

COMMUNICATION AND HUMAN RELATIONS NEEDS IN A
TWO-YEAR POST-SECONDARY CONSTRUCTION
TECHNOLOGY PROGRAM

By

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CHAPTER I

THE PROBLEM

Introduction

Generally there are two aspects to initiating and bringing to closure a building construction project; one is the assembly of materials and labor, the other is the communication that takes place between various individuals involved with the project. The materials used and assembled are determined by the particular job, but the communication and human relations skills/abilities must be developed by understanding and practice.

The effective building construction supervisor must be one who can think logically and state ideas in a clear, concise, and effective manner. The supervisor must deal with owners and project designers through a means which presents a feeling of responsibility and intelligence. The construction supervisor must also receive and transmit information in an effective manner to his superiors and subordinates. Within the construction field there are individuals from different educational backgrounds and cultures who must be understood. Technical educators, therefore, should design their construction technology programs into one that offers not only a current technical background, but also one which is complemented by a communication and human relations education. This would allow the construction technology graduate to function effectively at a high-level of proficiency.

Statement of the Problem

This study deals with the perceived need of continued improvements that could be made in two-year construction technology programs. There is evidence the modern construction supervisor continually has to be able to communicate with a wide variation of people in an effective manner.¹ As illustrated in Figure 1, present two-year post-secondary construction technology programs place great emphasis on technical skills and little emphasis on communication and human relations skills. Several factors may have contributed to this problem.

1. Lack of information concerning the need for communication and human relations in the construction industry.
2. Lack of "feedback" information from members of the construction industry.
3. Difficulty in bringing educators and members of the construction industry together for group opinions of graduate abilities. It is assumed that each construction technology program has its own goals and objectives. But the identification of the key communication and human relations topics, needs to be clarified, developed, and implemented.

Purpose of the Study

The purpose of this study was to determine the kind of communication and human relations topics that are needed in a two-year post-secondary construction technology program as perceived by industrial and educational representatives. This study sought to identify what course topics are necessary as specified by selected Oklahoma

