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**An analysis of the planning process used in a regional approach
to establish secondary-postsecondary articulation in vocational
education**

Phillips, Patricia Layman, Ed.D.

The University of North Carolina at Greensboro, 1990

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**AN ANALYSIS OF THE PLANNING PROCESS USED IN A REGIONAL
APPROACH TO ESTABLISH SECONDARY-POSTSECONDARY
ARTICULATION IN VOCATIONAL EDUCATION**

by
Patricia Layman Phillips

**A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree**

Doctor of Education

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1990**

Approved by


Dissertation Advisor

APPROVAL PAGE

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1990, by Patricia Layman Phillips

PHILLIPS, PATRICIA LAYMAN, Ed.D. An Analysis of the Planning Process used in a Regional Approach to Establish Secondary-Postsecondary Articulation in Vocational Education. (1990) Directed by Dr. David Reilly. 133 pp.

The purpose of this paper was to describe and analyze the planning process for a regional cooperative program in vocational education, involving six public school systems and two community colleges. These agencies were assisted by a regional council and business/industry. The project is unique in that it brings together eight separate educational systems, and includes a regional council in an integral role in educational planning.

This arrangement, called articulation, is not new but has been subject to recent increased interest by educators, business and government.

The planning was described by those who did the planning, relating the processes in a series of interviews. They addressed a number of issues during the planning process, such as anticipated problems at various stages, future considerations and needs of the project, organizational structure, commitment needed from various groups. A major issue in educational planning not addressed by these planners was that of evaluation. This was left for the project managers.

Conclusions drawn include the following:

-there is commitment from the top leadership of the school systems and community colleges;

-authority for specific decisions has been delegated to those closest to the need for the decisions;

-high school principals and guidance personnel were not included as they should have been in the planning for this Project;

-the involvement of the regional council has been both unique and valuable;

-a major component of this Project planning was the presence of a catalyst in the person of the executive director of the regional council;

-the Project will continue to need overall supervision and direction;

-the framework for this Project is flexible enough to be used in other regions and statewide;

-articulation is easiest to achieve in subject areas which require the acquisition of readily observed and measured skills;

-it is unlikely that there are factors in this region, but not in other regions, which allow success in this type of planning, although there is an unusual degree of stability in educational leadership in this region;

-articulation plans which are limited to vocational-technical skills areas will solve only part of the major problems facing educators and employers. The academic areas must also be included.

-planning for educational articulation programs involves groups other than the educators, such as the business and industry community which sets the performance standards for entry-level employees

The process which emerged from the interviews was compared to planning procedures identified in the review of literature. The results reveal that the processes used for this project follow closely the processes identified in the literature.

Recommendations include early communications between educational systems, integration of academic subjects in the process, strong, overt support from the top leadership, more day-to-day involvement from the private sector and other joint planning in the use of equipment and facilities.

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Chapter I

Introduction

Background and Overview:

The economic history of the United States has involved three major eras: agrarian, industrial, and a technology-based information age has now begun. We are living in a transition period, or as John Naisbitt (1982) said in Megatrends, in "...the time of the parenthesis" (p. 249).

Increasingly, the future is being shaped by a rapid acceleration of technology which is identified by Choate and Linger (1987) as one of the three powerful forces which will have a major impact on the United States' economy and its labor sector. The other two are "...America's deepening involvement in the global economy, and irreversible global demographic shifts" (p. 7).

With regard to the acceleration of technology, Israel, McKenney and Wartgow (1987), writing in Economic Development Review, stated that

...about 90 percent of all scientific knowledge has been generated in the past 30 years...and the knowledge pool will double again by the end of the century, rapidly compressing life cycles of products and processes to less than 5 to 10 years. (p. 19)

In some fields such as laser/electro optics and telecommunications, experience has shown that approximately 50 percent of the knowledge will change every three or four years (Hull, 1985). Kari Kairamo (1989), former Chairman of the Educational Working Group of the European

Roundtable of Industrialists, writing in the Metro Connection, a newsletter published by the University of New Orleans, stated that

the Confederation of British Industry estimates that...40% of the knowledge that an electrical engineer now needs for a degree becomes obsolete in less than five years. (p. 8)

The proliferation of technological processes and products, and the world-wide competition for this technology is ushering in this new era in the continuing development of the United States' economy. The economic "...advantage has historically been rooted in mass-production of assembly plants for mass markets" (Sultan & Harrick, 1987, p. 11). But two factors are confronting us with new truths: (1) the impact of almost instant communications over long distances, and (2) the developing capacity of Third World nations to produce the commodities we once produced and produce them cheaper than we can. "...Comparative advantage is no longer defined by natural resource endowment, but by a culture's human will to escalate rapidly investments in the cultivation of talent and technology" (Sultan & Harrick, 1987, p. 11).

The comparative value of human over natural resources was a major factor influencing the new economic era and identified in the 1987 analysis of labor needs by the U.S. Department of Labor entitled Workforce 2000: Work and Workers for the 21st Century.

As the economies of developed nations move further into the post-industrial era, human capital plays an ever-more-important role in their progress. As the society becomes more complex the amount of education and knowledge needed to make a productive contribution to the economy becomes greater. (p. xxvi)

Human capital is developed by means of systems of education and training. The rate at which human capital is developed is dependent on

the speed and efficiency of the educational system in transmitting knowledge. As a predictor of the growth of the economy, the rate of human capital formation is perhaps even more important than other indicators such as the rate of investment in plants and equipment.

The second factor influencing the future of labor is that of global competition. Although a major portion of the advances in scientific knowledge has been generated in the United States, it now finds itself locked in competition with other nations for supremacy in technological advances. In the 1960s, only 20 percent of America's manufacturing industries were subject to foreign competition. According to reports from the U.S. Department of Commerce, more than 70 percent face such competition today. Choate and Linger (1987) contend that businesses, government and workers have "...failed to recognize this competitive challenge and make appropriate responses" (p. 9). These authors illustrate the magnitude of world-wide competition and its influence on the United States with a number of examples.

Foreign firms have captured more than half the U.S. domestic sales of computer-controlled machine tools. Since 1960, foreign manufacturers have been able to reduce U.S. world market share in auto production from 48 percent to 26 percent; in chemicals, from 66 to 35 percent; in pharmaceuticals, from 62 to 35 percent; and in metal products, from 67 to 43 percent. (p. 9)

Even more to the point is the case of the Yamazaki Machinery Works in Japan. In 1983, although its Minokamo plant was already one of the world's most advanced machine tool factories, it introduced a highly automated, flexible management and manufacturing system. With the new system and with less than one-tenth of the nearly 3000 workers needed in

comparable conventional facilities in the United States, this plant could complete a compact numerically controlled lathe in two weeks. Its competitors needed three or four months for the same operation.

The competitive challenges from countries such as Japan, Korea, and Taiwan are directed at U.S. business, financial, educational, labor, and governmental sectors. But the hardest hit are the U.S. workers. In order to appropriately respond, the workforce must become better educated, better trained and more productive. As stated in Gaining the Competitive Edge: The Challenge to North Carolina's Community Colleges, the 1989 report of the Commission on the Future of the North Carolina Community College System (NCCCC),

our economic productivity and the quality of our products and services will depend increasingly on the ability of our workers to apply new technology to complex problems. (p.10)

Although the Commission was looking only at North Carolina, this statement is no less true of the rest of the country.

The third major problem facing the American economy involves demographic changes in the population. The Department of Labor (1987) addressed this issue in Workforce 2000. They identified five demographic factors which will prove important in the years to come.

(1) The growth of both the population and the labor force will slow. From a growth rate of 1.9 percent per year in the 1950s, the population growth will drop to 0.7 percent per year by 2000. The workforce which grew by 2.9 percent per year in the 1970s will register growth of only 1 percent per year by 2000. (2) The average age of both the population and the workforce will rise. In the workforce, the average age will

change from 36 in 1987 to 39 in 2000. The number of young workers age 16 to 24 will decline by 2 million or 8 percent. (3) More women will enter the labor market. Almost two-thirds of the new entrants into the workforce between 1987 and 2000 will be women. (4) Non-whites will make up 29 percent of the new entrants in the labor force between 1987 and 2000, doubling their current share. (5) Immigrants in the workforce will register their largest percentage increase since World War I. The latter three groups will account for five-sixths of the increase expected in the workforce between 1987 and 2000.

The labor shortage is expected to be most severe in the skilled occupations. North Carolina, for example, is expected to face a very serious shortage of available skilled workers in the same time period. By 2000 when 760,000 new jobs will be available in the state, only 550,000 new entrants are expected in the state's workforce (NCCCC, 1989).

In analyzing this situation for their 1988 report The Forgotten Half: Non-College Bound Youth in America, researchers for the William T. Grant Foundation Commission on Work, Family and Citizenship observed that these demographic changes are presenting society with new considerations.

Far fewer young people are entering the labor market and a much larger proportion come from poor and minority groups that have had only a limited chance to succeed. Therefore, employers have fewer workers to pick from, and a higher proportion of our youth must be prepared, at substantive expense, for more demanding work. (p. 7)

These facts place heavy demands on educational systems which are expected to prepare this workforce, and both the demands and the

deficiencies which meet them are being openly documented. Perhaps never before has there been such a flow of reports linking educational attainment with economic development and prosperity. These have been recorded nationally in a number of studies resulting in reform reports and legislative actions aimed at changing the public schools in order to help them meet the demands. One of the more important of these was issued in 1983 by the National Commission on Excellence in Education. Entitled A Nation at Risk: The Imperative for Educational Reform, this report declares that,

more and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion, the number of traditional jobs shrinks and new jobs demand greater sophistication and preparation. (p. 12)

Naisbitt (1982) cites a late 1970s report from the Carnegie Council of Policy Studies in Higher Education which stated bluntly that, "because of deficits in our public school systems, about one-third of our youth are ill-educated, ill-employed, and ill-equipped to make their way in American society" (p. 31).

No area of the country has been spared. Reports reflecting the same sentiments and aimed at enhancing the economic development of North Carolina and the southeastern region have been released by the 1986 Commission on the Future of the South (Halfway Home and a Long Way To Go); the Public School Forum of North Carolina (1988), (Thinking For a Living: A Blueprint for Educational Growth); and the N.C. Governor's Commission on Literacy (1988), (Literacy for the 21st Century).

These have been joined nationally by those reports previously mentioned as well as others, such as the report of the 1987 National Roundtable on Economic Development sponsored by the American Association of Community and Junior Colleges, entitled The Role of Community, Technical and Junior Colleges in Technical Education/Training and Economic Development; the 1988 report from the William T. Grant Foundation Commission on Work, Family and Citizenship, called The Forgotten Half: Non-College Bound Youth in America; and the joint 1988 report from the U.S. Department of Labor, Department of Education and Department of Commerce, Building a Quality Workforce.

It is apparent that the needs of society, the workplace, and education have changed since the days of U.S. supremacy in agriculture and manufacturing. The workforce of coming years will require employees who have been prepared for advanced technology occupations. The compilers of the book Two Plus Two Articulation A Guidebook for Educational Planning (1985) have identified some characteristics of technical occupations as follows:

1. broad knowledge base
2. heavy involvement with computers
3. rapidly changing technical content
4. systems-oriented emphasis
5. basic [academic] understanding necessary
6. employee flexibility required. (p. 77)

In addition to meeting specific job performance standards, Breuder and Martin (1985) have identified a number of features which will make employees attractive to business and industry employers.

Adaptability, the ability to solve problems, analytical thinking, an understanding of the concepts and uses of technology, strong communication and computation skills, and an

acceptance of learning as a lifelong process
all contribute to the marketability of the
student.... (p. 36)

Sultan and Harrick (1987) contend that the highly technical procedures, involving a systems approach to the production line, have little tolerance for error. "These processes, in which changes in the configuration of process and product are made with a light pencil, require employees who are considered as more than extensions of the machining process. Employees must now be valued and utilized as broad, knowledge-based resources with a capacity to make adjustments, as needed, in job assignments" (p. 15).

In order to adapt educational systems to new needs, changes are necessary in existing structures and especially in the present delivery systems of vocational-technical curricula. Whatever changes are instituted, they will also have to be accountable for time and money expended, for these are precious in a time of shrinking resources.

One possible answer to this dilemma is a coordination arrangement between secondary schools and community-technical colleges called articulation. Articulation programs arrange technical and vocational curricula in such a way that unnecessary overlap in content is eliminated, gaps are filled, and processes are streamlined to allow students to move from one educational level to the next with a minimum of barriers. Resources and facilities can be shared and time and money saved, not only for students but for taxpayers as well. This type of arrangement was identified over 15 years ago in a Carnegie Commission report entitled Continuity and Discontinuity (1973). Discussing school-

college relations, the Carnegie researchers noted that the future of such relations would require

...closer articulation between the schools and the colleges. They can no longer be such worlds apart. High administrative barriers between the systems and broad moats separating school teachers and college professors from each other have been created, and they artificially and harmfully impede the learning experience for students. The barriers should be lowered and more bridges built across the moats. (p. 109)

While these programs are not new, recent developments in technology and current employment requirements have increased the urgency of their need. The numbers of articulation projects are increasing rapidly. Some state legislatures such as that in South Carolina, have mandated that articulation agreements be developed between secondary schools and community/technical colleges as soon as possible.

Because the situation is so critical, it is important that projects be designed and planned so that they can bring the needed resources together to more effectively deal with current societal requirements. The planning processes of such projects should be analyzed to determine their effectiveness and improve their efficiency.

Need for the study:

The increase expected in employment needs during the next decade in technological occupations exceeds that expected in total employment in all other occupations. The rate of growth of employment in technological occupations is projected to increase by 30 percent by 1992, and by 38 percent by the year 2000 according to statistics released by the United States Bureau of Labor Statistics (Galambos, 1983; Perry, 1989). Employment projections in the electronics field,

for example, for the 1980s predicted a 60 percent increase in the number of technicians needed. This represented 115,000 new jobs, in addition to replacement needs (Parnell, 1985b). The employment increases expected in technical areas will result in a 45 percent increase in the number of jobs requiring some college education by the year 2000. However, only two of the 20 fastest growing occupations will require a baccalaureate degree, and these two are in engineering fields (Parnell, 1985a).

The U.S. Department of Labor which analyzed the job market and workforce needs for the twenty-first century in their 1987 publication Workforce 2000, concluded that,

The fastest growing jobs will be in professional, technical, and sales fields requiring the highest education and skills levels. Of the...job categories, all but one...require more than the median level of education for all jobs. Of those growing more slowly than average, not one requires more than the median education. (p. xxi)

The Commission on the Future of the North Carolina Community College System (1989) analyzed the job market and workforce needs for North Carolina. Their findings parallel those of the Department of Labor.

By the year 2000, the average new job will require 13.5 years of education as compared to 12.8 years today. Of the technical, sales and service jobs projected to register the fastest growth in North Carolina, half are expected to require over 14 years of education. (p. 10)

In describing requirements for jobs of the future, it has become more common to use the term "skills" than "education". Ranking jobs according to skills rather than education calls attention more

dramatically to the rising requirements as illustrated in Workforce 2000 (1987). When skill levels are arranged on a continuum from very low (unskilled) to high (advanced) with numerical ratings based on the math, language, and reasoning skills required,

only twenty-seven percent of all new jobs fall into the lowest two skill categories, while 40 percent of current jobs require these limited skills. By contrast, 41 percent of new jobs are in the three highest skill groups, compared to only 24 percent of current jobs. (p. xxi)

The various educational reform reports have stressed workers' needs for solid knowledge and skills in math, science and language as well as "...such higher-order skills as problem solving, abstract reasoning, and the ability to interpret and synthesize unfamiliar information (NCCCC, 1989, p. 10).

A mainstay of North Carolina's economy for many years, the textile industry has been changed dramatically by the impact of technology. According to the report from the community college commission (1989) with respect to the textile industry,

between 1975 and 1985, the ratio of basic laborers to more skilled workers... declined nearly 15 percent. While ...sophisticated equipment has simplified ... tasks that entry-level workers once performed, quality control and flexible production now require ... a wide variety of tasks and... a broader understanding of the production process. (p. 10)

Although the influence of technology is being felt in most industries, the communications industry has perhaps been most profoundly changed. Choate and Linger (1987) relate several examples of the rapid transformations in this business. Because of improvements in optical

fibers, a communications cable has been created which

...can carry ten thousand times more information than one made of copper, eliminate almost all noise, and make unnoticed monitoring virtually impossible - all at a reduced price. (p. 8)

Equally dramatic are improvements in space-based telecommunications. In 1965, a satellite could carry only 240 telephone circuits at a cost of \$22,000 per circuit. Satellites launched today carry more than twelve thousand circuits at a cost of less than \$800 per circuit.

Not only are skills changing, but it is also expected that in the future, the average worker will change jobs up to seven times in a career. Consequently, in order to stay current on the job, workers will be expected to master a progression of new skills underscoring the necessity for workers to be adaptable and able to learn.

