

DETERMINING THE CRITICAL CRITERIA FOR PLANNING  
NEW TECHNICIAN EDUCATION PROGRAMS IN  
OKLAHOMA'S TWO-YEAR PUBLIC  
POST-SECONDARY EDUCATION  
INSTITUTIONS

By

KYLE DANIEL KLABENES

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Thesis Approved:

*Frederick W. Duggan*  
\_\_\_\_\_  
Thesis Adviser

*Clyde B. Knight*  
\_\_\_\_\_

*Ray E. Sanders*  
\_\_\_\_\_

*Norman N. Dunham*  
\_\_\_\_\_  
Dean of the Graduate College

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## CHAPTER I

### INTRODUCTION

Planning new technician education programs in two-year public post-secondary education institutions was practiced with varying degrees of sophistication. The investment of effort and the strategies used were equally variable. The most sophisticated and intensive planning efforts were, on the surface, used by the largest and often most strongly state-coordinated educational institutions.

Formal studies were often commissioned, published, and reviewed intensively by trustees or officials sincerely determined not to commit an error in their important decisions to or not to offer a particular program. Sometimes it appeared important errors, of omission or otherwise, were committed in the conduct of these studies which rendered their use as a foundation for decision-making less than sound. In probably more cases, no adequate study was even attempted.

Planners oftentimes intuitively know that a program will succeed (or will not) and proceeded with their plans regarding that program. When the data were strongly supportive of a particular planning decision, it is certainly true that one can often know a program's viability through simple familiarity with the work place. But as the number of two-year technician



education programs continued to rise, the likelihood of the data regarding the justification of new technician education programs being so obvious diminished.

The need to use data based on objective criteria for planning new technician education programs was essential. It is to this need this study addressed itself.

### Need for Study

During the last few years Oklahoma's system of higher education has dealt with more bad news than good news. The system's problems are numerous, but two of the most prevalent problems were constrained financial resources and the changing characteristics of the students.

The business of higher education in Oklahoma will not go on as usual. Quality programming based on high priority educational needs of the State was addressed. It is obvious a need exists to refine the process of planning new technician education programs.

It was hoped this study will:

1. Contribute to the profession's awareness to do more objective planning for new technician education programs.
2. Contribute to the notion of more systematic planning for technician education programs.
3. Contribute information for deriving new insights into the process of planning new technician education programs.

### Statement of the Problem

Because the process of program planning for technician education in two-year public post-secondary education institutions was practiced with varying degrees of sophistication, a study to determine the critical criteria for planning new technician education programs was essential. In addition it was felt that such a study would be of value in assisting decision makers in their attempts to determine new technician education programs. Specifically, the problem was a lack of information of the reasons used to justify the establishment of new programs.

### Purpose of the Study

The purpose of this study was to determine the critical criteria for planning new technician education programs culminating in an associate degree in Oklahoma's two-year public post-secondary education institutions.

### Objectives

The objectives of this study were to:

1. Determine what were the important educational parameters used in planning new technician education programs by Oklahoma's two-year post-secondary education institutions.
  - a. Determine the political process impact on the criteria for planning and implementing new technician education programs.

- b. Determine the economic development impact on the criteria for planning and implementing new technician education programs.
2. Determine what important data sources were consulted in planning new technician education programs by Oklahoma's two-year public post-secondary education institutions.

#### Assumptions

For the purpose of this study, the following assumptions were accepted:

1. The responses provided by the individuals completing the survey were honest expressions of their perceptions.
2. The institutions were very concerned about developing viable new technician education programs.

#### Limitations

The limitations of this study were as follows:

1. Implications of this study were not applicable to Oklahoma's two-year private colleges planning new technician education programs.
2. Implications of this study were not applicable to Oklahoma's full-time post-secondary adult education programs offered by the area vocational-technical schools.

### Definition of Terms

Specific terms were defined as they appeared in the context of this study.

Associate Degree - was awarded upon the completion of a two-year college program to lead the individual directly toward semi-professional or para-professional employment in a specific career.

Two-Year Public Post-Secondary Education - was an Oklahoma college under the jurisdiction of the Oklahoma State Regents for Higher Education.

Area Vocational-Technical School - was a local education institution offering vocational education for secondary and adult students on a contact hour basis.

Technician Education - according to Grote (1977, p. 52-53), "technical education" implies preparation for occupations within scientific and engineering fields where the workers will receive a concentration of science and math. It stresses the use of instruments rather than the use of tools. It suggests mental effort rather than muscular exertion.

Technician Education Programs - according to Brooks (1973, p. 9), are those which aim to encompass in their instruction the required material, both knowledge and skills, that a technician education graduate needs to take his place as a practitioner in his field. The graduate can go forward with more study for the remainder of his life if he chooses. But the program of study is such that, having

completed it, the graduate is presumed to be qualified for employment.

### Scope of the Study

This study was limited to Oklahoma's two-year public post-secondary institutions offering technician education programs.

1. The institutions surveyed were a part of Oklahoma's system of higher education and designated as two-year public post-secondary institutions.
2. The respondents were administrators/supervisors of technician education programs culminating with the associate degree.
3. The survey dealt only with the identification of criteria for planning new post-secondary technician education programs.