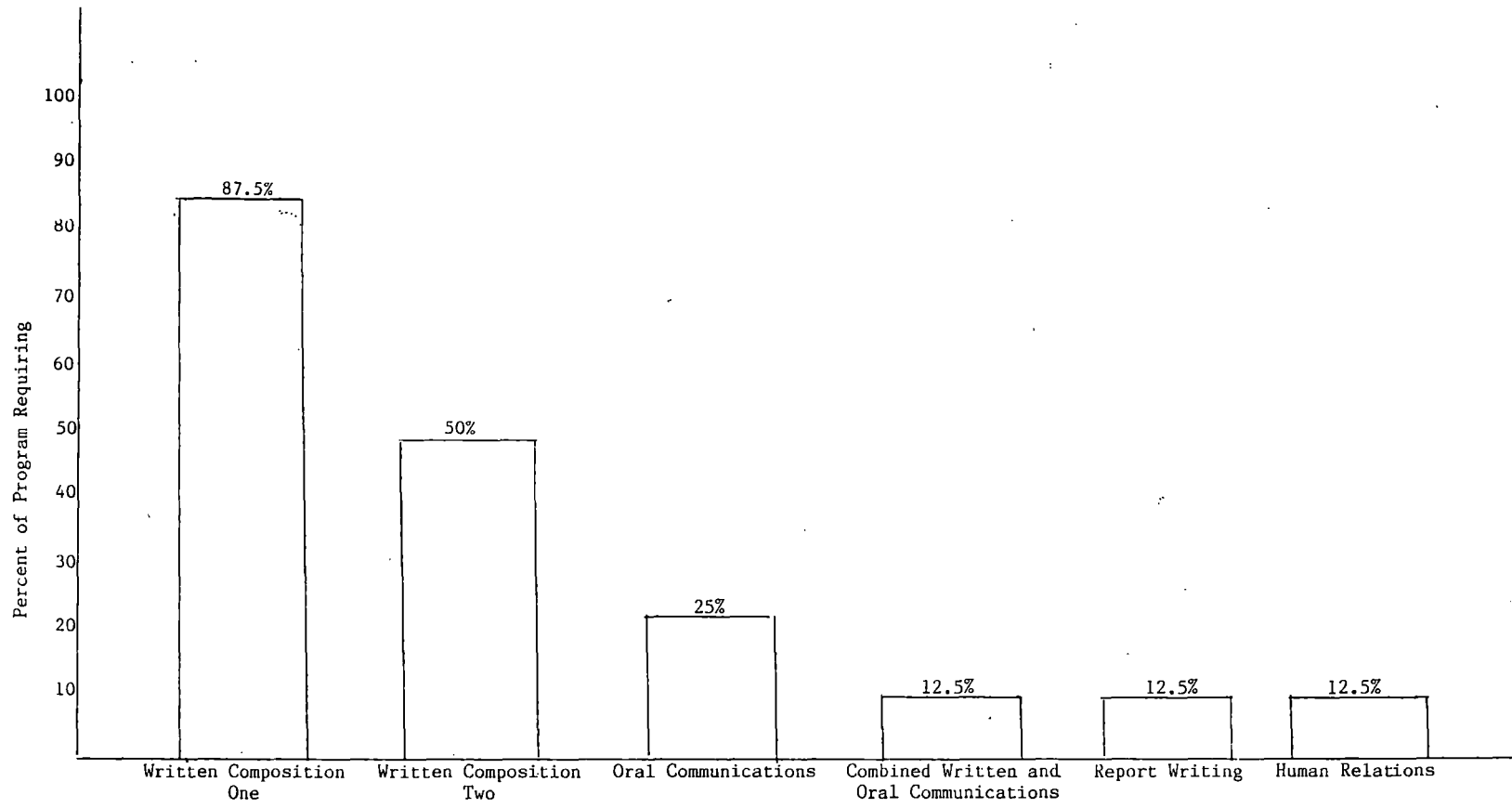


Figure 1. Communication and Human Relations Courses Required in All Seven (7) Oklahoma Two-Year Post-Secondary Construction Technology Programs

building construction general contractors, and Oklahoma two-year post-secondary construction technology educators.

Objectives

To accomplish the purpose of the study, the following objectives were selected:

1. To determine the kind of communication education topics needed in a two-year post-secondary construction technology curriculum as perceived by members of the Oklahoma Associated General Contractors, and Oklahoma two-year post-secondary construction technology educators.
2. To determine the kind of human relations education topics needed in a two-year post-secondary construction technology curriculum as perceived by members of the Oklahoma Associated General Contractors, and Oklahoma two-year post-secondary construction technology educators.

Need for the Study

A quotation, which is attributed to Benjamin Franklin, states that, "A trade without theory is like a tree without roots." The basis of any vocation is mathematics, science, communications, and human relations knowledge.² Kelly indicated as the construction industry grows and becomes more competitive, the need for well-rounded technically trained individuals will increase.³ In order for technical educators to meet these needs and possibly develop a more relevant curriculum, a study needs to be conducted to determine the communication and human relations topics that are needed by two-year post-secondary construction technology programs.

In summary, Lawrence stated in his book, Teaching Related Subjects

in Trade and Industrial and Technical Education: "Ideas and concepts must be mobile. They must be moved from one individual to another as needed. Blocks to such movement must be removed in the school experience of the student if he is to work effectively in many industrial positions."⁴ Human relations are not as exact as communications but it may be said that: "The best environment for learning human relations is in the laboratory of life. However, students need to acquire competency in human relations before employment."⁵ Information gained through this study can be of help to junior college and technical institute educators in forming and improving construction technology programs.

Limitations

This study is restricted to identifying the kind of topics in communications and human relations determined to be appropriate for a two-year post-secondary construction technology program as perceived by Oklahoma building construction general contractors, and Oklahoma two-year construction technology educators.

Assumptions

It is assumed that the individuals who contributed information to this study were knowledgeable of the needs of a two-year post-secondary construction technology program, and responded appropriately.

Definition of Terms

Communications - The imparting or interchange of thoughts, opinions, or information by speech or writing.⁶

Human Relations - Human situations arising from organizational and interpersonal relations in industry, especially with reference to employer-employee relationships and the interaction between personal traits, group membership, and productive efficiency.⁷

Construction Superintendent/Supervisor - Contractor representation at the site who is responsible for continuous field supervision, coordination, completion of work, and, unless another person is designated, prevention of accidents.⁸

END NOTES

¹Associated General Contractors of America, Supervisory Training Program-Superintendent, 5-1 (Washington, 1977).