The redefinition of the basic skills expected for even entry-level employees in the technical occupations of the near future is only a part of the problem of global competition faced by the American society. A second facet involves the numbers of jobs which will be created by this rapidly expanded technology.

The Bureau of Labor Statistics has predicted that between 1984 and 1995, almost 16 million new jobs will be created (Choate & Linger, 1987). In North Carolina by the year 2000, according to figures from the Department of Labor the economy is expected to create 760,000 new jobs (NCCCC, 1989).

These new jobs will come primarily from small businesses, changing a long-standing trend. Seventy-five percent of new employment in the

1950s and 1960s was generated by big business and expanding government. It is estimated that more than 70 percent of new jobs are now being created by small business (Choate & Linger, 1987).

This shift in the creation of new jobs is particularly critical to educators because larger businesses usually conduct their own training. Small businesses traditionally look to educational institutions to educate and train their employees.

Are the would-be twenty-first century workers being prepared adequately for their coming responsibilities, and who should prepare them? Parnell (1985b) says that, "secondary schools should prepare students for the next step whatever that step may be" (p. 10). Yet, the hard facts reveal our failure in this regard.

Figures from the 1980 census revealed that just over 30 percent of students drop out of high school before graduation and that this figure increased by five and one-half percent between 1972 and 1982 (Parnell, 1985b). More recent statistics show that, "in some cities 50% will drop out before graduation. In a few of our inner city high schools the dropout rate exceeds 70%" (National Alliance of Business, 1987, p. 3).

Although the dropout rate in North Carolina is lower than the 50 to 70 percent found in some areas, it is still too high. Over 23,000 North Carolina high school students drop out each year. These are then added to an adult population whose literacy rate is lower than that of 44 other states. "As many as 830,000 adults in N.C. lack an eighth grade education and up to 1.8 million now lack the literacy skills required to function fully on the job" (NCCCC, 1989, p. 10). The report further contends that if the present situation is allowed to continue to the

year 2000, 60 percent of the N.C. workforce will have no more than a high school education. Projections from the U.S. Department of Labor show that,

...in the year 2000, if present trends continue, over 16 percent of the state's general population and over 12 percent of the workforce will be educationally limited and unable to qualify for promotion into most jobs. (NCCCC, 1989, p.10)

What happens to these undereducated young people after they leave school? Unemployment figures reveal a dismal picture of this group. The 1982 unemployment rate for high school dropouts, 20 to 24 years old was 32 percent compared to a rate of nine percent for those with one to three years of college and six percent for those with four or more years of college (Parnell, 1985b). Figures from the National Alliance of Business (NAB) (1987) reveal that youth unemployment rates are triple the overall rate, and that "25% of all young black males have never held a job" (p. 3).

Parnell (1985b) predicts that "...the real competition for jobs in the future will be between the well-educated and the not-so-well-educated" (p. 95). The less educated will fall further and further away from the mainstream.

The 1988 Commission on Work, Family and Citizenship also addressed this point, saying that

These young people face a series of high hurdles in their search for a rewarding career. ...Fields such as transportation, communications, utilities, government, and agriculture once offered steady employment to millions of young high school graduates, but no longer to the same degree. The plight of the 'forgotten half' never easy, has become alarming. This nation may face a future divided not along lines of race or geography, but rather of education. A highly competitive,

technological economy can offer prosperity to those with advanced skills, while the trend for those with less education is to scramble for unsteady, part-time, lowpaying jobs. (p. 1)

Are those students who remain in high school until graduation any better prepared to take their places in the workforce? In their 1988 study, the Public School Forum of N.C. concluded that "of young people who do complete high schools, many do not have the skills needed to take advantage of two-year technical training programs" (p.35).

Ernest Boyer (1985) former U.S. Secretary of Education, writing in Technology Education: A Perspective on Implementation, discussed the report of the 1983 Carnegie commission on which he served. He reported that the Commission looked for purposes and goals in the schools they visited, because a shared vision of the goals was important for all with a vested interest in the school. But, he was disappointed.

...one of the most distressing aspects of our school visits was the absolute and sustained confusion about why the school was there and what the people were seeking to accomplish... principals ... preoccupied with survival; teachers ... concerned about covering the lesson plans; and students ... coming together to meet their friends. There was, quite simply, no overarching vision that seemed to guide the institution. (p.3)

Experience has shown that students work better with goals, but it is apparent that students do not know what to expect of school, and high schools and postsecondary institutions are not clear in what they expect of their students. Parnell (1985a) says that, "students do not have realistic expectations about what constitutes college level work or how a particular career choice dictates a pattern of study" (p.12).

In a study of 18,000 college freshmen conducted by Penn State University and cited by Parnell (1985b), 90 percent of the students questioned expected to have a 3.0 (B) grade point average, but 60 percent of that group estimated that they would study fewer than 20 hours per week. Eighty percent of the group knew little about the major they had chosen.

Colleges also are not always sure of their mission. Parnell (1985b) reported on a panel discussion at the 1985 meeting of the American Association of Colleges. The panel consisted of higher education leaders who contended that,

as for what passes as a college curriculum, almost anything goes. We have reached a point at which we are more confident about the length of a college education than its content and purpose...As the colleges have lost a firm grip on their goals and mission, so have the secondary schools. (p. 133)

Parnell (1985b) looked at what happened to high school graduates, and related this to the areas the students studied in high school. Of those students who graduate from high school, approximately one-third move into postsecondary education, but only about 17 percent of those receive a baccalaureate degree by the age of 25.

Another one-third of the high school graduates complete a vocational education curriculum. However, the percentage of these students trained in technical fields is very low, about one percent (Parnell, 1985). Approximately 50 percent of high school vocational training is in agriculture, home economics and industrial arts, areas which do not reflect the pressing needs of the marketplace. Additionally, vocational students often do not receive a strong basic

skills education. A result is that if they do not find work involving their vocational specialty, they are likely to be unemployed.

Relatively fewer students in vocational programs continue their education after high school. In North Carolina, according to the 1985 vocational student follow-up study by the Department of Public Instruction, 38 percent of the students who completed an occupationally specific vocational program failed to continue their education beyond high school (Interagency Task Force on Articulation, 1988).

The remaining one-third of high school graduates complete a general curriculum. This curriculum has been called the "...academic and vocational desert of American education" (Shapiro, 1986, p. 91). It is unfocused and prepares students neither for postsecondary education nor work. Parnell (1985a) contends that these students also

...receive less career counseling, have fewer marketable skills, and are unlikely to find the kind of work that can be seen as an initial step in a career ladder, at least for several years. Their expectations are fuzzy and unrealistic. (p. 10)

During recent years there has been a significant increase in the numbers of students placed in the general track in secondary school. Parnell (1985b) reported that the percentage of students in the general education track in high school jumped from 12 percent in 1969 to 42.5 percent in the 1975-1981 period (p.37).

However, Perry (1989) reports that there is growing national opposition to the general education track. Schools are trying to steer students into other areas of study. In Pittsburgh, for example,

...the school board recently decided to eliminate the general education curriculum altogether, after a study showed that these dropped out at a rate

five to six times higher than those in college-prep or vocational programs. (p. 136)

The Pittsburgh study confirmed findings by Shapiro (1986) that two-thirds of the high school dropouts report that they were in the general curriculum when they left school. This means that the actual percentage of high school students in the general curriculum is closer to 50 percent. With regard to this obvious dichotomy between the preparation of young people and the needs of society, Parnell (1985a) concludes that "...we have failed to match in any systematic way, the goals of schooling with the real-life needs of individuals" (p. 59).

Naisbitt (1982) stated the case more candidly when he wrote that "the generation graduating from high school today is the first generation in American history to graduate less skilled than its parents" (p. 31).

In a 1987 supplement to the New York Times Magazine sponsored by the National Alliance of Business, John Clendenin, Chairman and CEO of BellSouth and Chairman of the Alliance wrote that,

the nature of work in our country is changing fast and so is the workforce. Unfortunately, in many ways, the two are changing in opposite directions. (p. 1)

Once allowed the luxury of much time for the preparation of young people for work, and many unskilled jobs for those who remained unprepared, we now find ourselves facing a crisis of need in the workplace. As technology becomes more complex, the necessity for employees with higher level skills increases. These needs are not only in job-specific skills areas because employers are also placing greater emphasis on workers' critical thinking, communication, and interpersonal

skills. As these needs escalate, so too do the demands on educational systems to provide instructional programs which can prepare the workforce for a present which is all too rapidly becoming the future.

In 1983, Robert Weinstein warned that, like it or not, our educational institutions have little choice but to change with the times. Either that or be left in the wake of untold technological breakthroughs...If our educational system can no longer train and educate our young for the jobs of tomorrow, education has little relevancy. (quoted in Parnell, 1985b, p. 136)

An added factor causing difficulty is that this is a period of very tight resources. Accountability may continue to be the watchword for the near future. Citizens are demanding more in return for their time and money even as legislators are demanding more in return for the monies budgeted to various agencies. "As enrollments among younger students decline, communities are demanding program excellence, better use of financial resources, and more highly trained technicians to meet their accelerating needs" (Long, Warnbrod, Faddis & Lerner, 1986, p. 10).

The task presented to education to adequately teach students the skills necessary to deal with the increasingly sophisticated workplace and the ability to continue to learn is further complicated by the high cost of such instruction. Figures from the National Alliance of Business reveal that employers already spend an estimated \$210 billion yearly on formal and informal education and training of their employees. This is close to the total amount spent on formal education in the nation's schools. A sad commentary on the American public school system is that part of this money is spent on the remedial courses in basic

math and English which over 300 of the nation's largest companies operate for their employees (Naisbitt, 1982). An additional \$50 billion is spent on the education and training of Department of Defense employees (Parnell, 1985b). These costs, assumed by private business and government, are then passed on to consumers in the form of higher costs for goods and services. The costs of equipment and materials needed for training in highly technical jobs is also very high and clearly beyond the means of public educational systems which must compete with other agencies for a share of federal and state revenues. However, public high schools continue to be expected to prepare their vocational graduates for immediate employment. Time constraints are also expensive. Breuder & Martin (1985) concluded that the task "...exceeds the time limitations of two-year colleges to turn around (sic) properly trained technicians" (p. 32).

It is clear that the current delivery systems for vocational-technical education are inadequate to prepare students who can function in an environment filled with microprocessors, robots, numerically-controlled tools, lasers, and fiberoptics.

Education should open the world for students rather than close it down with narrow job training for jobs which are rapidly changing or even becoming obsolete. This new era demands knowledge-based instruction where attention should be "...directed to a family of skills and concepts" (Sultan & Harrick, 1987, p. 15). We must "...prepare technical workers with a broad technical and mathematical base so they can continue to learn new information after they are employed" (Hull, 1985, p. 78).

The time is right for different approaches to these problems. In order to be maximally effective, solutions should be sought by the groups involved in the needs. The problems discussed above involve more than one group. They actually involve at least three groups: the public secondary schools which are charged with the responsibility for preparing diverse groups of students for their futures; the community/technical colleges which have a mission to prepare students occupationally for a wide array of vocational and technical jobs; and, business and industry which actually set the performance standards toward which the two levels of education must guide their students. This was clearly stated in the Policies and Procedures Guide for the Articulation of Vocational/Occupational Education Programs Between North Carolina Public High Schools and Community Colleges/Technical Institutes (1978) in the following way:

to be realistically valid, performance standards must be based upon those of the business, industry or profession (the employers) concerned with the vocational/technical education program since the ultimate objective of such programs is to develop student employability which requires the ability to meet the employer's job task performance standards.
(p. 5)

It is, therefore, apparent that in order to provide employees who have the competencies identified as necessary in technological occupations, some cooperation and coordination must take place between secondary and postsecondary schools. As Parnell (1985b) says, "reform efforts absolutely require secondary and postsecondary schools and colleges to work together to improve the structure and the substance of learning..." (p. 111), because, "the curriculum of the future must so

integrate the instructional program that students can easily connect what they are learning with real life" (p.148).

Summary:

It is obvious that there are significant problems involved in the present efforts to prepare employees for the technical jobs of the twenty-first century. These can be summarized as follows:

1. rapid changes in technology which are not easily predictable, requiring a workforce with the ability to adapt;
2. the rate of growth in technological occupations which signals increases in employment needs;
3. the new global economy in which U.S. manufacturing supremacy is being usurped by developing nations;
4. demographic changes in the population and composition of the workforce;
5. the existing difficulties in public school education which have spawned reports pointing to:
 - (a) deficiencies among students in basic skills in reading, mathematics, English and science;
 - (b) deficiencies among high school students and graduates in the ability to transfer concepts from one situation to another, the ability to solve problems, the ability to think analytically, and the ability to adapt to new situations;
 - (c) high dropout rates which increased during the 1970s;
 - (d) increasing numbers of students who are enrolled in general education tracks in high school and therefore not receiving adequate preparation for their futures; and,

(e) the relative lack of needed instruction in technical fields among secondary school vocational programs; and,

6. the high cost of quality educational and training programs for technological occupations as well as the time involved in proper training. These costs, both in money and time, are presently being borne by private business and industry and by the federal government and are beyond the means of either the secondary schools or the community-technical college systems acting independently.

Solutions to these problems may be found in the linking of the secondary and postsecondary educational systems in efforts to provide vocational/occupational skills training on a continuum which starts in the high school and is completed in the community/technical colleges.

Focus of the study:

The focus of this study is an articulation project being implemented in Western North Carolina. The Regional Articulation in Vocational Education Project was designed and planned by public school educators in the six school systems of Buncombe, Henderson, Madison and Transylvania counties, educators from Asheville-Buncombe Technical Community College and Blue Ridge Community College and representatives of the Land-of-Sky Regional Council as an outgrowth of a summer project during 1982-83. This project brought together secondary vocational educators, secondary school guidance counselors, high school students, community college educators and local industries. For a two-week period, high school vocational students shadowed employees in local industries to learn about the jobs they had been studying in their vocational classes.

Following this early contact, a two year study was conducted by the Land-of-Sky Regional Council to identify those industries in the four county area which would be expected to have employee shortages in the future unless there were increases in the numbers of individuals trained for such work. Results of this study indicated that the following fields would be facing labor shortages in the next five to ten years: automotive mechanics, engineering technology in drafting and electronics, business and office occupations, health occupations, welding, machining and horticulture.

The superintendents of the six public school systems in the four counties and the presidents of the two community colleges authorized the planning and development of an articulation project built around these curricular areas. The Land-of-Sky Regional Council accepted the responsibility of fiscal management and day-to-day operations of the curricular planning and implementation. A full-time director was hired by the Executive Committee of the project in January, 1987, to work out of the Land-of-Sky offices.

The objectives of the project are to:

1. Identify competencies and skills needed by industry for graduates of targeted occupational programs.
2. Identify and assess competencies of the selected vocational programs being taught on the high school and community college levels.
3. Mesh secondary and postsecondary curricula in selected vocational areas.
4. Develop a system for awarding advanced placement to entering community college students who have achieved the identified competencies in high school vocational programs.
5. Revise existing high school/community college courses and/or curricula in targeted areas as needed.

6. Develop a system to track the competencies students achieve on the high school/community college level.
7. Initiate sharing of existing resources in public schools, community colleges, and private sector which relate to the selected areas.
8. Initiate joint planning between the community colleges, high schools, and industry to establish regional pools of training equipment and materials.
9. Initiate staff development activities to familiarize faculties, counselors, administrators of both systems and private sector representatives with long term benefits of developing cooperative vocational programs.
10. Identify other cooperative strategies to improve vocational education in the region. (Shepherd, unpublished project proposal, 1986, p. 2)

The organizational structure of the project is a series of committees beginning with the Executive Committee which is composed of individuals in policy-making positions: the public school superintendents, the community college presidents, four private sector representatives, the Executive Director of the regional council, and representatives from the Department of Community Colleges and the Department of Public Instruction.

The Implementation Committee is composed of the instructional deans of the community colleges, the school systems' vocational directors, the regional representatives of the two state systems and the Project Director.

Curriculum committees are composed of one teacher in the subject area from each school system and each community college. These committees are doing the actual work of determining needed competencies and revising program content as needed to accomplish the goals of the project.

The first three curriculum areas developed were Automotive Mechanics Technology, Engineering Technology in Drafting, and Business/Office Occupations Technology. These committees began work in the summer of 1987 and completed all necessary revisions to begin implementing the first level of courses in the fall of 1988. The next three curriculum committees in Engineering Technology in Electronics, Child Care and Agricultural Ed./Horticulture began work during the late spring, 1988.

This project has been funded in part by the following groups: Tennessee Valley Authority, Appalachian Regional Commission, the McClure Foundation, Ecusta Corporation, the State Department of Public Instruction, and the State Department of Community Colleges under its Model Project program. For the 1988-89 fiscal year, funding was also received from the Z. Smith Reynolds Foundation.