The institutions were chosen in accordance with the publication Technical and Occupational Education in Oklahoma (Regents, 1987-88). Institutions offering technician education programs culminating with only the certificate or diploma were excluded from the study.

Each of the institutions chosen to participate in the study had common objectives to provide prospective students with the highest quality of technician level education available with educational experiences which led employment within an industry related technical specialty.

## CHAPTER II

### REVIEW OF LITERATURE

The review of literature pertinent to this study was divided into the following areas: (1) studies of new technician education programs, (2) studies dealing with the development of criteria for planning new technician education programs, (3) research regarding the Delphi Technique in identifying futuristic (future) oriented technician education programs, and (4) studies and reports in post-secondary technician education.

#### Overview

The sophisticated highly technical society of our present age has created a demand for competent, specialized technicians. In 1983 the Bureau of Labor Statistics predicted that 80% of the jobs available in the next ten years would require job seekers to have an education at the post-secondary level in addition to or instead of a liberal arts education (Frey, 1983). It was clear that the demand for technicians will continue into the future. According to Frey (1983),

Without the technicians and engineers to translate state-of-the-art technology into products marketable at competitive prices, growth opportunities in high technology industries area already being lost, and efforts to enhance productivity throughout industry are threatened (p. 9).

The two-year college was being recognized as the ideal educational institution to bridge the gap between industry and education. By accepting the challenge of industries to provide the academic training required of technicians it was essential for the two-year public post-secondary education institutions of Oklahoma to keep abreast of technological changes and incorporate these changes into new, innovative programs that allowed graduates to find employment and apply new technology. Missions for two-year colleges offering technician education must include not only high-quality technical education but also focus on human resource and economic development. According to Rosenfield (1987),

The rapid pace of technological change and rising costs keeping up with the latest advances in equipment and methods are causing technical colleges to become more selective about programs for which they can maintain high standards (p. 20).

Rosenfield goes on to state:

The technical associate degree program had to be revised as potential technicians can no longer acquire what they will need in twelve years of formal schooling. Skill upgrading programs were revitalized to promote technology advances and economic development. The best antidote to technical obsolescence is continuing education, and the colleges and universities, which are able to stay abreast of technological changes are best prepared to be providers (p. 20).

The two-year public education institutions in Oklahoma offering technician education programs must plan for new programs that are representative of our society's needs.

## Studies of New Technician Education Programs

The fast pace of technology required schools offering technician education programs to plan, develop, and implement new programs. A listing of several new technician education programs was provided:

1. Computer-aided drafting and design
2. Robotics
3. Automated manufacturing
4. X-ray lithography

The aforementioned programs are just a sample of many new programs that were too numerous to list. How will technician education be affected by these new programs with further projected developments? Schuler (1983) believes

We are becoming a society based on ideas rather than goods. Dramatic changes will occur mostly in so-called skill- or task-oriented education. Vocational/technical education will have many content areas with half-lives measured in months. Certain workers will need continuous retraining, requiring education to extend beyond its traditional reach and continue throughout the life cycle (p. 5).

General Motors has a machine called PUMA, which is consisted of mechanical arms to paint, drill holes, weld, grind parts and other uses. This depicted how robotics is a field that technician education cannot fail to address. Dr. Richard DeCosmo, President of Delaware County Community College (1983) stated:



Local companies are expanding and they need technicians badly in order to compete favorably in the world market place. If our curriculum isn't supporting local industry in these efforts with a supply of technologically sophisticated graduates, then the curriculum isn't hitting the mark (p. 11).

Many technician education programs today will be obsolete tomorrow, while many programs of tomorrow are not yet known, and the responsibility of the two-year college of providing these programs will continue to grow. Technical colleges must continue to redesign their curricula to anticipate technological changes in the workplace.

#### Criteria for Planning New Technician Education Programs

Rapid changes in technology and Oklahoma's tough economic times have created problems for technician education institutions keeping their programs up-to-date and in implementing new programs. According to Raulf and Ayres (1987, p. 9), the basic question that educators in community colleges and technical institutes must answer concerning change is "How can we be sure to develop programs that meet the needs of the federal government, the community, and the individual?" Grubb (1984) goes on to add that institutions should be careful to avoid developing occupational programs that focus on business and industry needs, while not following the educational mission of the institution.

It is no longer a time when planners of technician education programs can rely on what worked in the past will

work in the future. Oftentimes programs were planned and implemented because of the self-serving interests of the program planners. In distinguishing the important criteria for planning new technician education programs, Seitz (1977, p. 21), believed the program planner is faced with the fundamental question: Which program of study, i.e., which curriculum, should one develop and implement next? Planners of new technician education programs must keep three things in mind when planning new programs. They include: (1) there is a curriculum that will serve the needs of clientele in most localities, (2) of most programs which there is a demonstrated needs, it may be impossible to implement and fund immediately, and (3) planning programs is a fact-gathering process (Seitz, 1977).