²Milton Larson, Teaching Related Subjects in Trade and Industrial and Technical Education. (Columbus, 1972), p. vii.

³Albert J. Kelly, "Project Managers Must Develop New Skills." Construction Contracting, Vol. 63, No. 2 (May-June 1981), p. 12.

⁴Milton Larson, Teaching Related Subjects in Trade and Industrial Technical Education, (Columbus, 1972), p. 42.

⁵Ibid., p. 44.

⁶The Random House Dictionary of the English Language, (New York, 1971), p. 298.

⁷Ibid., p. 1351.

⁸Joseph Roberts, Construction Management: An Effective Approach (Reston, 1980), p. 362.

CHAPTER II

REVIEW OF LITERATURE

Construction technology education falls under the spectrum of technical education. In general, the majority of the previous research in communication and human relations needs has been in the broad area of technical education.

Konon, professor at New Jersey Institute of Technology, stated:

Construction is a typical example of an industry that requires an understanding of engineering basics along with the ability to write and speak well. An excessive concentration in mathematics and science is not **only** unnecessary in the construction industry, but can actually be a problem. Many students who are highly motivated by these subjects are not by their nature suited for the business environment they will have to perform in.¹

Technical personnel, such as construction supervisors, who become specialized in their vocational field develop an air of self-assurance. As he continues to strive for perfection he may develop a blunt air about himself that may irritate associates on the job.² McDonald went on to say in his book, Personality and English in Technical Personnel: "Such a man's knowledge of his work may be exceptional, but lack of knowledge of his own faults holds him back. He fails to realize the importance of the old Greek slogan 'Know thyself'."³

McDonald went on to add that: "The typical technician is a man to admire in many respects. He has brains, ability, and insight especially as applied to machinery and construction. There are apt to be,

however, serious faults in his personality and ample room for improvement."⁴

Traditionally, technical educators have thought that human relations skills could be learned on the job, leaving the technical aspect of the education to the institution. Fruehling, associate professor at County College of Morris, said that: "While students have traditionally received training in the cognitive and technical areas, their preparation in human relations and coping skills in how to act and react as adults has been sadly lacking."⁵

Fruehling continued: "Human relations comprises the areas of understanding yourself and others, communicating with others, experiencing career satisfaction, and dealing with biases and prejudices."⁶

In an effort to make the student more adaptable to different situations, human relations courses should help the individual adjust better to others, work more effectively both within the peer group and with superiors and subordinates. Students need to acquire a certain amount of knowledge in these areas before entering the workplace.⁷

Defore, technology education writer for Engineering Education, supports the above discussion:

Formal study in the humanities/social sciences area continues to be, in this writer's opinion, a viable method of providing students with important non-technical data and of introducing them to concepts of their social environment and cultural heritage. I am convinced that a technology program which does not require some minimum experience in the humanities and social sciences does a disservice to its students. The non-technical elements in a technology curriculum are essential parts of the program; their quality may well determine the excellence of the entire curriculum.⁸

According to a study in Engineering Education, technicians have expressed the need for better preparation in English and report writing.

Technology education ideally would educate students for both present and future needs in the area of written communication.⁹ As shown in Table I, a minimum of six semester hours in each of the areas of communication and social studies is recommended in a two-year engineering technology program.

McDonald reinforced the preceding statements by stating: "Both the oral and the written reports may be exceedingly important to the technician's future. A clear and well-expressed report is likely to impress officials favorably because it saves them time and is rather unusual."¹⁰

Butler, professor of Sociology at Louisburg College, stated in an article in Technical Education News: "In the process of meeting the demands and challenges of a new job, a person will need reading, writing, and speaking skills."¹¹

Henninger said in his book, The Technical Institute in America:

There appears to be general agreement that work with the English language as an instrument of communication is especially necessary. This attention to language skills stems from the fact that the engineering technician often serves as a liason between the engineer or scientist on the one hand, and the skilled craftsman or customer on the other. Also, he is finding an ever-widening place in line or group supervision. Typically, a prime part of an engineering technician's work will involve the collection and correlation of data and the preparation of reports, specifications, and other communications which for effectiveness must be both accurate and lucid. Also, he will have to translate them into operations understandable to others. Thus, it becomes clear that a part of his technical education, the engineering technician must learn to use the language accurately and effectively.¹²