Purpose:

The purpose of this study is to describe and analyze the planning of this unique articulation project designed on a regional basis and to formulate recommendations for consideration by other regions interested in similar projects.

Importance of the study:

In order for articulation programs to be effective in linking educational systems, the design and planning of those projects must be carefully considered. An analysis of the planning of one such project with resultant recommendations to improve the process will benefit other regions which need the same type of program. There is little need for

trial and error in planning, if such planning has already been proven effective.

Research questions:

In order to describe and analyze the effectiveness of the planning process utilized to date, and to generate recommendations for improving similar processes elsewhere, the following questions will be addressed.

1. Why was a regional approach chosen for this project?
2. Who initiated the planning for the project, what groups were involved and how were they chosen?
3. Why is the regional council involved in the project and what is its role?
4. How were curricular areas chosen for inclusion?
5. What is the organizational structure of the project and what is its effectiveness?
6. Why was the director hired from outside the participating community colleges or public school systems?
7. What problems were encountered in the curricular planning and how were they dealt with?
8. What costs were incurred and what were the funding sources?
9. What arrangements will be necessary for directing the project and funding it after it is in full operation?
10. What problems are anticipated in the implementation stages?

Definitions:

For purposes of this study, the following definitions are used.

Articulation is the coordination of vocational/occupational education programs which allow students to progress from high schools through community/technical colleges without duplication of time, effort, or expense (Henderson, 1987).

Vocational education in the secondary schools is a total program which has the following purposes: (a) to prepare individuals for entry-level employment in recognized occupations at various levels of competence; (b) to prepare individuals to enter advanced or highly skilled postsecondary education vocational/technical programs; (c) to provide laboratory experiences which will help individuals to make informed consumer decisions. Secondary school vocational education includes all occupational fields.

Vocational education in the community/technical colleges is contained in programs of study designed to train individuals to enter skilled occupations at the entry level. These programs vary in length and lead to the attainment of a certificate or a diploma. The difference between the certificate and the diploma is based on the amount and type of instruction in communication skills and social sciences.

Technical education in the community/technical colleges is contained in programs of study which prepare individuals for entry-level jobs as technicians. These programs are two or more years in length and lead to an Associate of Applied Sciences (A.A.S.) degree. In addition to occupational courses, students in technical programs take general

education courses in the areas of English, mathematics, sciences, and social sciences.

Chapter II

Review of the Literature

Scholarly literature pertaining to articulation between secondary and postsecondary educational institutions was reviewed for the purpose of placing this process in perspective as regards its value to students, institutions, and communities.

Literature pertaining to planning processes was also reviewed in order to prepare the bases for analyzing the planning processes used in this project. Preliminary searches revealed that planning has been subject to less current research than has articulation.

Articulation:

Cooperative educational programs are designed to provide practical systems of vocational education delivery to meet the needs of students in a rapidly changing technological society. Cooperative programs involving secondary schools, postsecondary schools and industry are called articulation programs and are designed to coordinate curriculum between secondary and postsecondary educational institutions so that students can move smoothly from one to the other, as well as providing for the sharing of various types of resources.

The word articulation comes from the Latin meaning 'to join or fit together'. In terms of education, articulation refers to the process of making various parts of education fit together.

Definitions:

Articulation is defined in Articulation Policies and Procedures Guide: Greenville, S.C. (1987) as "...the coordination of occupational education programs so that students can progress without duplication of time, effort, or expense to themselves or taxpayers..." and it "...promotes efficient and effective movement to the next higher level of learning..." ensuring "... the students' continued learning advancement" (p. 4). According to Edward Henderson, Director of the Greenville, South Carolina project, "the optimum articulation involves a course of study which begins in high school and is completed at the two-year college (Personal conversation, Oct., 1987).

The definition found in the Policies and Procedures Guide for the Articulation of Vocational/Occupational Education Programs Between North Carolina Public High Schools and Community Colleges/Technical Institutes (1978) is more detailed. According to this document, articulation is

...the action resulting from policies and procedures employed to provide for:

1. Vocational/occupational program alignment and continuity in a given occupational area between high schools and community colleges-technical institutes conducting the program;
2. Skills and related technical information required by the student to achieve smooth transition through the various levels of educational experiences in that program;
3. Transition of the student from one educational level to another in a given occupational area without unnecessary administrative delay or duplication of effort; and
4. Improved communication and cooperation between institutions, school systems, and communities at both local area and state

levels, that share interest in the same occupational program(s). (p. 1)

Cone and Hardy (1979) characterized articulation in a broader way; as a process, an attitude, and a goal.

As a process, it is the coordination of policies and practices among sectors of the education 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. 337)

History:

Articulation between secondary and postsecondary institutions is not new. This type of cooperative effort can be traced back to the 1920s when southern California developed a 6-4-4 sequence for its educational system and established Pasadena Junior College (later Pasadena City College) for grades 11 - 14 (Whitlock, 1978).

The importance of coordination and cooperation among educational institutions was acknowledged in 1929, when the National Education Association dedicated its Seventh Yearbook to a discussion of articulation at all levels (Long, Warmbrod, Faddis & Lerner, 1986). As early as 1932, there were educators' conferences on articulation in California (Opachinch & Links, 1974).

In the early post-World War II years, the Truman Commission studied higher education in the United States culminating their study with a

1947 report, Higher Education for American Democracy. The Commission found very limited opportunities for higher education experienced by a large portion of citizens and focused its recommendations on this situation. This report became a blueprint for educational development in the post-war years. In addressing the issue of limited educational access, the Commission advocated the development of community colleges across the nation and the need for easier transition from high school to college. This is believed to be the first formal use of the term community college (Long et al. 1986; Parnell, 1985b).

In the 1950s, two programs involving articulation of academic credits from high schools to four-year colleges were developed. The Advanced Placement (AP) program enables high school students to take college-level courses and receive advanced standing in a postsecondary institution. The College Level Examination Program (CLEP) allows students to bypass certain courses at the postsecondary level, by testing.

In the late 1960s, vocational-technical programs became the focus of articulation activities. New York met with some success in early efforts to articulate some business and technical programs between high schools and two-year colleges. In Oregon, the State Board of Education issued a guide to assist high school districts and community colleges in articulating occupational programs.

By the mid-1970s there were numerous articulation activities underway among secondary and postsecondary institutions. Several national studies were commissioned to categorize these efforts. A 1976 study by the National Advisory Council on Vocational Education surveyed

state advisory councils and found some planned articulation activities between secondary and postsecondary schools in approximately 40 percent of the states responding to the survey (Long et al. 1986).

Bushnell directed a 1977 joint study for the American Association of Community and Junior Colleges (AACJC) and the American Vocational Association (AVA), which centered on identifying any administrative policies and practices in various local areas which have resulted in the development of exemplary articulation programs. Of particular interest were cooperative and coordinative agreements between public and private institutions providing postsecondary, nonbaccalaureate occupational and vocational education. After initial screening, this study involved twenty-two institutions which were studied in depth.

Articulation in North Carolina:

In North Carolina, the history of articulation considerations dates from 1968 when a two-day conference was convened in Charlotte, "...to discuss ways and means of increasing the articulation between secondary and postsecondary programs " (Manley, 1970, p. 95). Attending this meeting were the state staffs of both the secondary and postsecondary systems and 97 local occupational directors.

In early 1969, several groups were involved in developing a Five-Year Agricultural Education Plan for North Carolina. The groups were: the Agricultural Education Staff of the State Department of Public Instruction; the State Consultant of Agricultural and Biological Education of the State Department of Community Colleges; the Agricultural Education Staff of the NC State University; and, the Agricultural Education Staff of the NC Agricultural and Technical State

University. The plan developed was a joint program of agricultural education beginning in the upper elementary grades and continuing through the community-technical colleges in the associate in applied sciences degree curriculum. Although the plan was never finalized, Manley (1970) wrote that this was "...a highlight of cooperative effort..." (p. 104) and that it was

the first formal effort at the State level to develop an effective total program of occupational education in one occupational field with a minimum of duplication but a maximum of 'gap filling,' 'dove-tailing' and cooperative effort toward the achievement of a common objective. (p. 104)

In 1971, the State Board of Education passed a resolution encouraging these activities between the public school system and the community college system (Woelfer, 1975). At that time, both systems were under the regulation of one state board of education.

In 1974, the N.C. State Board of Education approved the initiation of a research project by the Department of Community Colleges involving articulation. The project, entitled Articulation of Occupational Education Programs Between Secondary Schools and Community Colleges/Technical Institutes, was conducted by the Duplin County Schools and James Sprunt Technical Institute at Kenansville. This project was intended to develop a comprehensive model for the articulation of public high school vocational education programs with the occupational education programs of the technical institutes-community colleges to serve as a guide for articulation efforts throughout the state.

The efforts of these two agencies resulted in the adoption and application of five basic concepts of articulation from which implementation policies and procedures were developed. Carlyle Woelfer (1980) was the director of this project and cited the concepts as follows:

Concept I: Joint policies and procedures are required for successful articulation...

Concept II: Standardization of vocational education...subject matter, based upon industry validated task inventories which specify the competencies required for job qualification, is necessary if...articulation...is...achieved.

Concept III: Standardized performance standards for...subject area job tasks are required for effective...articulation of vocational education programs. The standards to be used are based upon ...initial employment... standards/requirements for the job...concerned.

Concept IV: Establishment of joint committees ...in a dual occupational advisory and program development role is essential...

Concept V: Evaluation of...performance determination and recognition of...job qualification, and determination of credits ...toward advanced standing at the community college...in articulated programs is best accomplished by employing the following:

- A. competency-based standardized test items or test item outlines for each competency...
- B. providing for...test teams to administer ...a portion of the student job qualification...; and
- C. providing for...recognition of student... attainments in... personnel management terms as to...qualification(s) attained - plus a record of community college advanced credits earned....(pp. 39-40)

This project initially involved the curricular areas of automotive mechanics, business administration, and mechanical drafting (Woelfer, 1975; N.C. Policies and Procedures, 1978).

In 1976, the Duplin County-James Sprunt project was extended for two years with funding from both state departments: public instruction and community colleges. The functions of the project were extended to provide technical assistance to other areas in the state interested in initiating articulation activities (N.C. Policies and Procedures, 1978).

Current status:

The articulation of vocational/occupational education programs between high schools and community colleges-technical institutes has become an important subject of discussion in recent years. Governmental agencies at both federal and state levels have advocated the need for closer coordination and cooperation between educational agencies at different levels. Some states, such as South Carolina have legislative mandates requiring that articulation be developed between secondary and postsecondary institutions.

According to Fadale and Winter (1987), articulation, "...is considered a viable strategy to address many interagency concerns as well as better serve a large group of students that Parnell has called, The Neglected Majority" (p. 26).

Articulation approaches:

Articulation can be accomplished in a number of ways, ranging from very simple arrangements to quite complex ones. Whether simple or complex, articulation in vocational-technical education, "...is designed to develop a continuous sequence of vocational education so that

students may continue their occupational training without repeating tasks which have been mastered previously" (Henderson, 1987, p. 4). The process involves closing any existing gaps as well as eliminating unnecessary overlap. This coordination should ensure smooth flow of students through educational levels and ensure that vocational education is efficient and effective.

Articulation can occur at the same educational level or between different levels. If it occurs at the same level, it is called horizontal articulation. This is found, for example, between schools in the same school system or different systems, allowing students to move from one high school to another without loss of course content. Vertical articulation involves moving from a lower level to a higher level of education as in moving from high schools to the community colleges without encountering unnecessary barriers. Reverse articulation occurs when students enrolled in an institution normally considered to be at an advanced level return to an institution they usually would be expected to have completed earlier as in moving from a four-year college to a community college.

Methods:

There is no one system for categorizing articulation methods. The 1982 report from the Joint Committee on Articulation of the North Carolina Council of Local Administrators and the North Carolina Association of Community College Instructional Administrators categorized articulation efforts on a continuum from a program-by-program approach to a systems approach. The program-by-program system involves the identification of courses that will articulate on a course

or program basis. This type of arrangement is based on agreements between institutions which allow students to move from the secondary to the postsecondary level in specific, approved programs without repeating courses. This type of approach requires little commitment in time or resources.

The systems approach is competency-based, requiring extensive commitment by the two educational levels. Within this approach, educational units can develop varying models which fit their localities and situations. According to the Joint Report (1982), these models can

1. occur at various levels of attainment;
2. occur in the sequence presented or in any other locally workable sequence;
3. be achieved within existing operational (i.e. policy and organizational structure) framework or a mutually established framework; and
4. be implemented within existing funding levels or stimulated through categorical state or locally 'pooled' resources. (p. 4)

Dale Parnell, the president of the American Association of Community and Junior Colleges, has been very active during the decade of the 1980s advocating articulation arrangements and partnerships among secondary schools, community-technical colleges and business/industry. He emphasizes these programs for two primary reasons: (1) the needs of business/industry for technically trained employees who can also communicate, solve problems, manipulate numbers and symbols, think creatively, and adapt to changing situations; and (2) as a means of developing meaningful educational experiences for the 30 to 50 percent of high school students who are in the general education curriculum track which fails to prepare them for a productive future. This group was the focus of Parnell's 1985 book, The Neglected Majority, in which

he developed plans for leading this group into programs of study which would be more focused and meaningful for them.

Specific types of programs:

Parnell (1985a) identified four major categories of partnership or articulation programs.

(1) Joint enrollment is identified as the most common type of cooperative arrangement. This program provides challenge for students who need more than the standard high schools courses. In some states, funding formulas reward both the high schools and the colleges for such joint participation, while others do not.

(2) Another cooperative program involves the sharing of faculty and/or facilities. In some cases, college faculty may teach classes in the high school facilities, or high school students may take classes in a college facility for high school credit. Less often, the high school faculty may teach college level classes for students enrolled in college programs.

(3) Advanced placement is a program which allows college credit for work actually accomplished at the high school level. The determination of eligibility for advanced placement credit may be based on the results of testing procedures. Testing can be completed before the student graduates from high school or at the time of college matriculation.

(4) Program articulation is based on written agreements developed by high school and college faculty and administration. These agreements are generally found in vocational-technical courses and programs.

Long et al. (1986) examined a number of cooperative programs for a project by the National Center for Research in Vocational Education,

then in Columbus, Ohio, now at Berkley, California. They identified three basic models of secondary-postsecondary vocational-technical articulation: advanced placement, tech-prep, and vo-tech two-plus-two. The benefits of cooperative arrangements were identified as either time-shortened or advanced skills development.

Time-shortened programs:

The time-shortened program is the most commonly found model of secondary-postsecondary articulation (Henderson, 1987; Long et al. 1986; Willson & Anderson, 1986). These programs are designed to eliminate unnecessary redundancy in course content by identifying the overlap in high school and college courses, and where students can demonstrate attained competencies, advanced placement credit can be granted. As a result of this type of articulation, students are able to complete an occupational certificate or associate degree program more quickly than the normal postsecondary program will allow. By shortening the time required for completing training programs, students save not only time, but money and effort as well. Since in most states, community-technical colleges are funded primarily by tax money, the taxpayers also save money. Sometimes additional money is saved by the institutions involved in these cooperative efforts by sharing facilities, equipment, and less often, faculty. Indeed, the most cost effective approach to the delivery of vocational education is to maximize the use of existing facilities and equipment through some sharing arrangements.

In some school systems, high school students are able to take up to three years in some vocational programs before they graduate. For those students who meet the necessary criteria as many as two or three

occupational courses at the community-technical colleges may be bypassed. Although in this type of articulation program students are permitted to complete their educational programs early, their skills levels do not advance beyond those expected in the traditional programs.

Community-technical college personnel maintain that these articulation arrangements attract better students to their programs, while the high schools often find that coordination helps them to provide broader training opportunities for their students.

Advanced skills programs:

Advanced skills programs are also designed to eliminate duplication of training from secondary to postsecondary programs. The main purpose of these programs, however, is to streamline training to allow more advanced instruction than the traditional program can provide (Henderson, 1987; Long et al., 1986; Willson & Anderson, 1986).

Advanced skills programs are usually found in the so-called high-tech training programs and aim at graduating students from the community/technical colleges at the "master technician" level. These programs, which involve significant curriculum revisions, typically serve local high-technology training needs. Because of this, "...it is important to conduct local needs assessments, predetermine potential enrollment, and find funding for the program up-front" (Warmbrod & Long, 1986, p. 6). School systems and community/technical colleges which have developed this type of program have also found that joint advisory boards and a program coordinator are important to the process.

There are two forms of advanced skills programs. One is the core curriculum or tech-prep approach. This type involves a core curriculum

of mathematics, science, literacy skills and other skills to prepare high school students for a strong postsecondary technical program. The second form is the vocational-technical 2 + 2 program. This ambitious articulation effort involves very tightly coordinated curriculum for grades 11 - 14, two years of high school and two years of postsecondary courses. Although many educators use the term "2 + 2" to mean any articulation program, it actually refers to a specific program, the vo-tech 2 + 2.