An important factor concerning technician education program planning in Oklahoma was that the program must be truly college level. Many times programs were just duplication of what is being offered at an area vocational-technical school. This redundancy is harmful to both the post-secondary institution as well as the area vocational-technical school. True college level technician education must stress academic training that incorporates math and sciences beyond the secondary level. According to Brooking (1968),

Programs to educate technicians should clearly be described as college education in terms of readily recognizable by students, school, staff, parents, employers, legislators, other educational institutions, and the public-at-large (p. 11).

When determining program priority criteria for planning new programs, Seitz (1977, p. 23) offered several criteria used for determining need and feasibility.

#### Need

1. Net job openings locally/generally
2. Occupational employment trend
3. Wage/satisfaction incentive
4. Advancement opportunities
5. Opportunities for disadvantaged
6. Level of training required
7. Breadth of training needs
8. Adequacy of available training
9. Specific vs. generalized job
10. Profession/employer acceptance
11. Nature of request

#### Feasibility

1. Student interest
2. Program costs
3. Availability of faculty and facilities
4. Level of federal and state funding
5. Priorities of state agencies
6. Academic entry restrictions
7. Internal and external support
8. Program effectiveness for institution
9. Approval probability/possibility
10. Legal restrictions

The criteria for developing new technician education programs must attempt to ensure that programs are well planned and easily implemented to meet the needs of academia and business/industry. A new technician education program that was not planned in accordance with predetermined criteria was very costly in terms of financial resources, efforts of administrators/supervisors, and potential employers.

The future of technician education is going to demand institutions to keep better pace with advancing technologies. Only through the establishment of successful, predetermined

criteria are institutions going to be able to offer technician education programs that allow graduates to become employed and acquire the skills necessary for retraining.

### Delphi Technique

Predicting future events, especially concerning education in Oklahoma was an activity practiced without much formal structure. Technician education, which involved staying up-to-date with technology, predicting future changes and educational implications was essential for program success. Planners of technician education programs try not only to predict what the future holds, but they also attempt to control the future. These attempts to control the future were what distinguished technician education from other fields of education. Despite relying on human judgment, forecasting the future was an important enterprise for planning new technician education programs.

The Delphi Technique was selected as the data gathering method for collecting information from persons who were involved in the process of determining the critical criteria for planning and implementing new technician education programs. The Delphi Technique was developed by the Rand Corporation to obtain opinions concerning national defense problems. According to Weaver (1971),

Delphi . . . operates on the principle that several heads are better than one in making subjective conjectures about the future, and that experts . . . will make conjectures based upon rational judgment and shared information rather than merely guessing, and will separate hope from likelihood in the process (p. 268).

The Delphi Technique brings together these experts usually through surveys. The surveys were usually done in successive four rounds, with each round allowing for greater consensus. The typical Delphi Technique procedure is listed below:

1. The first survey acquired a list of opinions usually predicting future events.
2. On the second round, each respondent was asked to rate the importance of each item.
3. The third survey depicted the items and how they were rated. It also indicated consensus, if any, and asks the experts to make any revisions.
4. The fourth survey depicted the list, ratings, and consensus and opinions outside the consensus. It also includes a chance for final revisions.

The strength of the Delphi Technique was the ability to obtain a consensus of opinion and as a tool for predicting future events. Two disadvantages include the amount of time to complete all the surveys and opinions collected may not be true expressions of the respondents' opinions. Cyphert and Gant (1971, p. 273), cite, "The technique has generally been used to predict what will happen rather than to seek agreement concerning what should happen."

As today's society is changing faster every year only through predicting and anticipating change can educational institutions adapt and survive. The Delphi Technique, by itself or coupled with other data collecting tools will aid supervisors/administrators of technician education programs in determining the critical criteria for planning and implementing new programs.

#### Studies and Reports in Post-Secondary Technician Education

The Bureau of Labor Statistics published reports every year depicting the growing need for vocational-technical education. Many of the occupations of tomorrow and the near future are going to require specialized technicians who need to live in a highly technological world. Service jobs are also becoming a major demand. According to Frey (1983),

Almost three-quarters of all American workers are now employed in service jobs. Services now constitute two-thirds of our gross national product, and there is speculation that the manufacturing slice of the economic pie will continue to shrink (p. 8).

Service-oriented jobs play an important role in the American economy but will they provide an adequate base for long-term economic growth and development. It is considered doubtful (Frey, 1983).

An increase in the investment of vocational-technical education is of more importance for this country. Our society forced us to provide highly skills workers in the workforce

to operate and maintain the complicated equipment and machinery. Technology will only strive forward. It is up to educators in technician education to be sure we are keeping pace with technology.

Other reports of interest concerning technician education include the data depicting the older age of students needing technician education training. Many of the students now are attending school part-time in the evenings and on weekends. This is an important factor for planners of new technician education programs. Delivery systems and instructional methods will continue to change. Many adults will be coming back to the classroom to update their skills or enter a new career. This places a great burden on technician education planners. But, perhaps no other institution is better suited to provide this retraining than the technical institute or community college.

### Summary

The literature review pointed out the need for determining the critical criteria for planning and implementing new technician education programs. The literature also attempted to demonstrate the need for technician education and the sophisticated planning that is required of administrators/supervisors.