Wass further defined the duties of the construction technician:

The technician in the construction industry is an individual who has been given special training to stand between the professional men, such as architects and engineers, and tradesmen. Many technical schools offer courses leading to

TABLE I
CURRICULUM SUMMARY IN SEMESTER CREDITS

| Curriculum | Credits | Total |
|------------------------------|---------|-----------|
| <u>Basic Science Courses</u> | | |
| Mathematics | 12 | |
| Physical Sciences | 6 | |
| | | 18 |
| <u>Nontechnical Courses</u> | | |
| Communications | 6 | |
| Social Studies-Humanistic | 6 | |
| Other | 3 | |
| | | 15 |
| <u>Technical Courses</u> | | |
| Technical Skills | 6 | |
| Technical Specialities | 33 | |
| | | <u>39</u> |
| Total | | 72 |

Source: Engineering Technology Education Study: Final Report.
Engineering Education. Vol. 42, January 1972, p. 43.

degrees in this field. The curriculum may include the following subjects: English, structures laboratory, mechanics, drafting and shop drawing, mathematics, estimating, contracts and specifications, mechanical systems, and surveying. Many technicians go on to take positions of supervision as their careers progress.¹³

A document on technician education published by the U. S. Department of Health, Education, and Welfare made the following suggestions regarding communications in the technical education curriculum:

The importance of communications skills to technicians can scarcely be over-emphasized. The ability or inability to communicate is almost immediately evident to employers and co-workers. Everyone expects the technician to be able to communicate as an educated person. Failure seriously affects interpersonal relationships and may significantly impede advancement.

Communication skills are usually taught in separate courses by professional teachers of the subjects, and should involve subject matter and examples that relate to the student technicians' interest as far as practiceable. However, good communications practices should be emphasized by all instructors in all courses.¹⁴

The writer went on to make the following comments about human relations needs in technical education:

Courses in person-to-person relationships are perhaps the most difficult to teach. They are directed toward teaching a student how to project and maintain a good impression with other persons, and how to relate more effectively to the various individuals or groups with which he works. Intelligent applications of social psychological principles of behavior is necessary for all technicians who meet the public as technical representatives of employers. Courses must be taught as applied social and personal psychology, general psychology courses usually do not interest or serve the particular needs of the student technician.¹⁵

Information in Table II shows that Associate degree graduates and advisory committees in the Wisconsin technical education system gave the highest composite level of importance among 20 general education objectives to the category of communication of knowledge.

A study of industrial technicians' modes of communication found

TABLE II
 LEVEL OF IMPORTANCE OF GENERAL EDUCATION OBJECTIVES
 AS PERCEIVED BY GRADUATES AND ADVISORY
 COMMITTEE MEMBERS

| Objective | Graduate Mean | Advisory Committee Mean | Composite Respondents Mean |
|--------------------------------|------------------|-------------------------------|----------------------------------|
| Personal Knowledge | 4.56 | 3.75 | 3.64 |
| Knowledge of Cultural Heritage | 3.85 | 2.77 | 3.12 |
| Creation of Knowledge | 4.56 | 4.50 | 4.11 |
| Desire for Knowledge | 3.93 | 4.04 | 3.80 |
| Practical Use of Present | 4.12 | 3.72 | 3.67 |
| Communication of Knowledge | 4.12 | 4.40 | 4.14 |
| Personal Physical Health | 3.52 | 3.09 | 3.44 |
| Personal Mental Health | 4.11 | 3.50 | 3.85 |
| Personal System of Values | 4.07 | 3.90 | 3.71 |
| Personal Culture | 3.52 | 3.68 | 3.35 |
| Vocational Choice | 4.03 | 3.63 | 3.75 |
| Home and Family | 3.48 | 3.45 | 3.40 |
| Citizenship | 3.81 | 3.23 | 3.64 |
| World Membership | 3.08 | 3.55 | 3.12 |
| Empathy for Common Humanity | 4.16 | 4.80 | 4.04 |
| Place in Physical World | 3.27 | 4.09 | 3.38 |
| Technical Foundation | 4.44 | 3.29 | 3.89 |
| Computational Skills | 4.48 | 3.91 | 3.87 |
| Problem Solving | 4.15 | 3.83 | 3.70 |
| Science Awareness | 3.40 | 3.22 | 3.29 |

Source: Erickson, Harold P. "An Analysis of General Education Objectives as Perceived by Administrators, Instructors and Students in the Wisconsin Vocational, Technical, and Adult Education System." (Ph.D. dissertation, The University of Wisconsin-Madison, 1977), p. 262.

that face-to-face conversation is the number one method of communicating as illustrated in Table III.