Tech-prep programs:

The tech-prep partnership is advocated by Parnell (1985b) and its targets are:

- (1) the middle quartile of the typical high school student body in terms of academic talent and interest; and,
- (2) the mid-range of occupations requiring some beyond-high-school education and training but not necessarily a baccalaureate degree. (p. 140)

The tech-prep program is a four-year sequence of courses consisting of two years of mathematics, science, communications and basic technology courses, preferably in applied settings and two years of specific technical education programs. The sequencing of the two parts of the program is determined locally. Depending on the expertise and facilities available at the secondary and postsecondary schools, the specific technical skills training could take place at either. The usual arrangement, however, leaves the specific technical skills instruction for the community-technical college leading to an associate degree in one of the technical fields.

The tech-prep/associate degree program does not replace the college-prep/baccalaureate degree program or the vocational job skills program. It is, however, designed to replace the general education track in the high schools. The three tracks should all include a core of courses such as communications skills, social sciences, physical education, mathematics, and physical/biological sciences (Parnell, 1985b; Shapiro, 1986). This "...core would be tailored for each major, ...with allowances for individual differences in learning speed and style ... linked with real-life examples emanating from the careers-education emphasis" (Parnell, 1985b, p. 74).

The tech-prep/associate degree program is based on locally developed agreements and high school students are allowed to choose this track in the eleventh grade. The arrangement allows for the last two years in high school to be joined to the first two years of college, in a structured, closely-knit, uninterrupted course of studies. The program is flexible and can meet a variety of student needs. The tech-prep program can be called liberal-technical because it represents a blending of liberal arts with practical arts and requires close curricular coordination. There is considerable emphasis on continuing communications between high schools and community college administrators and faculty and between these groups and local employers (Breuder & Martin, 1985; Long et al., 1986; Parnell, 1985a, 1985b; Shapiro, 1986).

Purposes of the tech-prep/associate degree program include producing better prepared entering students in postsecondary technical training programs and consequently, producing better prepared entry-level employees in a range of technical occupations. Students are given

a broad, basic background in technology and a strong core of concepts and skills. They are not, however, expected to make occupational choices in high school because this curriculum can be a base for such a wide range of occupations not limited to the vocational-technical skills areas but also including many occupational areas which require the baccalaureate degree or beyond.

Many of these programs allow students to bypass some introductory courses at the postsecondary level if they are able to demonstrate needed competencies. Bypassing introductory courses allows students to take more advanced courses than the two-year training programs normally allow or to complete their programs early.

Possibly the biggest challenge for this type of articulation is the development of a rigorous curriculum in applied mathematics and science. Because of this need, the Center for Occupational Research and Development (CORD) under the direction of Daniel Hull, and the Agency for Instructional Technology under the leadership of Bennie Lucroy, developed a high school applied physics course called Principles of Technology in the early 1980s. This is a two-year sequence focusing on the scientific principles which form the basis of technological developments including such concepts as force, resistance, energy, power, momentum, and so forth. Units of material deal with these principles as they apply to mechanical, fluid, thermal, and electrical systems. Because of the emphasis on application, this course, and others like it, is expected to motivate ordinary students to learn more physics, mathematics and other sciences than they might learn, or than they will learn, in traditional theory courses (Hull, 1985; Parnell,

1985b). The objectives and goals of the course are "...to help students learn technical principles and concepts, improve science and mathematical skills and knowledge, and provide hands-on laboratory experience for technicians" (Parnell, 1985b, p. 147).

It is Parnell's (1985b) contention that during the entire four years of the tech-prep program, students will have the advantage of the expertise of both secondary and postsecondary instructors, as well as the advantages resulting from the sharing of facilities, equipment and materials between and among the institutions.

Vo-Tech 2 + 2:

The vocational-technical 2 + 2 program is ambitious, involving extensive revisions of curricula to result in a tightly coordinated four-year sequence of instruction. These programs share some characteristics with the tech-prep/associate degree programs, and some authors, for example, Hull, 1985; McNutt, 1986; Parnell, 1985a, 1985b; Shapiro, 1986, identify them as one.

Other authors, such as Long et al. (1986) and Henderson (1987) separate the two programs. There are significant differences between the concepts which allow them to be considered as different programs.

Long et al. (1986) take the position that the true vo-tech 2 + 2 program is rare. Further, they contend that these programs involve close cooperation of several types between secondary and postsecondary institutions; usually result in a new or completely rewritten competency-based curriculum for each subject area; and use a career-ladder arrangement permitting students to leave the program after grades 12, 13 or 14 with a certificate of competency at the level of

completion. This type of articulation allows the sharing of facilities, faculty, and other resources; encourages the use of joint advisory committees; and, often in these programs the public school system and community college jointly employ a program coordinator or director (Henderson, 1987; Long et al. 1986).

The vo-tech 2 + 2 program is designed as an instructional continuum which begins at the secondary level and terminates at the postsecondary level. It is streamlined and can be characterized as a sequence of learning levels, blending the resources of the two levels of education and in which there is "...minimum duplication in the study of mathematics, sciences, language arts or literacy, technology and specific technical skills" (Henderson, 1987, p. 11).

This type of program focuses strongly on the advanced skills needed in high-technology occupations. Advanced placement credit is awarded to entering community-technical college students who can present confirmation of the acquisition of needed competencies. Warmbrod and Long (1986) identified several ways that credit can be certified, such as by testing. However, the recommended method is to award credit directly, without testing, but with confirmation of accomplishment by the high school teacher. Also, credit may be withheld pending completion of specified postsecondary courses. Close relationships are maintained with local employers and significant time is invested in planning and managing the projects.

Hull (1985) of CORD contends that 2 + 2 articulation should lead to the awarding of advanced credit by the postsecondary institutions for

work accomplished at the high schools. He continues that,

programs and curricula that have been articulated to this degree make the most efficient use of time and other resources and they provide the strongest form of motivation for students. (p. 2)

In practice, articulation covers a wide-range of activities and relationships between institutions. Many cooperative activities exist which do not require a significant amount of secondary-postsecondary coordination, although all require communication between institutions and levels. Whatever cooperation and coordination are required, they usually do not happen without intense effort (Hull, 1985; Long et al. 1986).

The approach chosen in any given locality is determined by the social, educational, political, and economic climate of that locality. The important factor is the recognition by the secondary schools and the community colleges that they have a need to articulate vocational and/or technical curriculum for the benefit of students and community.

Benefits of articulation:

During 1984-85, the State University of New York and the Bureau of Grants Administration of the New York State Education Department commissioned a research project which was to summarize existing activities in cooperative occupational programs between secondary and postsecondary institutions in the state. The results of the study were reported by Fadale and Winter (1987). Although the primary benefits of articulation and the driving force for developing such programs were identified as student-centered, they reported that over 49 percent of

the respondents viewed articulation as an enrollment strategy, although not a primary recruitment tool.

A joint survey for the American Association of Community and Junior Colleges and the Association of Community College Trustees in 1985 contacted 1200 community colleges to examine existing collaboration efforts with secondary schools and found similar attitudes. These results were reported by Day (1985) who concluded by saying that,

the type of collaborative efforts generally offered are directed toward issues related to student recruitment, enrollment development, etc., rather than the larger issues... goal clarification, curriculum revision, and redefinition. (p. 32)

Student benefits of articulation include the avoidance of instructional repetition; advanced placement/course exemption; early completion of community college programs, thereby saving both time and money; opportunity for course options such as additional advanced courses for increased competencies in their field, or developing competencies in other fields; career exploration for secondary students because of exposure to the colleges; and, a sense of direction and purpose not usually found in the general track (Fadale & Winter, 1987; Henderson, 1987; Hull, 1985; Long et al., 1986; Maricopa County Community College, 1986; Moore, 1984; Opachinch & Links, 1974; Parnell, 1985b; Interagency Task Force on Articulation, 1988).

Manley (1970) contended that,

a well-articulated educational program provides students an opportunity to develop to their highest potential without ... delay in attaining their educational and career objectives. (p. 1)

Beyond the benefits for students, the schools find that articulation is an effective public relations tool in that it exemplifies cooperation among institutions and more efficient use of public money because it avoids costly duplication of facilities, equipment, and materials. Teachers benefit from the process of reviewing, updating, revising and coordinating the curricula. This process often represents the first time that some teachers have carefully examined their course content with an eye toward determining why they teach certain concepts and why they do not teach others. Employers benefit by the increased pool of better-qualified job applicants. Communities benefit because living standards improve when higher skilled job opportunities are available and young people are not forced to leave their locale in search of better jobs and higher income. All groups benefit from the increased respect which instructional personnel develop for each other as they become more willing to work together to help students (Fadale & Winter, 1987; Henderson, 1987; Hull, 1985; Long et al. 1986; Moore, 1984; Opachinch & Links, 1974; Parnell, 1985b).

While the benefits of articulation are important, it must be recognized that the process requires extra effort, time and resources. The fact that three out of four community, technical and junior colleges reported little activity in program coordination and articulation as recently as 1985 attests to the difficulty of the process (Parnell, 1985b).

If articulation is to work, educators at all levels must work for the best interests of their students and the communities. However, as

long as institutions must compete with each other for students, FTEs, and other resources, it will be difficult for them to develop cooperative structures, linking parts of their organizations. It is, therefore, to be expected that problems will develop.

Problems:

The single most often cited problem is that of turf protection. Cooperative programming is seen as an intrusion by some and a threat to one program or another. Other serious problems have been identified as lack of support and commitment at either level by faculty or administration; lack of state-level leadership and encouragement; difficulties in scheduling meetings; inadequate funds; incompatible curricula; philosophical differences; delay between initial contact and productive meetings; unrealistic expectations about the numbers of participants; inadequate internal communications; inadequate external promotion of articulation; and, in some areas, the community college image is less-than-positive (Bushnell, 1977; Fadale & Winter, 1987; Galloway & Washburn, 1985; Long et al. 1986; McNutt, 1986; Parnell, 1985b).

The joint AACJC/ACCT study reported by Day (1985) confirmed these problems and added several others. Some community college respondents felt that high school staffs feared competition with adult education and advanced placement programs. Another problem identified by this study was that union contracts in areas with union activity, interfered with the establishment of cooperative programs.

Characteristics of successful projects:

Authors and researchers cited in this paper have identified certain essential, common characteristics shared by successful projects. These characteristics were present no matter which articulation model was used.

The chief executive officers of the secondary and postsecondary institutions have initial responsibility for communications. There must be both commitment and leadership from the top to send proper signals to principals, deans and faculty identifying articulation as an important effort (Bushnell, 1977; Carey, Wark & Wellsfry, 1986; Doty, 1985; Fadale & Winter, 1986; Long et al. 1986; Parnell, 1985b; Warmbrod & Long, 1986). So important is this aspect that Parnell (1985b) stated unequivocally that, "only top-level leadership will sustain this kind of effort" (p. 119).

There is a formal, written articulation agreement signed by the public school superintendents and community college presidents. This document reflects administrative support and formalizes the cooperation. The written agreement should specify responsibilities of the parties involved and should contain provisions for annual review, revision, and renewal (Carey, Wark & Wellsfry, 1986; Doty, 1985; Henderson, 1987; Long et al. 1986; Parnell, 1985b; Warmbrod & Long, 1986). In the Fadale and Winter (1987) study, 60 percent of the postsecondary respondents and 76 percent of the secondary respondents who reported any cooperative programs had existing operational agreements.

There is early involvement of faculty and open, clear and frequent communications among the various groups. Faculty must meet often to get

to know each other and to develop respect for each other while they produce materials and procedures for articulation. Relationships among the faculty of each level may begin with some strain and mistrust. However, as these professionals work together to develop plans for the benefit of their students, the level of trust increases and warm relationships evolve based on the respect each has developed for the integrity of the others (Carey, Wark & Wellsfry, 1986; Fadale & Winter, 1987; Henderson, 1987; Long et al. 1986; Opachinch & Links, 1974; Parnell, 1985b; Interagency Task Force on Articulation, 1988; Warmbrod & Long, 1986). Some authors, including Doty (1985), Parsons (1980), and the researchers of the Interagency Task Force on Articulation, (1988) maintain that teachers should receive credit and/or compensation for their work on these projects.

The curricula of both high school and community college programs is competency-based. The competencies are developed from the performance standards for entry-level employees in each curriculum area. If instruction is built on competencies, it is possible to develop standard measures to determine what competencies students have mastered. By building on competencies, it is simpler to decide at what level the high school student meets the minimum criteria for completion of the college course(s) (Bushnell, 1977; Galambos, 1984; Parsons, 1980; Interagency Task Force on Articulation, 1988; Warmbrod & Long, 1986). Hill (1984), writing about articulation between the Spokane Area Vocational Skills Center and Spokane Falls Community College (Washington) said that,

there was agreement that if competency-based units of instruction were used at both schools, the process of articulation would be more valid, immediate and complete. (p. 3)

Articulation planners start small. The more effective projects begin with a few programs which have the greatest probability of success. These might be programs whose faculty are more positive about articulation, or they might be programs with easily defined and measured skills (Carey, Wark & Wellsfry, 1986; Warmbrod & Long, 1986).

Someone has the responsibility for carrying out the articulation agreements. The joint employment of a director or coordinator by the relevant colleges and school systems indicates a high degree of commitment and cooperation. A person could be assigned from either of the two levels of educational systems or from one of these, but whatever arrangement is made, someone must have responsibility for keeping up with the process, editing materials, scheduling meetings and keeping records (Warmbrod & Long, 1986).

The North Carolina Policies and Procedures Guide (1978) contains the opinion that the key to subject matter articulation is the "...standardization of instructional objectives, based upon recognized job tasks and the application of job task performance standards based upon employer requirements" (p. 5). This guide also exhibited foresight not usually found in educational planning documents with its emphasis on the need for "...standardization of instructional basic content for occupational courses common to local area institutions at both levels of education..." (p. 4). Carrying this concept even further, it stated categorically that, "it does not appear desirable, practical or

realistic to have a variety of job task performance standards applied for the same tasks in the same school system, local area or region" (p. 5).

Perhaps Breuder and Martin (1985) best expressed the value of these cooperative arrangements by saying that,

In the face of the nation's urgent need for a highly trained workforce and the necessity for public education to better serve the general curriculum student, cooperative ventures between secondary and postsecondary institutions such as technical preparation must become a reality. Continuation of the tired traditional attitudes and approaches in the classroom will weaken our nation's business and industrial fabric, resulting in our losing more ground in the international marketplace. The alternative is an educational partnership that combines resources to focus upon the emerging needs of business and industry, and helps assure that each student receives the kind of quality education that leads to a personally satisfying and professionally rewarding life. (p. 36)

Summary:

Articulation in education represents a possible solution to the dilemma currently facing employers in workforce needs, and educators in efforts to develop relevant educational activities. This process involves closely coordinating educational efforts in vocational-technical skills areas so as to prepare a quality workforce in highly skilled fields. Although not entirely new, there is renewed interest in articulation efforts due to the skills crisis in industry and the quality-of-education crisis in educational institutions. Advantages of such programs include savings of money and time and providing focus for students who may otherwise have none, as well as the obvious benefits to

industry. Other benefits of well-developed articulation agreements are many, and accrue to all groups involved: students, educational institutions, employers, taxpayers and communities.

The present emphasis in articulation processes is in vocational-technical subject areas, although the academic areas have used some such arrangements for many years. Articulation possibilities involve arrangements varied in type and covering a wide-range of relationships and activities between institutions.

In North Carolina, articulation efforts date from the 1960s, and both the department of public instruction and the department of community colleges have gone on record to encourage and support local efforts to develop these cooperative agreements.

Problems are reported by those who have initiated articulation programs and those who have studied them including turf protection, lack of administrative and/or faculty support, and philosophical differences, among others.

The most important characteristic of successful programs is identified in the literature as the commitment and support of the chief administrators of both secondary and postsecondary schools. Other characteristics shared by successful programs include the existence of written agreements to articulate, frequent and open communications among participants, and early faculty involvement. Curricula in programs to be articulated should be competency-based at both levels, and there should be a person who has primary responsibility for directing the work and carrying-out the articulation agreements.

The 1978 North Carolina Policies and Procedures Guide seemed to endorse regional planning for articulation in a statement denouncing the use of a variety of performance standards for the same task in the same local area or region.

Planning:

The key to effective program implementation is planning. Planning allows an organization to coordinate its resources with its challenges to achieve its objectives. According to Graham and Hays (1986), it is planning which "...allows managers to know where the organization is at the present, what its resources are or might be, and where the organization's leaders or policy makers want to go" (p. 65).

Definitions:

Although each author consulted had his own definition of planning, most definitions followed a similar pattern as seen in the following examples.