Concerning educational change and predicting the future events the Delphi Technique is used quite extensively. This

study lent itself adequately to the Delphi Technique for collecting opinions and showing consensus.



## CHAPTER III

### METHODOLOGY

#### Introduction

This study attempted to identify the critical criteria for planning new technician education programs in Oklahoma's two-year public post-secondary education institutions. The Delphi Technique was used to gather a consensus of opinions from a selected set of individuals.

#### Description of the Population

The population surveyed in this study were administrators/supervisors of two-year public post-secondary education institutions offering technician education programs in Oklahoma. The administrators/supervisors were chosen in accordance with the publication Technical and Occupational Education in Oklahoma (Regents, 1987-88). This population was limited to the administrators/supervisors of all two-year public post-secondary education institutions that awarded the associate degree upon completion of the technician education program. All administrators/supervisors surveyed jointly work with and under the direction of the Oklahoma State Regents System of Higher Education. Sixteen administrators/supervisors were surveyed.

### Collection of Data

The Delphi Technique was used for the collection of data in this study and consisted of the following steps:

1. Identified administrators/supervisors of technician education programs at the institutions selected to participate in this study.
2. Distributed the first survey to the identified administrators/supervisors in the selected institutions.
3. Distributed the second survey for rating purposes.
4. Distributed the third survey for consensus or non-consensus purposes.
5. Distributed the fourth survey final revisions and copy of results.
6. Implemented follow-up procedures as needed to assure a high percentage of return of the survey instruments.

### Development of the Instrument

Using input of administrators/supervisors in technician education and literature sources, a list of proposed criteria was developed for planning and implementing new technician education programs. Each participant was asked to list up to five proposed criteria they felt were essential in planning for the implementation of new technician education programs. The participants were sent a copy of these criteria and were asked to rate the criteria in each survey on an 11 point continuum ranging from the most important (1) to the least

important (11) and to add any suggestions they felt relevant and important to the study. The mean, standard deviation, and the variance were calculated for each criterion. The criteria were then ranked by mean in order of most important to least important. The ranked factors were sent to the participants asking them to review the rankings, and make any necessary revisions of why they felt any statement was ranked too high or too low. The participants were then sent a copy of the results showing consensus, minority opinions, and the chance for final revision of opinions.

#### Statistical Analysis

Measures of central tendency and measures of variability were used to analyze the data in this study. The mean which measured central tendency was defined by Popham and Sirotnik (1973),

The mean is actually the arithmetic average of a set of data. In educational and psychological research the mean is used as an index of central tendency more often than any other measure (p. 12-13).

The standard deviation was used to describe variability when the mean was used to explain central tendency. The standard deviation is an average of how far apart the rankings were removed from the mean. A small standard deviation reflected little variation of the rankings.

The variance was also used as a measure of variability. The variance is the square of the standard deviation. The

variance used to analyze data for this study, depicted the distance of the ranked criteria from the mean of distribution.

### Research Questions

The Delphi Technique was used to answer the questions asked in this study. Specifically answers were sought to determine:

1. What were the important educational parameters used in planning new technician education programs?
2. Did politics enter into new technician education program decisions?
3. Did economic development considerations have an effect on the planning for new technician education programs?
4. Where did data come from for the planning of new technician education programs?

## CHAPTER IV

### RESULTS

The purpose of this study was to determine the critical criteria for planning new technician education programs culminating with the associate degree in Oklahoma's two-year public post-secondary education institutions. The Delphi Technique was used as the data gathering method to obtain consensus from administrators/supervisors of technician education programs in Oklahoma's two-year public post-secondary institutions. For the purpose study items which yielded a mean score of 2.000 or less were considered the critical criteria. This chapter presented the results depicting criteria selected as most and least important, data collection, and analysis. Chapter V is composed of the summary, conclusions, and recommendations based on the study's findings described in this chapter.

#### Return Results

Correspondence Survey No. 1 was mailed to 16 participants. Thirteen or 81.2% of those correspondence surveys were returned.

Correspondence Survey No. 2 was mailed to each of the 16 participants including the three participants who did not

return Correspondence Survey No. 1. Fourteen or 87.5% of those responses were returned.

Correspondence Survey No. 3 was mailed to all 16 participants. Only two surveys were returned. This mailing asked the participants to agree with the rankings of the criteria or make revisions and re-rank one or more of the criterion. Information in Table I shows the results of the number of responses for each survey in this study.

TABLE I  
NUMBER AND PERCENTAGE OF RETURNS FOR EACH CORRESPONDENCE

	Number Sent	Total Return	Percent Return
Survey No. 1	16	13	81.2%
Survey No. 2	16	14	87.5%
Survey No. 3	16	2	12.5%

#### Data Collection and Analysis

Correspondence Survey No. 1 and a cover letter (Appendix A) were mailed to each participant. Included was a self-addressed postage paid return envelope to help encourage participation in the study. Correspondence Survey No. 1 asked for the participants to identify up to five critical

criteria they felt were important in planning new technician education programs in Oklahoma's two-year public post-secondary institutions.

Correspondence Survey No. 2 and a cover letter (Appendix B) were mailed to each participant. Each criterion that was proposed in Survey No. 1 was included in Survey No. 2. Like or similar responses were randomly grouped together. The participants were asked to rate the criteria on an 11 point continuum ranging from (1) most important to (11) least important.

