsibilities should be assigned or articulation tends to fall apart.
13. Ample time must be allowed for the planning process.
14. A great deal of discussion must take place before all parties are ready to plan for the career ladder approach.

Vocational Technical Schools

1. Turf is the biggest problem.
2. Articulation does not eliminate duplication, it only gives credit for it. A true articulation model should address this issue.
3. The biggest need to complete articulation is time at the administrative level to do it.

2
VITA

George W. Wells, Jr.

Candidate for the Degree of
Doctor of Education

Thesis: A MODEL FOR PROGRAM ARTICULATION BETWEEN COMMUNITY COLLEGES
AND VOCATIONAL-TECHNICAL SCHOOLS

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Ponca City, Oklahoma, September 11, 1940.

Education: Graduated from Ponca City High School, Ponca City, Oklahoma, in May, 1958; received a Bachelor of Science degree in Accounting from Oklahoma City University in 1962; received a Master of Teaching in Education degree from Central State University in 1968; completed requirements for the Doctor of Education degree at Oklahoma State University in July, 1986.

Professional Experience: Financial Analyst, Dun and Bradstreet, Inc., 1960-65; Business Teacher, Comanche High School, 1965-1966; Business Teacher, Putnam City High School, 1966-1968; Assistant Director, Tri-County Area Vocational-Technical School, 1968-1970; Dean of Technical/Occupational Programs, Tulsa Junior College, 1970 to present.