Ward (1970) stated that planning is "...the purposeful programming of action, with reference to available resources and the predictive context in which the proposed action is likely to be taken" (p. 9).

Hammond and Norris (1976) describe planning as a two step process in which

the first step is to determine the barriers (or problems) which need to be attacked.
The second step is to determine the service mix which best attacks these barriers. (p. 5)

In 1986, Graham and Hays defined planning as a process in which the organization

...selects objectives and determines the means to reach them. Plans are aimed at achieving the best use of organizational resources in a future environment, and they are also the bases for managerial control and direction of the organization in its current environment. (p. 36)

Kaufman (1988) writing on educational planning, defined planning as

...a process for determining where to go and identifying the requirements for getting there in the most effective and efficient manner possible. (p. 20)

It is perhaps significant that the more recent author cited, who was concerned with educational planning, included an element not found in the earlier definitions, namely, the effectiveness and efficiency needed in determining the pathways to the organization's goals. This may be a reflection of needs expressed in the educational reform reports referred to earlier in this paper such as that of being accountable for increasingly precious material resources.

These authors agree that planning involves some action or goal toward which the organization determines to move. Also in agreement is the opinion that planning includes choosing the means to be used in reaching the goals and should result in the best use of whatever resources the organization has available or can muster.

It is important to remember that planning is accomplished in steps, and that doing is not the first step. Planners use objective processes; they use hard data and must be able to document decisions (Hammond & Norris, 1976; Kaufman, 1988). If procedures are followed carefully,

planning can be a valuable process and an effective tool as Graham and Hays (1986) asserted,

...to the degree that it uses methods and techniques based on analysis rather than on intuition, guesses, or feelings. (p. 42)

Values of planning:

Planning is of value to organizations in several ways. Its primary value is in designating a course of action, or goal, toward which the organization should move. It then allows the organization's resources to be mobilized, coordinated and aimed toward achieving the goal. Beyond this, planning also provides the organizational framework which helps managers make current, day-to-day decisions. It is this framework which allows managers to keep up with where the organization is, what resources it has and where it is going. To be effective, planning must be legitimized by an organizational structure (Graham & Hays, 1986; So, Stollman, Beal & Arnold, 1979).

So et al. (1979) considered the primary value of planning as that of "...the progressive displacement of seat-of-the-pants judgements with reasoned judgements" (p. 13). Although plans are made to reach goals which may be years in the future, these authors also contend that another value "...of a plan is in helping to make decisions today" (p. 14).

Another important value in planning, and one that is particularly pertinent to this paper is that a carefully documented plan can be analyzed, evaluated and replicated.

Planning occurs in response to forecasts which come to the attention of managers. Graham and Hays (1986) define forecast as

"...an estimate of a future event or environmental influence over which the manager or the organization has no direct control," but which may "...enable planners to form expectations of what will happen to ... relevant variables..." (p. 48).

This matter of forecasting has taken on added importance because the rate and complexity of changes in society have escalated so rapidly. Organizational managers, who have primary responsibility for planning must also take the responsibility for forecasting. This task was discussed by So et al. (1979) who maintained that "management needs to anticipate events; it is weak if it merely responds to them" (p. 13).

Planning can range from simple to quite complex. The sort of planning addressed in this paper is complex and as such, should have "...official standing, a known purpose, a line of authority, and financial and human resources" (So et al. 1979, p. 61).

Organizational planning:

Planning activities are of many different types, take place in various types of organizations, both public and private, and at all levels of these organizations. Public planning occurs in governmental agencies and organizations at federal, state and local levels. Defense planning, highway planning, educational planning, city and county planning, land-use planning, and hazardous waste planning are examples of public planning. Private planning is basically corporate or business planning which involves product or service development and marketing strategies.

Comprehensive planning:

Within the framework of public and private planning, there are different types of planning. Graham and Hays (1986) analyzed the work of planners, and identified planning as a way of dealing with change. In doing so, they determined that planners use time "...as a definition of the range of developments" (p. 40). Therefore, planning terminology reflects the time periods involved in each type. This was not a new concept, however. So et al. writing in 1979, also described planning in terms of a timeframe. The term they used to describe overall, long-term organizational planning was comprehensive. However, they maintained that such long-term planning was difficult and possibly bad.

Incrementalism:

The response to this assessment of comprehensive planning was incrementalism which was based on the following assumptions, that

...problems are harder to solve when you group them together and are easier to solve when you take them one at a time; ... solutions are best negotiated with the few people who have a direct interest, not with the many whose interests have a remote connection to the problem at hand; ... genuine reform is accomplished in small bites, not in 'whole swallows'; and ... small increments of change can be better fitted to the real needs of people than can the tyranny of a grand design. (So et al., 1979, p. 15)

Ferris, Hudak, and Sorkin (1985) and Graham and Hays (1986) used the concept of incrementalism, if not the term. They described planning which required a time period of longer than 5 years as strategic planning. Shorter term planning, 5 years or less, they called implementation planning. Implementation planning is described in two

parts; long-range plans involve a time span of 2 to 5 years; short-range plans are of less than 2 years duration.

Strategic planning:

These authors also maintain that this is a more practical classification of planning in that classic planning involved goals which represented what someone thought 'ought to be', while strategic planning concentrates on what is possible or 'do-able'. Ferris et al. (1985) define strategic planning as,

...a systematic way to manage change and create the best possible future. It is a creative process for identifying and accomplishing the most important actions in view of strengths and weaknesses, threats and opportunities. (p. 1)

Strategic planning focuses on allocating scarce resources to critical issues. The strategic planning process sets the stage for implementation planning and the actual actions designed to reach the goals.

According to Graham and Hays (1986), strategic planning is used in determining the overall direction of an organization. Techniques of strategic planning include "...forecasting, identifying alternative approaches, goal setting, and contingency planning" (p. 41).

Ferris et al. (1985) contended that strategic planning is different from other planning systems in specific characteristics which they identified as follows:

it is a focused process that concentrates on selected issues... explicitly considers resource availability...assesses strengths and weaknesses...considers major events and changes occurring outside the organization or jurisdiction ...is action-oriented, with a strong emphasis on practical results. (p. 1)

Strategic planning can be used effectively in a number of organizations. Fox (1987) discussed strategic planning in small businesses. He believes that the planning process should result in a written guide, and that it should cover these topics

assessment of the company's situation
 problems and opportunities
 explicit assumptions and objectives
 brief itemization of feasible options
 tentative strategic decisions
 provision for implementation
 strategic controls (p. 561).

Ferris et al. (1985) wrote on the use of strategic planning for cities and counties and identified the benefits of this process.

...a tool for generating action on high priority items...answers the question 'what issues and opportunities... will make a difference five or ten years from now?' The...process identifies trends and directions that shape the community ...an important first step toward agreement on the best response...supports targeting of resources to the most important problem and ...focuses on a limited number of key issues and establishes priorities. (pp. 5-7)

Kaufman (1988) discussed the use of strategic planning in education. He saw strategic planning as an umbrella device for asking and answering the questions, "where is society going; where should it be going; and how can our educational agency make a positive contribution" (p. 16).

Implementation planning:

Implementation planning involves decisions about the activities to be used in meeting the goals and objectives of the organization, and should, according to Graham & Hays (1986) take place "...under a strategic planning umbrella" (p. 41). The two aspects of implementation

planning, long-range and short-range planning are differentiated by the lead-time required to achieve the organization's objectives. These planning activities are based on the same assumptions as strategic planning and use many of the same techniques (Graham & Hays, 1986; Kaufman, 1988; Makridak & Heau, 1987).

In addition to seeing implementation as a planning style, Kaufman (1988) also uses the term in a narrower sense than Graham & Hays (1986) or Ferris et al. (1985). He considers implementation to be

...the actual doing of what was planned using the selected tools and tactics. ...includes both the making or obtaining of...methods, means and materials as well as using them in the educational setting. (p. 170)

Long-range implementation plans are formulated to meet strategic objectives and are based on predictions about specific events within a specified time-frame. The reliability of predictions tends to lessen as the time-frame is extended. Therefore, both the predictions and the plans should be reviewed annually so that changing situations and conditions can be considered.

Short-range plans involve a period of one year or less. There are other terms used to refer to short-range plans such as action planning, situational analysis, and tactical management, and several other types of planning which refer to specific situations but which are short-range planning exercises.

Program planning:

Program planning can be described as the development of specific, organized activities to meet the goals of strategic plans, and as such is a subsystem of implementation planning. Activities such as "...the

identification of the clients to be served, the description of services to be provided, and the specification of funds, personnel, equipment, and activities necessary to produce the desired service" (So et al., 1979, p. 63) are involved in program planning.

Program planning is most familiar to educators and others in public agencies because it is program plans which are used in grant writing to funding organizations. Private organizations look to funding agencies less often and are consequently less likely to formalize program planning in quite the same way. Kaufman (1988) addresses this point and contends that this is the type of planning which educators do best, because "...we have been rewarded most of our lives for doing things" but we "...receive little encouragement for planning" (p. 171).

Other planning designations:

Ward (1970) describes a process he calls dynamic, adaptive or creative planning which can also be considered as a form of implementation planning. He describes dynamic plans as those which are "...continuously programming the exploitation of accessible resources in the context of a changing world with future needs or benefits in mind through an understanding of ...identity" (p. 32). He continues that dynamic planning "...is concerned with the changing relationships between a company and its environment..." (p. 3), and further, "...that it gives conscious direction to planning" (p. 35).

Tactical planning which is described by Kaufman (1988), involves "...the acceptance of existing educational goals and seeks to apply the most effective and efficient ways and means of getting them accomplished" (p. 16).

Catalytic planning was discussed by Ward (1970). This type of planning involves injecting active or effective agents into a complex situation in order to bring about desired changes or results.

Small, urgent problems which occur on a day-to-day basis actually consume most of managers' time, although they realize that planning based on predictions must be established for any organization, whether public or private; profit or nonprofit. The day-to-day problem-solving and planning which occupies most management time is called operations planning (Graham & Hays, 1986; Kaufman, 1988). These planning styles and techniques are used by both public organizations and private ones.

Public planning:

Planning in terms of the public sector is basically two-pronged. The making of policy is a planning function as are the more concrete decisions involving programs of action. Lynn (1987) addresses this issue and defines public policy as "...the goals or intentions of the government's leaders together with the programs of action designed to achieve those goals" (p. 28).

A critical difference is observed between corporate, or private sector planning and public planning. In corporate planning, there appears to be little regard at the initial level for convincing consumers that the advocated action is the correct action. Planners and policymakers in the public sector must always be conscious of the opinions of constituencies, and their initial planning takes into account the attractiveness of the actions to constituents. Lynn (1987) discussed this characteristic, stating that, "the goal of policymaking is not only concrete, objectively measurable results, but results that

can be translated into favorable perceptions and understandings of governmental activity by affected and interested publics" (p. 34). Indeed, he says that, "persuading relevant political actors or publics that particular results are being or are likely to be achieved is as important to effective policymaking as the actual achievement of those results" (p. 34).

Presumably, since public funds are used, the accountability factor is an important one and makes attention to constituencies vital in terms of decisions and choices about program planning. Lynn (1987), continuing in this vein, characterized public planning and policymaking as

...less a matter of making good substantive choices on particular decisions than of designing and producing a continuous flow of less substantive actions with consequences attractive to relevant constituencies. (p. 34)

The position of policymakers with regard to the public results in considerable pressure which impacts seriously on the process of policymaking and planning.

This type of attention to the plans, choices and decisions made in government means that many questions must be answered about plans or programs before any result can be produced. Lynn (1987) related some examples of the types of questions which must be answered as follows:

What are the objectives of governmental actions?
 What means should government employ, or
 What type of action should government employ or
 What type of action should government take to achieve
 its purposes?
 Precisely how will the means or instruments of
 government action be designed and used? (p. 159)

The attention which has been focused on planning and programs in the federal government since the 1960s has resulted in similar notice to planning activities at the state and local levels and to a more limited extent on private planning.

Whether the process occurs in a corporate setting or a public one, "the evolution of planning methods has stressed the validity and pertinence of information, the logic of analysis, the worth of evaluating the consequences of alternative decisions, and the effectiveness of standards and policies in achieving goals" (So et al. 1979, p. 13).

Some authors have used the term "rational" as a qualifier for "planning process". Sisk and Williams (1981) identified four essential steps to a rational planning process.

First, the goals are defined. These goals should reflect the general directions toward which the organization is to move.

Second, alternative ways of achieving each goal are identified and the estimated costs and benefits (consequences) are calculated for each alternative.

Third, choices are made of the alternatives with the most favorable ratio of benefits to costs that can be found.

Fourth, the chosen alternatives are translated into clear, operational statements, or what were earlier labeled objectives. (pp. 62-63)

Some authors such as Herbert Simon (1957) contend that there are no rational plans or decisions because it is not possible to identify all alternatives. Therefore, planners and decision-makers simply settle for the first choice which satisfies their needs at the time.

Regional planning:

In some types of social planning a common device has been the regional planning commission whose members represent constituent political bodies. These commissions are usually advisory and their mission has traditionally been to advise on planning problems and to develop long-term comprehensive plans for the region. The first commission on regional planning was established in 1923 in New York state. The report of this commission in 1926 is generally considered to be the first comprehensive state plan in the United States (Goodman & Freund, 1968).

As early as 1944, David Lilienthal discussed regional planning with regard to the Tennessee Valley Authority which was established as a regional planning organization. He was particularly interested in the need to involve in planning the people who would be affected by the plans.

The idea that planning and responsibility for action may and should be divorced - the maker of plans having little or nothing to do with their execution...is a mistaken one. For the development of a region is a course of action; it has no arbitrary point of beginning and goes on and on with no point of completion. (p. 156)

Regional councils of government and regional planning and development organizations were established in the 1960s and 1970s to help local government officials address planning issues which crossed traditional county lines within states. In North Carolina, these councils were first involved with rural development. With the disappearance of many rural communities, their roles have shifted and

expanded toward the planning of other services within their jurisdiction.

In 1989, the National Association of Regional Councils released the Statement on the Future of America's Human Resources Challenges, which justifies regional planning in human resource areas and said in part that

The United States is increasingly a nation...of regional communities...defined by economic activities -- the marketplace...large geographic communities...interlocked through housing, transportation, and jobs...The economic vitality and soundness of all...in these larger regions is woven together. Thus governmental efforts to address these needs...may be more effectively dealt with on a regional community basis. (p. 1)

Regional planning is now considered a valid method to deal with various issues which affect groups of communities. Such issues as pollution control, water quality, waste disposal, transportation concerns, and some human services are regularly topics of regional planning organizations.

Educational planning:

Educational planning although a topic of importance to communities all over the United States, has not been subject to regional planning to the extent that other concerns have been. Public school systems have tended to resist proposals which required crossing jurisdictional lines because funds would have to be intermingled.

Education is a matter of public policy for which some planning takes place at all three levels of government: federal, state and local. The primary control of education is vested in the state where matters of long-range planning for education are addressed. Local school districts

are responsible for shorter range implementation planning. Federal planning for public education was almost nonexistent prior to the inception of programs in the 1960s which were intended to compensate for social, financial, cultural and educational inequality among poor and minority citizens.

Formal educational planning in large city systems and state agencies began in the period just prior to World War I and evolved in the 1920s and 1930s as an important factor. Most early planning involved school surveys of enrollment and facilities. In the years after World War II, planning for education developed alongside city and state planning, although remaining aloof from regional planning (So et al. 1979). Educational planning became a part of institutional decision-making during the 1960s and 1970s. As in other urban and state planning, educational planning is based on demographic data such as trends in population growth and migration which are important sources of information for educators.

Program planning is a common type of planning within school systems and is characterized by So et al. (1979) as

...the devising of organized activities that produce a desired service. It involves the identification of the clients to be served, the description of services to be provided, and the specification of funds, personnel, equipment, and activities necessary to produce the desired service. (p. 63)

An impediment to effective and efficient educational planning is the fact that each school district is a separate governmental unit. This is a barrier which impedes the flow of information and the diffusion of ideas and plans. The considerable fragmentation in the

educational community is also a barrier in that often research findings do not find their way to the practitioners very quickly.

Even within school districts there are problems in the communication of plans and ideas. Plans may be accepted by administrators but not accepted among classroom teachers. House (1974) illustrates this particular point in the case of team teaching.

There was a rapid diffusion of the concept of team teaching through administrative ranks, which probably resulted from ready access to the administrative network. Even though such programs were established and teachers taught in them, ...teacher behavior remained relatively unchanged. (p. 12)

In his study of the political aspects of educational innovation, House (1974) discussed the diffusion or lack of diffusion of innovative ideas and practices within and between educational groups. He found that innovative plans and ideas circulate widely within such groups, for example, administrators' groups and teachers' groups, but they were rarely diffused across the boundaries from one professional group to another.