The mean, standard deviation, and the variance were calculated for each criterion. The criteria were then ranked by the mean in order of most important to least important. Information in Table II shows the results of these rankings.

Correspondence Survey No. 3 and a cover letter (Appendix C) were sent to all participants asking them to review the ranked criteria and allow for consensus agreement or to re-rank the criteria.

Two correspondence surveys were returned indicating a desired re-ranking of the criteria. Information in Table III shows the criteria which the participant felt should be re-ranked and the position of the re-rank. Because there were no other re-rankings indicated, it was concluded that Correspondence Survey No. 4 would not be needed for making final revisions and further statistical analyses.

There were five criteria two participants indicated should be changed. The greatest magnitude of these five

recommended re-rankings was 20. The remaining four criteria had magnitudes of 16, 11, 7, and 5, respectively.



TABLE II  
CRITICAL CRITERIA RANKINGS

Rank	Criteria	Mean	Std Dev	Var
01	Jobs available for graduates	1.385	0.487	0.237
02	The program would be post-secondary level	1.692	1.323	1.751
03	Demonstrated need (Industry-Public)	1.692	0.821	0.675
04	Adequate funding available	1.846	1.875	3.515
05	Strong business/industry support	1.923	0.997	0.994
06	Program fits college's mission	1.923	0.828	0.686
07	Employer and student expectations will be met	2.154	0.948	0.899
08	Resources available to implement the program	2.231	2.358	5.562
09	Availability of facilities	2.385	1.778	3.160
10	Economically feasible for state funding	2.385	1.778	3.160
11	The cost/benefit of the new program is appropriate	2.385	1.077	1.160
12	Student demand for program	2.538	1.946	3.787
13	Adequate number of students for program	2.538	1.500	2.249
14	Institutions can afford to develop a new program at this time and continue to operate in low enrollment times	2.538	1.393	1.941
15	Trained technicians will earn a competitive wage	2.538	1.337	1.787
16	Students have an interest in the program	2.615	1.820	3.314

TABLE II (Continued)

Rank	Criteria	Mean	Std Dev	Var
17	Population to be served	2.769	1.846	3.408
18	Funding need will not reduce quality or resources of other programs	2.769	2.693	7.254
19	Program will allow graduates opportunities for career progression	2.923	2.235	4.994
20	Associate degree recognized by business/industry as a critical factor in hiring	2.923	2.674	7.148
21	Need to upgrade skills of people already employed in the field	3.077	1.439	2.071
22	Availability of equipment and space	3.077	2.093	4.379
23	Curriculum content can be validated	3.154	2.537	6.438
24	Planned program expansion will update skills	3.308	2.090	4.367
25	Accreditation requirements	3.308	3.147	9.905
26	Input from advisory committee	3.308	1.488	2.213
27	New program supports sunrise rather than sunset industries	3.462	2.707	7.325
28	Availability of faculty and staff	3.769	2.485	6.178
29	Similar programs already offered	3.923	2.868	8.225
30	The amount of time it takes to develop program awareness	4.462	2.872	8.249
31	Long-term or short-term program	4.923	2.235	4.994

TABLE II (Continued)

Rank	Criteria	Mean	Std Dev	Var
32	Consider other colleges capable of meeting need	4.923	3.269	10.686
33	Competition for students	5.000	2.483	6.167
34	The Vo-Tech/2-year college question is resolved	5.077	4.047	16.379

TABLE III  
CRITICAL CRITERIA RECOMMENDED RE-RANK AS  
PERCEIVED BY TWO PARTICIPANTS

Rank	Recommended Re-Rank	Subject Area
01		Jobs available for graduates
02		The program would be post-secondary level
03		Demonstrated need (Industry-Public)
04	9	Adequate funding available
05		Strong business/industry support
06		Program fits college's mission
07		Employer and student expectations will be met
08		Resources available to implement the program
09		Availability of facilities
10		Economically feasible for state funding
11		The cost/benefit of the new program is appropriate
12		Student demand for program
13		Adequate number of students
14		Institutions can afford to develop a new program at this time and continue to operate in low enrollment times
15	4	Trained technician will earn a competitive wage
16		Students have an interest in program
17		Population to be served
18		Funding need will not reduce quality or resources of other programs

TABLE III (Continued)

Rank	Recommended Re-Rank	Subject Area
19		Program will allow graduates opportunities for career progression
20		Associate degree is recognized by business/industry as a critical factor in hiring
21	14	Need to upgrade skills of people already employed in the field
22		Availability of equipment and space
23		Curriculum content can be validated
24		Planned program expansion will upgrade skills
25		Accreditation requirements
26	10	Input from advisory committees
27		New program support sunrise rather than sunset industries
28	8	Availability of faculty and staff
29		Similar programs already offered
30		The amount of time it takes to develop program awareness
31		Long-term or short-term program
32		Consider other colleges capable of meeting need
33		Competition for students

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the critical criteria for planning new technician education programs in Oklahoma's two-year public post-secondary education institutions. The criteria were determined by using the Delphi Technique to seek information from administrators/supervisors of Oklahoma's two-year public post-secondary education institutions offering programs in technician education. This chapter presented a summary of the results of this study, and conclusions and recommendations based on these results.