In summation, a statement in the book, The American Community College may reflect the true feeling of occupational graduates in the workplace. L. C. Soloman found: "On surveying numerous graduates of all types of programs several years out of college, he found them wishing they had more preparation in English, psychology and ways of understanding interpersonal relations."¹⁶

TABLE III
INDUSTRIAL TECHNICIANS COMMUNICATION MODES

| Mode | Percent Using |
|--|---------------|
| Face-to-Face Conversation | 59.7 |
| Writing to Audience of Equivalent Rank | 56.4 |
| Writing Instructions | 49.4 |
| Writing to Other Departments | 38.5 |
| Standardized Forms | 35.1 |
| Writing Reports | 34.2 |
| Telephone | 28.6 |
| Writing to an Audience of Higher Rank | 28.2 |
| Writing to an Audience of Lower Rank | 20.5 |

Source: Skelton, Terrence M. "Career-Oriented Communications: Determining the Instructional Needs of the Community College Vocational-Technical Student." (A.D. dissertation, The University of Michigan, 1978), pp. 159-168.

END NOTES

¹Walter Konon, "Engineering Technology: Committed to the Practical." Engineering Education (May 1977), p. 795.

²Phillip B. McDonald, Personality and English in Technical Personnel (New York, 1946), p. 9.

³Ibid., p. 10.

⁴Ibid., p. 2.

⁵Rosemary T. Fruehling, "Student Self-Realization and Human Relations Training in the Cooperative Work Experience Curriculum." Technical Education News, Vol. 36, No. 1 (October-November, 1976), p. 2.

⁶Ibid., p. 3.

⁷Milton E. Larson, Teaching Related Subjects in Trade and Industrial and Technical Education (Columbus, 1972), p. 44.

⁸Jesse J. Defore, "Humanities and Social Sciences in the Technology Curriculum." Engineering Education, Vol. 66, No. 2 (November, 1975), p. 144.

⁹"Engineering Technology Education Study: Final Report." Engineering Education, Vol. 42 (January 1972), p. 43.

¹⁰Phillip B. McDonald, Personality and English in Technical Personnel (New York, 1946), p. 66.

¹¹Robert A. Butler, "Basic English Skills for Technicians?" Technical Education News, Vol. 38, No. 2 (January-February, 1974), p. 3.

¹²Ross G. Henninger, The Technical Institute in America (New York, 1959), p. 43.

¹³Alonzo Wass, Building Construction Estimating, 2nd Ed. (Englewood Cliffs, 1970), p. 40.

¹⁴U. S. Department of Health, Education, and Welfare. Criteria for Technician Education a Suggested Guide (Washington, 1968), p. 72.

¹⁵Ibid., p. 74.

¹⁶Arthur M. Cohen and Florence B. Grawer, The American-Community College (San Francisco, 1982), p. 217.

CHAPTER III

METHODOLOGY

Introduction

Due to costs, time, geographic area, effort, and convenience of respondents, it was decided that a questionnaire be used to collect the needed information. To propose a list of course topics, to be further refined by participants, the Delphi technique was selected for this study.

Turoff stated: "The Delphi technique is a method for the systematic solicitation and collation of informed judgments on a particular topic."¹

Weaver said: "The Delphi has been justified primarily on the grounds that it prevents professional status and high position from forcing judgments in certain directions as frequently occurs when panels of experts meet."²

Turoff continued in his report that the Delphi technique can be given to as few as ten people regarding one subject.³ The Delphi consists of four steps, but the fourth step, according to Weaver is redundant.⁴ Therefore, the fourth step will not be used in this study.

The steps used in this study were:

Step 1. Participants were asked to give their opinion of two items: (a) list the kind of communication topics needed in a two-year

post-secondary technology program; (b) list the kind of human relations topics needed in a two-year post-secondary construction technology program.

Step 2. The participants were asked to evaluate all of their opinions, obtained in Step 1, in terms of rating them on a zero to five scale.