This is an example of a special problem in educational planning. Not only is there fragmentation among school systems, but within individual systems, teachers are relatively isolated in their classrooms, while administrators are often isolated from teachers. The success of program plans in education depends on the cooperation of both teachers and administrators. Although no plan will succeed without the support of administrators, their support is no guarantee that a plan will succeed.

These are some of the reasons that educational planning has not generally been attempted on a regional basis. This has been true even though experience has shown that often regional planning is more cost effective than isolated plans which have the same objectives. Graham & Hays (1986) underscored this point when they wrote that, "coordinated human-services planning would allow more people to be served at lower unit costs" (p. 35).

Regional educational planning:

In recent years, educational planning has become subject to attention from groups who advocate and encourage regional planning as efficient means of conserving resources.

A 1988 publication from the Southern Growth Policies Board entitled Adult Functional Literacy in the South, addressed the issue of regional cooperative planning in education and identified two such regional organizations in the South. The nation's oldest interstate compact for education is the Southern Regional Education Board (SREB) which was created at the request of the region's governors. The SREB helps to bring education and governmental leaders together to discuss common problems and to advance education.

The Southeastern Educational Improvement Laboratory is a federally supported regional education depository of information and technical assistance on a variety of issues and educational needs. It works with existing educational organizations.

The 1986 Commission on the Future of the South was an effort "...to create a regional agenda for action to address shared problems and opportunities" (Southern Growth Policies Board, 1988, p. 6). The

Commission's publication, Halfway Home and a Long Way To Go, addressed education needs and reforms. Regional planning was encouraged as an effective way of dealing with education and other issues, because

not only are the South's people interdependent, but the South's problems also call for concerted action on solutions which overlap and interact. (p. 15)

Although not widespread, there have been some isolated instances of planning for educational needs on a regional basis. In a paper presented to the 62nd Annual Convention of the American Association of Community and Junior Colleges in 1982, Parsons described a multi-state, multi-college consortium in the Cumberland and Shenandoah valleys. The valleys form a region which includes portions of four states; Maryland, Pennsylvania, Virginia and West Virginia in which are found twelve postsecondary schools. These schools, six two-year community colleges and six four-year colleges, formed a voluntary association to solve "...mutual and recurring problems and derive the maximum benefit from scarce funding" (p. 1). Among the issues confronted by this group were: declining resources for staff development; articulation of students among institutions; concerns about academic advising and educational quality; and the special needs of older students.

Several regional educational agreements have been developed in Illinois. Johnson (1983), in Angelis (ed., 1983), reported about a multi-county consortium of public school systems. He was the Regional Superintendent of Schools for a five county region. This particular plan was initiated as the result of a feasibility study in 1979 which confirmed the need and possibility for a new structure for the three separate educational systems of the area. In his words, the purpose of

this collaboration was "...to maintain quality programs, maximize limited resources, and avoid wasteful and inefficient duplication of services" (p. 39). The compact has continued as "...voluntary relationships between the areas' organizations working together to achieve both separately- and commonly-held objectives" (p. 39).

Another Illinois cooperative endeavor involved five secondary schools, one junior college, and two area vocational centers in the Northern DeKalb County Consortium. The purpose in this case was to "...formulate a regional rural secondary school model for high technology program planning and development" (Illinois State Board of Education, 1985, p. 1). Other developments resulting from this consortium are linkages between the academic and vocational curricular areas, policies for vertical and horizontal articulation, staff and curriculum development in information processing and principles of technology, and an agreement to continue resource sharing and staff development activities.

Several efforts at regional educational planning have been made in California. The Capital Education Consortium in Sacramento involves community colleges, high schools and other postsecondary institutions. The purpose of this group is to develop "...publications for prospective college students, plan college informational days, and coordinate activities to ensure that students are adequately served and informed" (Willson & Anderson, 1986, p. 6).

The California Academic Partnership was established in 1985 among fourteen community colleges. Its goal was to provide "...funding for

cooperative effort between schools and colleges to improve the college preparation of K-12 students" (Willson & Anderson, 1986, p. 6).

A feasibility study was conducted in 1984 in Douglas County, Oregon, to study the possibility of offering vocational-technical education programs on a regional basis. This was also an effort to deal with the economic issues of preparing high quality technicians in a time of shrinking resources. The findings of this study included recognition of the fact that 15 miles is the maximum distance students can be expected to travel to vocational classes; the use of community colleges for instruction of juniors and seniors is a viable possibility; and, mobile vans are a feasible solution to sharing high-technology, high-cost equipment (Martin & Wells, 1985).

Both the need and possibility of regional planning in education seem to be increasing with the awareness that resources which once seemed unlimited are in fact very limited. Johnson (1983) addressed this situation in saying that "our schools are in an age of declining enrollments and resources, ...our emphasis is on reallocation and efficient use of existing resources and on a high level of collaboration among local, state and federal agencies, colleges, universities, and the private sector" (p. 35).

Summary:

Planning is an exercise designed to make use of trends and forecasts in many aspects of both the public and private sectors in order to ensure a high level quality of life for citizens. Planning involves a pattern of action beginning with goals and objectives and progressing through a set of activities designed to reach the goals and

evaluating the success of the plan and the process.

Planning takes place in any organization, public and private, and on any level, federal, state, regional and local. All human endeavors have been subject to planning; some with more regularity than others; some in more depth than others.

Education has been subject to extensive planning in the years since World War II. This planning for education has taken place at each level of concern, federal, state and local. Regional planning although accepted for many issues which cross local and state boundaries, has not been used to the same degree in education. There are reasons to believe that in a period of declining resources, intense economic competition, and crises in educational quality and workforce preparedness, regional planning and cooperation in education will result in efficiency and effectiveness in confronting these problems.

Chapter III
Methodology

Subjects:

The subjects for this study were members of the Executive Committee of the Regional Articulation Project, both past and present and others who were involved with the original planning for the project.

Twenty-one people were contacted by letter in which the purpose of the study and the interview request was explained and the questions to be addressed were listed. They were then contacted by telephone to arrange an interview.

Sixteen of the twenty-one were ultimately interviewed and included the following:

Two presently employed superintendents who were in office when planning for the project began.

One superintendent, now retired, who was in office when the planning began.

One retired educator who was a system superintendent when the planning first began, and then Director of the Western Regional Education Center during the planning phase of the Project; now retired.

A community college president who has been in office for more than 20 years.

A retired community college president who was in office during the early planning.

A community college president who took office July 1, 1987.

One community college development officer who helped with the early planning.

One retired Director of the Western Regional Education Center.

The Regional Vocational Director of Region 8 who was a local system vocational director during the early planning period.

The Western Regional Projects' Manager for the department of community colleges.

Three local systems' vocational directors who were closely involved with the planning process.

The Executive Director of the Land-of-Sky Regional Council.

A businessman who is a private sector representative on the Executive Committee.

Five individuals declined to be interviewed, as follows:

One superintendent who retired in 1986, and who said that he really did not remember enough to answer question about the project planning.

One superintendent who retired in 1987, but who had attended few of the meetings.

Three of the private sector representatives also declined to be interviewed. Two of these said that since they were named to the committee in late 1986, and they had not attended all of the meetings, they were unlikely to contribute significantly to the study. The third of this group was named to the committee in 1988, and obviously knew little about the planning.

<u>Interviewed</u>	<u>Not Interviewed</u>
4 Superintendents* 2 active 2 recently retired	2 Superintendents, Both retired
3 Community college presidents 2 active 1 retired	3 Private sector representatives
1 Community college development officer	
3 Vocational Directors, local	
1 Vocational Director, regional	
1 Regional community college representative	
1 Regional council director	
1 Private sector representative	
2 Retired regional education center directors**	

* From 1985 to the present there have been 10 superintendents in the six counties of the Project. Three of these came to their positions in 1987; one in 1989. An interview was not requested of these four.

** One retired regional center director is also one of the retired superintendents.

Materials:

No standardized instrument were used in this study. Since the study involved the planning of a particular project by a particular group of people, the following questions were asked of those individuals who agreed to be interviewed. The questions were designed to elicit descriptive information and information useful in analyzing the planning process. Organizationally, the questions were grouped by function: description or analysis; and by category: pre-planning, planning, implementation, and evaluation.

Description:

I. Pre-planning

1. From what sources did the idea for the Project originate?
2. Who took the initiative for the early development of the Project?
3. Who took the initiative in securing funding for the Project?

II. Planning

1. What were the goals and objectives for the Project?
2. How was the organizational structure determined?
3. What potential problems were anticipated for the Project during the planning process?
4. Describe the planning process as you remember it.

III. Implementation

1. Who is responsible for designing implementation plans for the Project?
2. Identify any anticipated impact which this Project may have on staff and materials allocations in the public schools/community colleges.
3. Identify any changes which this Project may bring to the delivery of vocational/technical education.
4. Identify any potential problems which may occur during the implementation phase of the Project.

IV. Evaluation

1. What funding needs will exist after implementation of all programs?
2. How should the Project be evaluated and by whom?

Analysis:

I. Planning

1. How will this Project fit the mission of the public schools/community colleges?
2. What do you see as the main reason for pursuing an articulation project following discussion of the original idea?
3. What do you see as the main reason for developing the Project on a regional rather than a local basis?
4. What are the main advantages of this Project?
5. Why was outside funding sought for the Project?

II. Implementation

1. Do the individuals responsible for designing

implementation of the Project have the authority necessary to institute implementation?

2. What problems do you see for the implementation phase?
3. How do you anticipate meeting funding needs of the Project after the implementation phase?

III. Evaluation

1. What is your feeling about the presence of the Regional Council in the Project?
2. How has the Regional Council's presence impacted on the effectiveness of the Project?
3. Will there be a need for a full-time project director after all programs have been implemented?
4. What do you see as potential future problems of the Project?
5. What do you see as the future for projects such as this one?
6. What changes would you make in the Project planning if you could begin again?
7. Are there factors in this region which might contribute to the success of this type of planning, which might not exist in other regions of the state?

Procedures:

The subjects were interviewed individually and asked to respond to the questions above. The interviews were tape-recorded. Responses were transcribed and grouped by question for analysis. The process described by the planners was compared to recognized planning procedures

identified in the literature review. Conclusions were used to make recommendations for future regional projects of this type.

Chapter IV

Results and Discussion

Results:

Results of this study are organized by the research questions listed earlier.

1. Who initiated the planning for this project, what groups were involved and how were they chosen?

Origins of the idea:

A first consideration in describing the planning of an educational program is to determine how the idea originated. In the case of the Regional Articulation Project, there seem to have been three primary sources.

In 1983, state level education officials held a meeting in Morganton, N.C., for public school and community college educators in the western part of the state. The topic of discussion was articulation among secondary schools and community colleges. This meeting was attended by several vocational directors from the public school systems in Buncombe, Henderson, Madison and Transylvania counties and representatives from the two local community colleges. Secondly, the Appalachian Regional Commission (ARC) invited a diverse group of people from its thirteen state area of interest to a meeting in Jackson, Mississippi, in early 1984, the purpose of which was to discuss future job needs and public-private cooperative partnerships. One of the

twelve NC delegates to this meeting was Robert Shepherd, Executive Director of the Land-of-Sky Regional Council in Asheville. This conference and its discussions functioned as a stimulus for Shepherd's ideas about educational and economic development needs in his four county region. The third source was literature on the topic of articulation and particularly the writing of Dale Parnell, President of the American Association of Community and Junior Colleges (AACJC). In a number of articles and speeches since the 1970s, Parnell has been a major advocate of cooperative partnership arrangements between public secondary schools and community/technical colleges. A major thrust in this influence was the 1985 publication of Parnell's book, The Neglected Majority. His ideas influenced William Killian, then president of Blue Ridge Community College, who recommended Parnell's book to several of the other educators in the region and to Shepherd. Killian felt that the plans described in the book might be adaptable to this area. Information elicited in interviews reveal that those people who developed the plans for this project received impetus from one or more of these three sources.

Early activities:

The interviewees overwhelmingly identified Shepherd as the catalyst who brought the groups together. This was not an unusual role for Shepherd. The Land-of-Sky Regional Council serves the four western North Carolina counties of Buncombe, Henderson, Madison and Transylvania. Regional councils work with many different groups and are generally interested in anything which impacts on the economic well-being and quality of life of the citizens of their service area.

In 1984, following the summer projects and the survey, several of the local vocational directors, some personnel from the community colleges and two planners from the regional council were taken to Tupelo, Mississippi, to tour a cooperative program which had been established there. Tupelo had faced an economic crisis in the late 1970s when its largest industry announced that because it could not mobilize an adequately prepared workforce in that area, it would move its operations. The result of this crisis was the development of an articulation project between the city and county schools and Itawamba Junior College. The Community Development Foundation of Tupelo and TVA were also instrumental in the project which TVA named the National Model for Technical Career Development (McCullough & Robbins, 1986). The Tupelo project received national attention primarily because of TVA involvement. Since the Land-of-Sky Regional Council worked closely with TVA, Shepherd was familiar with the project and considered it an appropriate model to show to the local educators.

The local group flew to Mississippi in a TVA plane. After they toured the Tupelo project, they were taken to the Factory of the Future in Chattanooga, Tennessee, and an economic development project in Knoxville, Tennessee, both of which were funded generously by TVA. They returned convinced that cooperative programming would be appropriate as a possible solution to the problems facing the local area.

There was a lapse of time before the next step was taken. By this time, a number of public school and community college educators in the area were interested and had talked about the possibilities, but there had been no follow-up. In early 1985, Killian approached Shepherd about

continuing the dialogue and about taking some actions to elicit support from the state educational leadership. So it was that in March, 1985, TVA again provided their plane and pilots to take Scott, Craig Phillips, Superintendent of Public Instruction, several local systems' superintendents, one community college president and Shepherd to tour the Tupelo project. TVA, through its educational planning section, championed education-business partnerships of the type seen in the Tupelo project. On the return trip, Scott was encouraging, but he was most interested in a statewide initiative. Phillips was also thought to be interested in the concept, although his behavior was not as overtly enthusiastic as was Scott's. However, they both promised that some funds could be made available for the development of this articulation project which would involve the entire region, consisting of six public school systems and two community colleges. Those who were on the trip, felt that the regional aspect was particularly pleasing to Scott.

With promise of funds from each of the state departments, Shepherd was able to garner additional funds from TVA, ARC, and the local McClure Foundation. The funds made it possible to formalize the planning process for the project. The consensus of the original planners is that it was definitely Shepherd who took initiative in developing funding beyond that promised by the state. The educators saw outside funding, at least for the planning stages, as a necessity. They did not feel that either the public school systems or the community colleges had enough discretionary money to use for this purpose.

An interesting feature in the process of developing support for the project is that efforts were being made on several levels at

basically the same time. The vocational directors and community college instructional deans were discussing the importance of this type of programming with each other and with their teachers; the superintendents and community college presidents were discussing the same program; and in addition, there was the interest of state-level educational leaders and the local government officials who sat on the Council. Thus, the foundation was laid by three groups working within their counterpart groups and parallel to each other. The expertise in regional planning operations of personnel of the regional council was added inducement.

Specific planning activities:

By the time funds were approved, in September, 1986, the superintendents, presidents, and vocational directors had met a number of times to discuss various particulars about the developing project. The superintendents and presidents had discussed the planning with their respective boards of education and boards of trustees. The chairperson of each board had signed the agreements to develop plans for a joint cooperative project. This agreement covered only the planning phase. Another document of agreement would be necessary when specific articulation plans were completed. Goals and objectives had been discussed and cemented in grant proposals written by Shepherd and his staff requesting funds. Objectives of the project dealt with specifics such as identifying competencies needed by local employees; matching those with competencies being taught in both public school and community college vocational/technical courses; and arranging them so that the course content designed to attain them would not needlessly overlap and so that there would not be gaps in such content. In attaining these

objectives, other results could be achieved, such as establishing joint planning by the two educational levels and encouraging the sharing of resources, not only by the two educational systems, but also including the private sector.

These were the concrete objectives. But in interviews with these planners, it was evident that there were other objectives which were no less important, although less tangible and definitive. These included such outcomes as developing a sense of teamwork among the public school and community college educators; offering a pathway and sense of direction to students who generally had not developed such motivations; and, encouraging selected industrial development in the region by providing a more properly prepared workforce than had previously existed.

Some advantages of this type of arrangement can be inferred from the objectives, such as saving time, money and effort for students and taxpayers and providing a better prepared pool of applicants for employers. Other advantages were less apparent and included the following: allowing teachers to better organize their instruction; encouraging other attempts to plan regionally for educational programs; forcing high school guidance personnel to better acquaint themselves with the community colleges and their programs; improving the image of vocational education programs at both secondary schools and community colleges; and perhaps the most important advantage, which is offering an opportunity to open and/or improve the communications between and among the various educational levels.