#### Summary of the Study

The specific problem in which this study dealt was to determine the critical criteria used in formal planning for developing new technician education programs in Oklahoma's two-year public post-secondary education institutions.

Sixteen administrators/supervisors from two-year public post-secondary education institutions in Oklahoma offering technician education programs participated in the study. The study consisted of a series of three correspondence surveys each of which was refined upon the preceding. Each

correspondence survey provided feedback from the preceding surveys and allowed participants to modify their opinions. This data gathering method, referred to as the Delphi Technique, was used to determine a consensus opinion on specific critical criteria. The most critical criteria were identified for planning new technician education programs. These criteria included (1) jobs available for graduates, (2) the program would be post-secondary level, (3) a demonstrated need exists (Industry-Public), (4) adequate funding is available, (5) strong business/industry support, and (6) the program fits within the college's missions.

### Conclusions

The conclusions drawn from this study were as follows:

1. A majority opinion was achieved on most of the criteria rated regarding planning new technician education programs in Oklahoma's two-year public post-secondary education institutions.
2. Economic development directly affects the criteria used in planning new technician education programs.
3. The political process directly affects the criteria used in planning new technician education programs.
4. The Delphi Technique was an appropriate method for data collection and generating consensus opinion for determining the critical criteria for planning new technician education programs in Oklahoma's two-year public post-secondary education institutions.

### Recommendations

Based on the findings and conclusions, the following recommendations were formulated:

1. All administrators/supervisors who are directly involved in the planning of new technician education programs should consider the critical criteria as identified in this study.
2. All administrators/supervisors who are directly involved in the planning of new technician education program should hold formal planning sessions to continue research into refining the critical criteria determined in this study.
3. The results of this study should be distributed to administrators/supervisors and others who play vital roles in planning new technician education programs.
4. The information found in this study should be used as a guide to assist decision-makers in planning new technician education programs. Planners of new technician education programs should strive to incorporate the critical criteria.

Recommendations for further study include:

1. Determine the extent and effectiveness the critical criteria established in this study are used by institutions when establishing new technician education programs.
2. Determine the criteria the institutions actually use in planning new technician education programs.



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## APPENDIXES

APPENDIX A

ROUND 1 INSTRUMENT



# Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

STILLWATER, OKLAHOMA 74078  
CLASSROOM BUILDING 406  
(405) 624-6275

November 30, 1987

Dear Participant:

In cooperation with the Department of Occupational and Adult Education, Oklahoma State University, Stillwater, I am currently conducting a research study. The purpose of this study is to determine the critical criteria for planning new technician education programs culminating with the associate degree in Oklahoma's two-year public post-secondary education institutions. I am surveying 16 administrators/supervisors of public two-year institutions in Oklahoma offering associate degree education programs.

You have been selected to represent one of these institutions and I would like to invite your participation. Your opinion and input is valuable and will be of great benefit to this study and planners of technician education programs. I am asking for only five to ten minutes of your time.

The Delphi Technique, developed by the Rand Corporation, has been chosen to conduct this study. The Delphi Technique, which is built upon the strength of informed intuitive judgment, obtains expert opinion without bringing the experts together in any kind of face-to-face confrontation. Through a series of four rounds of questionnaires, your opinion will be solicited and an effort will be made to gain a measure of consensus on what emerge as central themes. During this study mailings will be spaced approximately four weeks apart as follows:

Correspondence  
No. 1

Requests that you list up to five proposed criteria for planning new technician level education programs.

Correspondence  
No. 2

A list of statements will be compiled from the participants' responses to Correspondence No. 1 and mailed back to you. Each person will be asked to rate the importance of each item as to the importance of planning new programs.

**CENTENNIAL  
DECADE**  
1980 • 1990

Correspondence  
No. 3

The average rankings of each item by the participants will be compiled from responses to Correspondence No. 2. A second list, ranking items in order of importance will be sent to you as Correspondence No. 3.

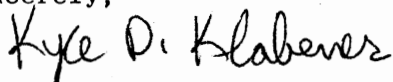
Correspondence  
No. 4

You will be asked to make changes and final revisions in the order of the list together with reasons for making the changes, or to agree with the order as listed.

All responses will be kept confidential. You will receive an abstract of the final report.

We do hope that you will participate in this effort to collect information needed from administrators of two-year schools offering technician education programs. Please complete the enclosed questionnaire and return it in the enclosed self-addressed, stamped envelope. Thank you very much for your valuable assistance.

Sincerely,



Kyle D. Klabenes  
Graduate Research Associate

Approved:

Dr. Cecil Dugger

**DETERMINING CRITICAL CRITERIA FOR PLANNING  
TECHNICIAN LEVEL PROGRAMS IN OKLAHOMA**

**OKLAHOMA STATE UNIVERSITY  
Stillwater, Oklahoma**

Correspondence No. 1

(Please return immediately in the enclosed envelope. Time is essential for proper coordination of this study.)