Step 3. The participants were then given the list of ratings, obtained in Step 2 and asked to revise their opinions.

Participants

The following criteria was used in choosing participants for this study: (1) They were members of the Oklahoma Chapter-Builder's Division the Associated General Contractors of America; (2) They were educators in an Oklahoma two-year post-secondary building construction technology program.

Procedure

The first step in this study was to identify the members of the Oklahoma Chapter-Builders Division Associated General Contractors of America. A membership listing was obtained from the Associated General Contractors of America Oklahoma Chapter-Builders Division 1985 Membership Roster. A population was selected that included all companies within the State of Oklahoma (see Appendix A). The second step in the study was to obtain a list of building construction technology programs in the State of Oklahoma. A brochure entitled, Technical and Occupational Education in Oklahoma (1986) was used to identify what institutions offer two-year post-secondary construction technology

programs. A population was selected that included all two-year post-secondary construction technology programs offered in two-year post-secondary institutions (see Appendix A).

A total of 52 participants were contacted for the first Delphi mailing. Included in the mailing was the letter of transmittal and Questionnaire Sheet Number One (see Appendix B). The first question was to list the kind of communication topics that should be covered in a post-secondary two-year construction technology program. The second question was to list the kind of human relations topics needed in a two-year post-secondary construction technology program. A self-addressed stamped envelope was included to encourage the completion and return of the Delphi form.

A meeting of the graduate study committee was held to combine and list responses according to similarity. Each response was placed randomly on Questionnaire Number Two (see Appendix C). A scale of Zero (0) to Five (5) was provided to rate each item with 0 being "not important" and 5 being "very important." Questionnaire Number Two was then mailed back to the participants and each was asked to rate each item. A self-addressed stamped envelope was included in Questionnaire Number Two.

When the Delphi form was returned, a consensus index was calculated using arithmetic means for each item. These items were placed on Questionnaire Number Three with the highest arithmetic mean placed on the top of the list and the lowest arithmetic mean placed on the bottom of the list (see Appendix D). The participants were asked to revise their opinions or state their agreement on the opinions/perceptions as a whole. Correspondence Number Three was mailed back

to each participant along with a self-addressed stamped return envelope.

Upon receipt of Correspondence Number Three the results were summarized and the Delphi results were tabulated for a final time. The final results were then mailed back to each participant.

END NOTES

¹Murray Turoff, "The Design of a Policy Delphi." Technological Forecasting and Social Change, 2(1970), p. 149.

²W. T. Weaver, "The Delphi Forecasting Approach." Phi Delta Kappa, Vol. LII, No. 5, January 1971, p. 267.

³Murray Turoff, "The Design of a Policy Delphi." Technological Forecasting and Social Change. 2(1970), p. 149.

⁴W. T. Weaver, "The Delphi Forecasting Approach." Phi Delta Kappa, Vol. LII, No. 5, January 1971, p. 267.

CHAPTER IV

RESULTS AND ANALYSIS

The purpose of this study was to identify communication and human relations course topics needed in a two-year post-secondary construction technology program. This study was accomplished by use of a modified Delphi Technique.

This technique allowed all 45 Oklahoma building construction general contractors and seven Oklahoma two-year post-secondary construction technology educators to be contacted so their group opinions could be compiled. The number of responses appears in Table IV.

Fifty-two questionnaires were mailed with 27 participants responding. Of the 20 Oklahoma building construction general contractor participants, nine were from Oklahoma City, two were from Tulsa, two were from Lawton, two were from Enid, and one each from Moore, Norman, Bartlesville, and Shawnee. Of the seven Oklahoma construction technology educators, two were from Oklahoma City, and one each from Poteau, Claremore, Miami, Tonkawa, and Okmulgee.

Delphi Questionnaire Number One was used by the participants to list key communication and human relations topics needed by two-year construction technology programs. A copy of Questionnaire Number One is included in Appendix B. The communication and human relations topics obtained by using Questionnaire Number One were then reduced from 51 to 33 by combining similar topics.