The development of the articulation project was pursued beyond the original idea because it was needed in this area to prepare skilled employees and to encourage the location of more technically-oriented businesses in the region. This educational coordination should eliminate some duplication of the very expensive equipment needed for instruction. There was acknowledgement that the educational systems have been unable to adequately prepare young people for their futures, and the hope expressed that this arrangement will rectify that situation. It was also seen as a way to offer a better education to many students who do not seem to be receiving one now.

2. Why was a regional approach chosen for this project?

The decision to develop this project on a regional basis seems to have been made very informally. There may never have been a decision in the form of a vote by the educational leaders, but they reached a consensus that it would be a regional process. By the time the grant proposals were written, it was understood that the six superintendents, the two community college presidents and the director of the regional council would compose the executive committee whose duties were to set policy for the Project.

The regional aspect of the project development was praised by the respondents. The feeling was that this is a close region, composed of fairly small school systems which can reach reasonable numbers of students best by joining forces. Overwhelmingly, however, the interviewees attributed the decision to the influence of Bob Shepherd. He was identified as a visionary, who could pull people and resources together and who could infuse others with enthusiasm for a new, unique

idea. The educators trusted Shepherd and understood that he had much experience in regional planning for various services, and that this experience could be brought to bear on the problems they were facing.

3. Why is the regional council involved in the project and what is its role?

Regional councils were established in North Carolina in the 1960s, and their original purpose was to assist and enhance rural economic development. Over the years their roles have changed and expanded, and those working with the councils have become adept at bringing together necessary resources for solving various problems in their districts.

The roles played by regional councils in education in this state have been limited. However, there was a precedent for the interest of this council in the educational systems of the region. In 1982-83, the Council, with financial help from the Tennessee Valley Authority (TVA), developed a summer project designed to expose high school vocational students and teachers to actual working situations in local industries. The school system vocational directors and some of the school counselors were also involved. These summer experiences emphasized to the educators as well as to Shepherd, the momentous changes occurring in industry as results of accelerating technology, and the fact that preparing students adequately to become productive employees was becoming more difficult even as it became more important. Once the early planning was accomplished, the role played by the regional council was that of day-to-day supervision and fiscal agent.

The attitude of the educators with regard to the presence of the Regional Council in this Project is interesting. The overall attitude

is positive, in that the Regional Council and particularly Bob Shepherd have been very helpful in getting the Project started, with their special expertise in pulling differing groups together and in locating funds for the process. There is also, however, some feeling that the Regional Council should not play a continuing role, since it is not an educational agency. As mentioned earlier, the role of regional councils in educational planning has been limited.

The majority of the interviewees felt that the Regional Council has impacted positively on the effectiveness of the Project. Because the director has been housed in the Council, it has been possible to maintain neutrality in supervising the Project's development. Both directors to date have had extensive experience in both public schools and community colleges, and could relate to the unique intricacies and obstacles faced by each. The Regional Council by virtue of its involvement with local and state government officials and its connections with business and industry has entre to groups which might not be so well-known among educational practioners. Members of these groups are often heard criticising the educational systems. The presence of the Council in this Project allowed these people an opportunity to assist the educational systems in developing solutions. The flow of information through the Regional Council has been very helpful to those educational practioners developing this Project.

The respondents were asked whether or not they could identify characteristics of this geographical region which contributed to successful planning of a project of this sort. The majority thought that there were no such factors; that the Project could be successfully

planned in other regions as well. There were, however, several interesting factors mentioned which might contribute to successful regional planning in this area. There has been more stability and consistency in educational leadership in this region than in most others. This stability affords security which the delegation of authority which might not occur with less secure administrators. For example, while the average tenure of local superintendents in the state is approximately two and one-half years, two of the local superintendents have about 50 years in the position between them. Although new to the positions this far west, two of the superintendents moved from the same positions in school systems close by. Another is a native of this region who had administrative experience in his system prior to taking the superintendency in a system in the eastern part of the state. He has now returned to the western region. Each of the two original community college presidents in the Project were in their positions in excess of 20 years. One has now retired, and his successor is a progressive and enlightened administrator who is also a strong supporter of the Project. There was a history of close working relationships within the groups developing the plans which made this effort less difficult than it might have been. The vocational directors and community college deans had also worked well together over a period of years. Other factors identified in this regard were a fairly strong economy, less serious competition between the systems and colleges than is found in other regions, the size of the region, and the fact that some of the educators had worked with the Regional Council before and understood the value of regional planning.

If there is a trend as some have noted toward increased regionalism in this country, the regional councils will become more important in planning such as this. The councils have a rich history and extensive experience in recognizing opportunities for regionality. The future years which will bring increased limitations in terms of available resources, human as well as financial, will make regional planning even more attractive to personnel responsible for educational planning.

4. How were the curricular areas chosen for inclusion?

In 1985 the Regional Council conducted an extensive survey of the region's businesses and industries for the purpose of estimating their workforce needs through the decade of the 1990s. This survey identified those businesses and industries which could expect to experience a shortage of skilled employees in the coming years. The results of the survey also proved to these groups that some changes would have to be made in vocational and technical education systems to satisfy workforce needs in the area, and curricular areas were chosen to correspond to these needs.

5. What is the organizational structure of the project and what is its effectiveness?

Once the decisions had been made to develop a project and funding was being secured, decisions had to be made about coordinating the work.

Executive committee:

Some organizational decisions could be anticipated and were made ahead; others were made only when a problem arose which had to be addressed. For example, the original group wanted to be sure that the executive committee would contain individuals who were in policy-making

positions. This was an important factor because the literature (Bushnell, 1977; Carey, Wark & Wellsfry, 1986; Doty, 1985; Fadale & Winter, 1986; Long et al., 1986; Parnell, 1985b; Warmbrod & Long, 1986) stressed that commitment for the idea had to come from the top leadership of a college or system. Therefore, they insisted that the superintendents and presidents come to the meetings themselves instead of sending someone else. One community college president sent the college's director of development to several of the early meetings. When the other executive committee members took exception to this practice, the president began to attend the meetings himself. In the early days, the regional representatives of the two state systems had been approached about the project, but had not been included in the membership of the executive committee. When it was decided that some funds would be made available from the state systems, the Director of the Western Regional Education Center informed the Chairman of the Executive Committee that the Center should be included on the policy committee. Both the Center Director and the Regional Vocational Director were added as was the Western Regional Projects' Manager for the department of community colleges. The latter two were also included later in the membership of the Implementation Committee.

There was considerable discussion among members of the Executive Committee about whether the committee membership should represent only education. Much of the literature stressed the concept of partnerships-with-business (Colorado Vocational Assoc., 1985; Dept. of Adult, Vocational and Technical Ed., Illinois, 1985; McNutt, 1986; Parnell, 1985b;). Shepherd and the local representative of the department of

community colleges were in favor of including private sector representatives as were several others. It was in the later stages of the planning that the decision was made to do so. One private sector representative was added from each of the four counties with the school and community college representatives in each county choosing an appropriate person.

Implementation committee:

Once the Executive Committee had developed the structure, hired a director, provided for start-up funding and considered some problems areas, they were ready to turn over the day-to-day operations to others. In interviews, there was basic agreement about who had responsibility for designing implementation plans for the Project. This was seen as a function of the Implementation Committee which is composed of the middle management people: public school vocational directors, community college instructional deans along with regional representative of the state departments. This group works closely with the curriculum committees, makes decisions about when and how to introduce the revised courses in the schools and assigns teachers to the curriculum committees. The Implementation Committee One Implementation Committee member serves on each curriculum committee. When questioned as to whether or not the people responsible for implementation actually have the authority to carry out their duties, the consensus was that they do. It is significant that this view was held by those who need the authority as well as by those who can delegate such authority.

Curriculum committees:

These committees identify competencies, align them sequentially, and design learning content and activities which help students attain the competencies. When the curriculum committees completed their plans, written agreements were prepared and signed by the superintendents and presidents. This was the formal acceptance by the leadership of the systems and the colleges that the precise plans would be in effect for the period of time specified by the curriculum committees.

The committee and personnel structure of this project reflect the views of Daniel Hull of the Center for Occupational Research and Development (CORD) in Waco, Texas. Hull met with the planners for this project in September, 1986, and his publications were made available to the group.

6. Why was the director hired from outside the participating community colleges or public school systems?

The decision to hire a director was made rather early in the process. It was obvious to the planners that among present personnel of the school systems and community colleges, there were no individuals who had the time to take responsibility totally for the Project. The need for a director or coordinator was stressed in the literature and most experts suggested that the person not be identified with either public schools or community colleges (Carey, Wark & Wellsfry, 1986; Colorado Vocational Assoc., 1985; Day, 1985; McNutt, 1986; Parnell, 1985b; Warmbrod & Long, 1986). This allows the director to maintain a neutral posture. The first director of this project was hired in January, 1987, and had experience in both public schools and community colleges, but

was new to the specific geographical area. After six months this director moved away from the area. An interim director served for two months until a second full-time director was named in August, 1987, and remains in the position to the present.

7. What problems were encountered in the curricular planning and how were they dealt with?

In their planning, the Executive Committee tried to anticipate problems which might arise in the early stages. Some of these have been addressed in the literature on articulation (Bushnell, 1977; Day, 1985; Fadale & Winter, 1987; Galloway & Washburn, 1985; Long et al., 1986; McNutt, 1986; Parnell, 1985b). The problem most often mentioned in literature, was also the problem discussed most often by this planning group: turf protection. Any discussion of educational inadequacies causes unease among teachers who often bear the brunt of criticisms. Additionally, the future of vocational education in both high schools and community colleges has been in question and under increased criticism recently. Consequently, teachers of vocational and technical subject matter are possibly more uneasy than others. In North Carolina, this has been especially true since publication of the 1986 Research Triangle Institute study of vocational education in the state in which it was recommended that public schools leave job-specific training to the community college system. After this, any mention of the possibility of change in the processes or status of vocational instruction resulted in defensiveness and turf protection among vocational educators. Any program which might have a potentially negative impact on teacher allocation is viewed by the teachers as a

threat. The planners of this project understood that this would likely be a problem and tried to both anticipate it and find ways of diffusing it.

Another factor in the turf protection problem was the suspected possibility that some community college instructors might be overly critical of high school teachers. This situation occurred in one of the curriculum committees. High school teachers who perceived this attitude tended to resist the need to work together. This group was much slower getting started on their work, and the result of their efforts is less comprehensive than that of other groups. This group was slower to gain trust in each other, and the level of trust they developed for each other tended to be more superficial.

Another potential problem identified by the leadership group involved the image vocational education has of being less serious and less important than other classes. These beliefs are found among non-education groups, but more damaging is the fact that they are also found among some educational personnel. Vocational classes are sometimes seen as convenient places to put students for whom there seem to be no other appropriate places. Vocational teachers understandably view this practice as a deterrent to the possibility of recruiting more serious students for their programs.

Other potential problems discussed by the Executive Committee included concern about meeting the project's financial needs, and the possible lack of serious support among a few of the superintendents on the committee. The literature also stresses the need for state-level commitment and encouragement. Ensuring this support was recognized as a

potentially difficult endeavor, although the group felt that they had commitment from Scott.

8. What costs were incurred and what were the funding sources?

Funds were needed to pay the salary and expenses of the project director, to pay expenses for the teachers working on curriculum committees, to buy supplies and equipment needed for their work, to support meetings of various groups, and to publicize and promote the project.

Early funding was secured by Bob Shepherd from a broad base of organizations including national groups such as the Appalachian Regional Commission and the Tennessee Valley Authority. State officials Phillips and Scott provided some early planning funds. While ARC funds were received beyond the second year, the primary funding sources during the second year of the Project were the state departments and a private foundation. The third year funding has come exclusively from the two state departments: public instruction and community colleges. Funding beyond the third year will have to be locally generated from the school systems and community colleges directly involved.

9. What arrangements will be necessary for directing the project and funding it after it is in full operation?

When asked what funding needs might exist for the project after implementation of all curricular areas, the majority of the respondents answered that there would continue to be a need for overall direction or coordination of the project. It is significant that the project is seen by these planners as a process rather than an event. They understand

that there will be continued examination and revision of processes and materials as changes occur in education and in the workplace.

While there was agreement that the need for overall supervision and coordination would continue, there was not clear agreement on whether this would entail the need for a full-time director. Several of the respondents commented that it might be possible to provide direction on a part-time basis. Other funding needs recognized as important were marketing and promotions, regular periodic committee meetings, and some social events, such as lunches, dinners, and so forth, to keep all interested groups informed and up-to-date.

Future funding of the Project could prove to be a problem. The majority of the respondents agreed that the local school systems and community colleges will have to fund the Project if it is to continue. Several of the original superintendents interpreted the encouragement and approval of the two state educational leaders as a promise of future monetary support. This interpretation is perceived by most of the Executive Committee members as a misconception. Both of the state departments have provided funding for start-up purposes, but it is unlikely that this is a precedent for long-term financial support. There are other articulation efforts in the state which are being funded locally or with funds from sources outside of the state systems. As long as these projects are locally devised, the state will probably not assume financial responsibility for them. If the time comes that there is statewide consolidation of the projects, there might then be funding from the state budget by means of legislative appropriation.

The future for projects such as this one is seen as bright among the respondents to these questions. They believe that this arrangement provides opportunities to upgrade instruction in the critically-needed, technology-intensive occupational fields, with a sharing of the financial and material requirements which can be such a heavy economic burden on individual schools and systems. The successful effort to bring ideas and resources together regionally will also provide stimulus for other educational planning attempts. At least one respondent thought that in most areas this planning will have to be mandated by the state, and one was concerned that too much emphasis may be placed on the four-year-college transfer programs by community colleges, resulting in neglect of the occupational programs. These factors and others such as apathy could severely restrict the available resources, in the forms of money and energy, needed to successfully launch a project of this magnitude.

10. What problems are anticipated in the implementation stages?

The implementation phase of the project brings a new set of problems with which project personnel must deal. The problem mentioned most often is that of making sure that all teachers follow the content guides and use the materials developed by the curriculum committees. This problem was addressed in the curriculum committees as well as among the planners of the project. Another problem mentioned in the interviews involved the possible lack of support for the project by high school principals and other upper level administrators in the systems. Although support had been verbalized by the top administrators, some people were reluctant to accept that this support was real. Maintenance

of funding and coordination were mentioned as potential problems as was the issue of overcoming the image problem.

A potential problem for the community colleges is that of providing more than the first courses in a program during the first quarters of attendance for those students who qualify for advanced placement credit in one or more early courses in the articulated curriculum programs. State funding requirements specify that a minimum number of students must be enrolled in a class in order for the class to be taught. For some time after the implementation of these agreements, it is unlikely that the colleges will have the numbers of qualified students needed for the classes. If they offer classes for only a few students, the costs will have to be met from regular funds which are often already inadequate. Larger colleges are able to absorb these costs, but smaller schools find it impossible. This problem will require creative problem-solving techniques by the community colleges. Some suggestions made with regard to this problem include independent study possibilities, modular organization of course content which would allow multi-entrance, multi-exit course registration, and other such innovative arrangements.

Evaluating the project is also a problem area for the implementation phase. Evaluation of a project of this magnitude should be carried out on several levels and among several groups according to the views of the planners. This factor, although seen as a part of the planning process, was not addressed by the Executive Committee in the early stages. The interviewees thought that this was in the backs of their minds, but they expected the director to develop an evaluation

procedure. The organizational structure suggested by Hull (1986) included an evaluation committee which would be totally separate from the leadership committees. However, this aspect of Hull's plan was not adopted by the planners of this project. The respondents agreed that numbers were only a part of evaluation, but thought that most people would see the bottom line as being the numbers of students who completed the high school-community college sequences and became successfully employed in their fields. The numbers aspect, while seen as important, should be joined to other evaluative factors, such as determining the effects of some of the intangible outcomes. Some of these outcomes are: the quality of the working relationship developed among the educators at both levels; the understanding of each system's educational processes developed by all working with the project; and, the respect for each other's integrity developed by the teachers and administrators working in the project.

Among potential future problems identified by the respondents were: the possible inability of the community colleges to offer courses when students need them, for example, a third quarter course in the first quarter for students who receive advanced placement credit for the first two courses; maintaining a steady flow of information to new instructors and administrators at both secondary and postsecondary levels; maintaining consistency in decision-making so that one institution or another does not unilaterally change the rules; problems may develop in gaining the support of guidance personnel particularly in the public schools and parents, many of whom believe that a satisfying future is attainable for their children only with a four-year college degree. An

additional problem can be anticipated unless the academic skills areas of mathematics, communications and sciences are integrated with the vocational/technical skills areas. Unless there is corresponding development and cooperation within the academic areas, employers may still be confronted with applicants who do not possess the basic skills needed to perform adequately on the job, although their job-specific skills may be well-developed.