A study is being undertaken in the School of Occupational and Adult Education at Oklahoma State University, Stillwater, to determine the critical criteria for planning new technician education programs culminating with the associate degree in Oklahoma's two-year public post-secondary education institutions.

If the results of this study are to be valid and helpful to you and others who may be contemplating initiating new technician education programs we need your help in completing this questionnaire.

Please list up to five proposed criteria that you feel are essential in planning for the implementation of new associate degree level post-secondary technician education programs in Oklahoma.

Example: A possible criterion might be "The program is economically feasible to implement."

OR

"Employers have requested a need for technicians of this type."

Please list your proposed criteria below.

1.

2.

3.

4.

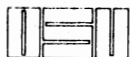
5.

THANK YOU

APPENDIX B

ROUND 2 INSTRUMENT





*Oklahoma State University*

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

STILLWATER, OKLAHOMA 74078  
CLASSROOM BUILDING 406  
(405) 624-6275

December 29, 1987

Dear Participant:

Thank you for completing Correspondence No. 1. Your responses were vital to this study and we appreciate the criteria you contributed. We hope you will continue to help us refine the data by completing Correspondence No. 2, which is enclosed.

Correspondence No. 2 contains the proposed criteria you and others were asked to identify in Correspondence No. 1. In order to determine the most important criteria, we are asking you to rate them on an 11 point continuum scale. The criteria will be analyzed according to the way you rate them, and from these rankings we hope to distinguish what criteria the group feels are the most important. These statements will be ranked from your ratings in the order of most importance to least importance.

Please complete the attached questionnaire and enclose it in the self-addressed, postage paid, return envelope as soon as possible. Your responses are greatly appreciated and are vital to the completion of this study.

Sincerely,

*Kyle D. Klabenes*

Kyle D. Klabenes  
Graduate Research Associate



## CORRESPONDENCE NO. 2

(To be returned in postage paid envelope)

Below are the proposed criteria (from Correspondence No. 1) you and others listed as your criteria in planning for the implementation of new associate degree level post-secondary technician education programs in Oklahoma's public post-secondary two-year education institutions. In order to establish a priority on the most important criteria, we would like you to rate each criteria on an 11 point continuum ranging from (1) which is most important, to (11) which is least important.

EXAMPLE	Most Important	Least Important
"Employer demand for the program."	1/2/3/4/5/6/7/8/9/10/11/	
(Please mark with an "X")		
1. Resources available to implement the program.	1/2/3/4/5/6/7/8/9/10/11/	
2. Demonstrated need. (Industry - Public)	1/2/3/4/5/6/7/8/9/10/11/	
3. Adequate funding available	1/2/3/4/5/6/7/8/9/10/11/	
4. Program fits college's mission.	1/2/3/4/5/6/7/8/9/10/11/	
5. Input from advisory committee.	1/2/3/4/5/6/7/8/9/10/11/	
6. Student demand for program.	1/2/3/4/5/6/7/8/9/10/11/	
7. Consider other colleges capable of meeting need.	1/2/3/4/5/6/7/8/9/10/11/	
8. Availability of facilities.	1/2/3/4/5/6/7/8/9/10/11/	
9. Availability of faculty and staff.	1/2/3/4/5/6/7/8/9/10/11/	
10. Economically feasible for state funding.	1/2/3/4/5/6/7/8/9/10/11/	

11. The program would be post-secondary technician level. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
12. Long-term or short-term program. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
13. Population to be served. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
14. Availability of equipment and space. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
15. Trained technicians will earn a competitive wage. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
16. The cost/benefit of the new program is appropriate. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
17. Employer and student expectations will be met. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
18. Jobs available for graduates. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
19. Institutions can afford to develop a new program at this time and continue to operate in low enrollment times. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
20. The amount of time it takes to develop program awareness. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
21. Students have an interest in the program. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
22. Accreditation requirements. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
23. Similar programs already offered. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
24. Need to upgrade skills of people already employed in the field. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
25. Adequate number of students for program. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
26. Funding needed will not reduce quality or resources of other programs. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11

27. Program will allow graduates opportunities for career progression. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
28. Strong business/industry support. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
29. Curriculum content can be validated. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
30. New program supports sunrise rather than sunset industries. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
31. Competition for students. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
32. Associate Degree recognized by business/industry as a critical factor in hiring. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
33. The Vo-Tech/Two-Year college question is resolved. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11
34. Planned program expansion will update skills. ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11

Other (please list):

35. \_\_\_\_\_
36. \_\_\_\_\_
37. \_\_\_\_\_
38. \_\_\_\_\_

## APPENDIX C

### ROUND 3 INSTRUMENT



# Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

STILLWATER, OKLAHOMA 74078  
CLASSROOM BUILDING 406  
(405) 624-6275

January 31, 1988

Dear Participant:

Thank you for rating the criteria for planning new technician education programs as depicted in Correspondence No. 2. Your ratings and responses were vital to this study and we appreciate your contributions. In this stage of the study we are asking you to review the rankings of each criterion as listed on the attached correspondence. Each criterion was ranked on an 11 point continuum ranging from the most important (1) to the least important (11). The criteria considered as primarily the most important for planning new technician education programs appears in rank order. Rank order was based on the calculation of the mean, standard deviation, and the variance.