The interviewees were asked to identify any changes they might make in the project planning, if they were allowed the luxury of beginning again. Most of the answers were concerned with two areas, communications and commitment. There are many people in any particular school or system who have responsibilities for educational decision-making. In addition to system administrators and teachers, these include assistant superintendents, curriculum supervisors, principals, assistant principals, and counselors. If communication among the personnel in one system is difficult, and most educators will say that it is, the difficulty is magnified greatly when dealing with a number of systems. Yet, if support and encouragement is expected from these people, effective communication is critical to the success of the program. Several of the respondents commented that a change they might make involves the inclusion of one or more of the groups named above in specific tasks in the development of the Project. Of those groups, the two seen as perhaps most important to the success of this Project were high school principals and guidance counselors. The issue of commitment is seen by the planners of this Project as well as by many who have published material about articulation as critical to a project's

success. It is imperative that the leaders of school systems and community colleges be visible and vocal in their support of articulation projects. At times in this Project, the support of two of the superintendents has been less than readily apparent. Although they usually are represented by their system's vocational director, these two attend few committee meetings themselves. They have made funds available when needed to support the work of the Project, and their teachers have been valuable to the work of the curriculum committees. In the 1989-90 academic year, expenses incurred by the teachers working on curriculum committees are paid by their systems or their community colleges. In these ways, the superintendent's support is inferred. However, they are often not present when important decisions need to be made. The interest of the top leadership in school systems and community colleges is vital for the success of projects such as this one. The time required for planning, reaching consensus, and developing materials is extensive. Teachers must know that their supervisors approve and will support these activities. Otherwise, they feel that they are wasting time and effort which can be demoralizing for them.

The other change mentioned by some involved the participation of business and industry people, with several planners feeling that their number should have been increased, and that they should have been involved earlier than they were.

There was little likelihood expressed by the interviewees that project outcomes would result in substantial impact on the public schools or community colleges in terms of personnel or materials allocations for some time. They agreed that as time passes and positive

attitudes develop, this expectation might change. Obviously, if there is significant change in enrollment patterns, there will be impact on personnel and materials allocations, as well as other needs. The interviewees seemed to have realistic expectations in terms of the numbers of students who would be attracted to the program in the first several years.

When asked how the delivery of vocational education might be changed by the project, there was agreement among the interviewees that the project should promote efficiency and effectiveness by encouraging better organization of content, elimination of redundancy and by providing to here-to-fore unfocused students a well-developed educational plan leading to a career in which there is adequate job demand in the workforce.

The consensus of the interviewees was that this project fits the missions of both public schools and community colleges by providing training for many young people who have been neglected in the past, by expanding students' horizons, by keeping some 'at risk' students in school, and by streamlining job preparation which may allow the community colleges to expand the levels of skills offered in many of their programs.

Discussion:

Comparison with recognized planning procedures:

The literature review revealed that successful planning follows a pattern which differs only slightly with regard to the type of organization, whether public or private, making the plan (Graham & Hays, 1986; Hammond & Norris, 1976; Kaufman, 1988; Ward, 1970). Planning begins with recognition of a problem or need to be addressed. Once the problem has been identified, the next step involves choosing alternatives or actions which can be used to solve the problem or satisfy the need. The third step is determining what mix of resources are needed to accomplish the actions and bringing the needed resources together in such a way that they can impact on the problem. In terms of public sector planning the attitude of constituents toward the plan must be considered. In the case of educational planning there also must be an evaluative step (Kaufman, 1988). Those agencies which provide funds for educational programming have included this requirement since the 1960s when large amounts of tax money began to be made available to educational units for solving various problems. The evaluative step measures the efficiency and effectiveness of programs in solving targeted problems or satisfying identified needs.

Some aspects of this planning framework can be identified in the planning process for the Regional Articulation Project as related by the planners. Problems or needs are usually found in forecasts of future trends or events. In the case of this Project, two interlocking problems were identified by forecasts.

The primary problem was projected by both national and local studies and is identified as workforce needs resulting from the acceleration of technology. The changes in businesses and industries due to technical advances require a workforce with more highly developed skills and deeper understanding of the scientific and mathematical principles of technology. The rapidity of these changes requires a workforce with ability to adapt and transfer knowledge from one situation to another.

The secondary problem is the failure of educational units to adequately prepare sufficient numbers of individuals who can successfully function in the workforce described above.

Both of these problems were addressed nationally and locally in various studies and other literature reviewed in this study (Carnegie Council of Policy Studies in Higher Education, 1978; Choate & Linger, 1987; Commission on the Future of the South, 1986; National Commission on Excellence in Education, 1983; Parnell, 1985b; US Departments of Commerce, Education, and Labor, 1988; US Department of Labor, 1987). Locally, the problems were identified in the survey of business and industry in the four-county region conducted by personnel from the Land-of-Sky Regional Council and in studies of the Public School Forum (1988), the NC Governor's Commission on Literacy (1988), the Commission on the Future of the North Carolina Community College System (1989), and studies by the Southern Growth Policies Board which are also reviewed in this paper. All of the planners for this project were aware of these problems by virtue of their positions in education, business, or economic development/policy planning.

The objectives of the Project represent the actions which will be taken in response to the problems. The methodology, such as identifying competencies to be mastered and designing learning activities which will lead to this mastery, represents specific procedures involved in the actions.

The third step, involves assembling needed resources to accomplish the actions chosen. The organizational structure represents the human resources which function as follows: the policy group makes the broad decisions and plans; the implementation group makes more specific decisions regarding courses and people; and the curriculum groups develop the actual content and identify the specific activities needed to reach mastery of the competencies. The project director coordinates the groups, directs the program development, and edits the written results in the form of curriculum guides for each program area.

Monetary resources were obtained from various organizations which have interests in education and economic development over wide areas as in the case of the Appalachian Regional Commission and the Tennessee Valley Authority, or over narrower areas as in the case of the two North Carolina state education departments, and the two private foundations, Z. Smith Reynolds and McClure.

The final step in planning involves determining efficiency and effectiveness, or evaluation. The interviews reveal that this factor was not addressed by the planners. They knew that there would be evaluation, but they did not make choices as to when or by whom the Project would be evaluated. The assumption was made that this would be developed by the project director.

At this time efficiency and effectiveness cannot yet be fully assessed. Efficiency can be inferred in that six schools systems and two community colleges are receiving program and planning benefits with the use of one director and one set of working committees. A program developed for one community college and its service area, which might consist of one or two school systems, would also require a director and the same committee structure.

Educational efficiency is addressed also in the methods used in this Project. By delineating competencies and assigning responsibility for activities and experiences used to master the competencies, unnecessary redundancy can be eliminated and gaps can be filled.

The issue of effectiveness cannot yet be determined although some aspects can be illustrated. The development of a sense of teamwork and partnership among the educators represents a measure of effectiveness. Also illustrative of effectiveness is the increased knowledge and understanding of the programs and procedures in the two levels of education which has developed among the educators working in the Project.

Effectiveness in terms of educational and employment outcomes cannot yet be assessed.

Summary:

When described and analyzed, the planning procedures followed for the Regional Articulation Project fit the pattern of procedures recognized as standard in a review of planning literature. This is true even though some of the aspects of planning this project seem to have developed by accident. Significant factors in the decision to develop

this project were issues raised in literature about educational deficiencies and workforce needs, state attention to cooperative arrangements, and national attention to projected needs and problems. The interest of personnel of the local regional council, especially its director, seems to have been a major element in bringing these groups together, and in locating resources needed for the Project. Interviews with those persons who were instrumental in the planning process revealed that they were able to predict with accuracy the problems which would be faced at each phase of the project development, and that they delegated authority along with responsibility for the specifics of program development to others within the systems or colleges and to the project director.

The one aspect of planning which was not considered in the local planning was evaluation. Although the planners knew that the project would have to be evaluated, they did not select any specifics of evaluation, but left that to the project director.

Chapter V

Conclusions and Recommendations

Conclusions:

The purpose of this study was to describe and analyze the planning process for a regional program of educational cooperation in vocational education. The project involved six public school systems, containing fourteen high schools, and two community-technical colleges with assistance and involvement of the local regional council and representatives of the private sector.

These cooperative arrangements, called articulation programs, are not new, but have been subject to increased interest recently.

The planning process for the Regional Articulation in Vocational Education Project was described by the majority of the people who actually did the planning. They related the process in a series of interviews conducted for this purpose.

The process which emerged was compared to successful planning procedures identified in the review of planning literature. The results reveal that the processes used for this Project, follow closely the processes identified in the literature.

Planning, in educational programs requires input from individuals in various positions, including administrators and teaching personnel. However, a problem encountered in this regard is that these groups are often isolated from each other, a factor which prevents open

communications. The members of these groups may communicate with their counterparts in other systems or schools more often and more meaningfully than with each other.

The Regional Articulation Project has taken advantage of this phenomenon. The organizational structure for the project involved groups of counterparts: superintendents and presidents; vocational directors and deans; teachers and instructors. In the early stages, the first two of these groups were considering plans for a project parallel to each other, but not with each other. The arrangement has been effective in planning a regional endeavor.

The literature on articulation has stressed the need for commitment from the top leadership for a successful project. However, there seems to be a need for balance in this regard. The support and commitment is necessary, but these factors alone will not guarantee success. In the case of team-teaching, an example which was related earlier, there was commitment from the top, but there was little change in teacher-behavior (House, 1974). The teachers had not been considered in the planning. The inclusion in a planning process of the people who will be affected by a program is an important element. In this Project teachers at both levels have been involved and have major responsibility for implementation. The Executive Committee has made only those decisions which have provided a framework for more in-depth planning. They have delegated authority for the specific program development decisions to the vocational directors, deans, instructional personnel and project director. While this behavior may be interpreted as a lack of interest and concern in several of the members, it reflects confidence and

security in the majority of the group. As a result, the Project has moved forward with few disruptions.

There are two groups in the public schools systems who have not been as involved with the development of the Project as they should have been. These are the high school principals and guidance personnel.

High school principals have heavy responsibilities for all aspects of their institutions. In some cases, it has appeared that they willingly relinquish some of the duties and responsibilities to others. This seems to be the case with vocational directors. Vocational directors are responsible for vocational funds, and a great deal of vocational planning. Therefore, in some of the school systems, they tend to have responsibility for supervising the vocational teachers. Thus it was vocational directors who were named to the Implementation Committee rather than principals. This does not change the fact, however, that the principal's attitude toward the Project is critical to its acceptance among other school personnel.

Guidance personnel were also not included on any of the committees. North Carolina no longer uses vocational counselors in secondary schools. Counselors are considered to be general and deal with all students, no matter which track they are in. The position which replaced that of the vocational counselor is the Industry-Education Coordinator (IEC). In some cases this person is a certified counselor, but this is not necessary for IEC certification. Counselors have a great deal of influence on students and the choices they make with regard to courses. For example, the counselor is often the first high school official to meet with incoming students from the junior highs or

middle schools. Because of this, the counselor's attitude and knowledge of programs and courses are crucial to the course and program choices made by the students when they enter high school. Therefore, it is imperative that counselors be knowledgeable about all programs and the various pathways students may use to reach their career goals.

Curriculum committees which contain high school and community college teachers have two tasks in this Project. They must identify and align competencies expected of graduates in entry-level jobs, based on employer input, and they must choose and/or design learning activities and experiences which can lead to mastery of the competencies. These committees have functioned well in this Project with only a few obstacles. However, in no case have these committees been able to begin working with specifics until they have had time to get to know each other and to vent some of the frustration they feel in their jobs. In this way they find that they are generally all facing the same situations, with the same problems and the same triumphs. This is like a rite-of-passage, and once it is out of the way, they can begin work with the Project goals and develop their programs.

The presence of the regional council in this Project is one of its unique features. There is no mention in the standard planning processes found in the literature of a catalyst or visionary who is able to stimulate the process. However, this type of individual is often found involved in change situations. In this case, it is quite likely that the Regional Articulation Project would not have been developed without Shepherd's influence and persistence. It was he who was able to pick up the threads from each of the different groups and weave them together

into the project plans. The ideas were there among the superintendents and presidents; among the vocational directors and deans; at the state level; and, among those organizations whose interests and responsibilities are in economic development (TVA) and in improving the quality of life for their constituents (ARC). Within these groups there were strong supporters, but Shepherd is recognized as the person who stimulated their actions.

Further, the Regional Council has been a valuable partner in this process in several ways; its knowledge of funding sources and other sources of information; and, its relationship with groups of people who might otherwise not be involved with educational planning. It is noted, however, that some members of the Executive Committee do not think that the Council should play a continuing role in the Project.

A project of this type needs continuing overall supervision and direction. With a large number of high schools (14) involved and more than one community college, it is unlikely that the momentum could be maintained without someone who has primary responsibility for project development. The literature stresses that the director should be a neutral person, not identified with either of the two systems. This has been an important factor in this Project.

It is not likely that any peculiarities of this region contributed to the relative success of the project planning. The aspect of leadership stability might be seen as such a factor, but it cannot be documented. It is likely that this project could be developed in any region where a spirit of cooperation is more important than a spirit of competition and where need could be demonstrated.

This plan could also be implemented statewide, if it is used as a flexible framework which allows variations among the regions in choices of programs based on local needs.

Articulation can be developed most easily in subject areas which require the acquisition of specific skills which can be readily observed and measured. Since most occupational preparation courses are based on such skills, as in typing, carpentry and mechanics, they lend themselves to this process. The skills become competencies which can be sequenced, and for which responsibility can be assigned.

Subject areas which require mastery of more abstract concepts are more difficult to articulate. However, it is apparent that coordination of vocational/technical skills areas, while valuable in helping to solve the problems of workforce needs and educational inadequacies, cannot be the only answer. Major components of these problems are the inability of many students and graduates to manipulate symbols and numbers, to understand basic scientific principles, to express themselves adequately either orally or in writing, and to adapt knowledge from one situation to another.

Because of these factors, articulation projects which are limited to the vocational/technical skills areas will not fully solve the problems they are designed to attack.

Recommendations:

The following recommendations are made with the hope that they may be helpful to educators in other regions who may wish to develop an articulation program.

1. Efforts should be made to encourage regular meetings between counterparts in high schools and community colleges, ideally beginning before articulation is discussed. Meeting should include administrators, counselors and teaching personnel. Meetings of this type are valuable even if articulation is not being considered.
2. Any plan which affects the instruction or sequencing of courses in any way in secondary schools should include both principals and guidance personnel. These two groups may not need to be involved with one of the working committees which meet often, such as the curriculum committees, but they should receive regular feedback in a formal manner. It should be the responsibility of the superintendents to see that this is part of the plan.
3. The roles of secondary schools and community colleges in preparing entry-level employees in any of the vocational/technical fields should be delineated and clarified. The increase in technological requirements in many of these fields makes it difficult for either of the two levels to properly prepare these employees in the two years which generally constitute program length. Clarifying these roles will allow each system to achieve its purposes with more success than is possible now.

4. Articulation programs should not involve only vocational/technical skills areas. Communications skills, mathematics, and scientific principles are crucial to the occupational areas, and instruction in these fields should be integrated with the specific skills areas. The teaching-learning emphasis in the academic fields should be in applications rather than theory, or at least a healthy mix of the two.
5. Instruction in all disciplines should take advantage of any opportunity to demonstrate transferability of principles and concepts from one subject area to another. This will help students develop the ability to adapt to varying situations and to learn new skills during their working lives.
6. Secondary schools and community colleges should encourage joint planning for the use of expensive and specialized equipment to reduce costs and avoid duplicating purchases.
7. Secondary schools and community colleges should develop a pattern of closer working relationships with local business and industry which should include more contact than is found in advisory committees which meet on a very limited basis. Practitioners should be encouraged to visit classrooms, be guest teachers, demonstrate employer expectations and become acquainted with students as well as teachers. In these ways action partnerships can be developed as well as planning partnerships.
8. The plans developed among schools should be publicized in attractive brochures or videos to be used with students. These should emphasize the path from school to career in such a way that

the connection between a course of studies and a career field can be readily recognized.

9. Opportunities should be provided during the planning and early implementation phases for curriculum committees to meet with the superintendents and presidents to continually reaffirm commitment to the program goals.

10. Written agreements should be signed at two points in the process. The first should be an agreement to institute planning. This one should be signed by the respective boards of education and boards of trustees. The second agreements should be signed by presidents and superintendents accepting the plans of the curriculum committees and affirming that the plans will be implemented.

11. Monitoring procedures should be included in articulation plans, with follow-up scheduled with each curriculum area, at least once a year.

Recommendations for further study

During the development of this study, two points have been touched which could form the focus of later research. These are:

1. The influence of an economic crisis on the planning of cooperative educational programs.
2. Factors within regions which might influence the relative success of cooperative educational planning.

In conclusion, the words of Parnell (1985b) can be used to convey the importance of developing effective delivery systems for educating our young people in vocational and technical subject areas.

How do we evaluate an excellent society? ...History will gauge this generation primarily by what we have

done with our human resources and our human values.
If we do not cultivate the best in our people and
fully utilize our human resources, we become a
wasteful society regardless of what else we do. (p. 172)

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