If after examining the ranked list of criteria, you feel that any one or more of the criteria should be ranked significantly lower or higher on the list, please indicate your changes at the end of the correspondence and state your reasons for the changes. If there are no considerable changes or re-rankings, this correspondence will complete your participation of the Delphi Technique concerning this study. A copy of the final results will be sent to all participants depicting the critical criteria for planning new technician education programs in Oklahoma's two-year public post-secondary institutions.

If you feel any of the proposed criteria should be re-ranked, please fill out the enclosed correspondence and return it in the self-addressed, stamped envelope. If you have any questions concerning this study, please feel free to call. Your responses are greatly appreciated and vital to this study.

Thank you for your assistance.

Sincerely,

Kyle D. Klabenes  
Graduate Research Associate



## CORRESPONDENCE NO. 3

(Rankings derived from Correspondence No. 2)

Please examine these ranked criteria. If you feel any one or more criteria should be ranked lower or higher, please fill out the back page of this correspondence. Be sure to include the new rankings and the reason(s) as to why the criterion should be re-ranked. Please return this correspondence if you re-ranked any criteria.

Rank	Criteria	Mean	Std Dev	Var
01	Jobs available for graduates	1.385	0.487	0.237
02	The program would be post-secondary level	1.692	1.323	1.751
03	Demonstrated need (Industry-Public)	1.692	0.821	0.675
04	Adequate funding available	1.846	1.875	3.515
05	Strong business/industry support	1.923	0.997	0.994
06	Program fits college's mission	1.923	0.828	0.686
07	Employer and student expectations will be met	2.154	0.948	0.899
08	Resources available to implement the program	2.231	2.358	5.562
09	Availability of facilities	2.385	1.778	3.160
10	Economically feasible for state funding	2.385	1.778	3.160
11	The cost/benefit of the new program is appropriate	2.385	1.077	1.160
12	Student demand for program	2.538	1.946	3.787
13	Adequate number of students for program	2.538	1.500	2.249
14	Institutions can afford to develop a new program at this time and continue to operate in low enrollment times	2.538	1.393	1.941

15	Trained technicians will earn a competitive wage	2.538	1.337	1.787
16	Students have an interest in the program	2.615	1.820	3.314
17	Population to be served	2.769	1.846	3.408
18	Funding need will not reduce quality or resources of other programs	2.769	2.693	7.254
19	Program will allow graduates opportunities for career progression	2.923	2.235	4.994
20	Associate degree recognized by business/industry as a critical factor in hiring	2.923	2.674	7.148
21	Need to upgrade skills of people already employed in the field	3.077	1.439	2.071
22	Availability of equipment and space	3.077	2.093	4.379
23	Curriculum content can be validated	3.154	2.537	6.438
24	Planned program expansion will update skills	3.308	2.090	4.367
25	Accreditation requirements	3.308	3.147	9.905
26	Input from advisory committee	3.308	1.488	2.213
27	New program supports sunrise rather than sunset industries	3.462	2.707	7.325
28	Availability of faculty and staff	3.769	2.485	6.178
29	Similar programs already offered	3.923	2.868	8.225
30	The amount of time it takes to develop program awareness	4.462	2.872	8.249
31	Long-term or short-term program	4.923	2.235	4.994



32	Consider other colleges capable of meeting need	4.923	3.269	10.686
33	Competition for students	5.000	2.483	6.167
34	The Vo-Tech/2-year college question is resolved	5.077	4.047	16.379

---

Write the rank number and the reason(s) as to why you feel this criterion should be ranked lower or higher than its present ranking. (If additional space is needed please use the back of the page.)

PRESENT RANK NO.: \_\_\_\_\_

PREFERRED RANKING NO.: \_\_\_\_\_

REASONS FOR RANKING CHANGE:

PRESENT RANK NO.: \_\_\_\_\_

PREFERRED RANKING NO.: \_\_\_\_\_

REASONS FOR RANKING CHANGE:

PRESENT RANK NO.: \_\_\_\_\_

PREFERRED RANKING NO.: \_\_\_\_\_

REASONS FOR RANKING CHANGE:

THANK YOU

VITA 2

Kyle Daniel Klabenes

Candidate for the Degree of

Master of Science

Thesis: DETERMINING THE CRITICAL CRITERIA FOR PLANNING NEW  
TECHNICIAN EDUCATION PROGRAMS IN OKLAHOMA'S TWO-YEAR  
PUBLIC POST-SECONDARY EDUCATION INSTITUTIONS

Major Field: Technical Education

Biographical:

Personal Data: Born in Albion, Nebraska, November 25,  
1963, the son of Robert E. and Jeri K. Klabenes.

Education: Graduate from Milford Public High School,  
Milford, Nebraska, in May, 1982; received Bachelor  
of Science in Technical Education degree from  
Oklahoma State University in December, 1986;  
completed requirements for the Master of Science  
degree in Technical Education from Oklahoma State  
University in May, 1988.

Professional Experience: Graduate Research Associate,  
Oklahoma State University, Department of Occupational  
and Adult Education, August 1987, to present.