TABLE IV
SUMMARY OF DELPHI MAILING RESPONSES BY NUMBER

| Number and Percentages of Mailings and Responses | <u>Delphi Questionnaire Mailings</u> | | |
|--|--------------------------------------|--------|-------|
| | 1 | 2 | 3 |
| Number of questionnaires mailed to building construction general contractors | 45 | 20 | 16 |
| Number of responses to questionnaire | 20 | 16 | 15 |
| Percentages of responses to questionnaires mailed | 44.44 | 80.00 | 93.75 |
| Number of questionnaires mailed to educators | 7 | 7 | 5 |
| Number of responses to questionnaire | 7 | 7 | 5 |
| Percentages of responses to questionnaires mailed | 100.00 | 100.00 | 71.43 |
| Composite number of questionnaires mailed | 52 | 27 | 24 |
| Composite number of responses to questionnaires | 27 | 23 | 20 |
| Composite percentages of responses to questionnaires mailed | 51.92 | 85.18 | 86.96 |

Delphi Questionnaire Number Two was then used by the participants to rank communication course topics originally suggested by the participants on a six-point continuum (0 through 5). A copy of Questionnaire Number Two is enclosed in Appendix C. One of the participants commented on Questionnaire Number Two: "In addition to the areas of concern, one of the following courses should be included in a two-year program; advertising or marketing, the course should be construction oriented." Twenty-three participants ranked all of the communication topics on Questionnaire Number Two.

Table V gives information about the communication topic needs as ranked by participants on the Second Delphi mailing. The topic learning to listen effectively was ranked number one by educators with a ranking of 5.00. Explaining problems in writing in reference to disputes on the project was ranked number one by the general contractors with a ranking of 4.56. The communication topic receiving the highest composite group average was learning to listen effectively with a group average of 4.56.

Delphi Questionnaire Number Three was used to allow participants to evaluate the communication topics in relation to their rank order. A copy of Questionnaire Number Three is enclosed in Appendix D. The topics receiving the highest group ranking on the questionnaire were listed first, with topics that had the same ranking given the same rank order, there were a total of sixteen topics. Table V lists the rankings so that a comparison can be made as to how close the rank order numbers were. Table VI lists the communications topics needed in a two-year post-secondary construction technology program as perceived by the Delphi participants. Table VI indicates a need for interpersonal

TABLE V
 COMMUNICATION TOPICS LEVEL OF IMPORTANCE
 AFTER THE SECOND DELPHI MAILING

| Topic | Educator Group Average | General Contractors Group Average | Composite Group Average |
|---|---------------------------|---|----------------------------|
| Learning to listen effectively | 5.00 | 4.38 | 4.56 |
| Communicating with subordinates | 4.71 | 4.38 | 4.48 |
| Explaining problems in writing in reference to disputes on the project | 4.00 | 4.56 | 4.39 |
| Documentation and future reference procedures | 4.29 | 4.25 | 4.26 |
| Business letters | 4.14 | 3.63 | 3.78 |
| Gaining commitments through conversation | 3.57 | 3.75 | 3.70 |
| Techniques in reviewing technical literature to gain knowledge of materials and methods | 4.43 | 3.38 | 3.70 |
| Over the desk speaking | 4.00 | 3.44 | 3.61 |
| Reports | 3.86 | 3.13 | 3.35 |
| Peer Communication | 3.29 | 3.25 | 3.26 |
| Advanced courses in communications | 3.43 | 3.13 | 3.22 |
| Safety report talks | 3.71 | 2.63 | 2.96 |
| Investigation reports | 2.43 | 2.81 | 2.69 |
| Public Speaking | 2.86 | 2.25 | 2.44 |
| Conference writing | 2.00 | 2.19 | 2.13 |

TABLE VI
RANK ORDER OF COMMUNICATION TOPICS NEEDED IN TWO-YEAR
POST-SECONDARY CONSTRUCTION TECHNOLOGY PROGRAM

| Course Topic | Composite Rank Order | Educator Rank Order | General Contractor Rank Order |
|---|-------------------------|------------------------|-------------------------------------|
| Learning to listen effectively | 1. | 1. | 2.5 |
| Communicating with subordinates | 2. | 2. | 2.5 |
| Explaining problems in writing in reference to disputes on the project | 3. | 6.5 | 1. |
| Documentation and future reference procedures | 4. | 4. | 4. |
| Business letters | 5. | 5. | 6. |
| Gaining commitments through conversation | 6.5 | 10. | 5. |
| Techniques in reviewing technical literature to gain knowledge of materials and methods | 6.5 | 3. | 8. |
| Over the desk speaking | 8. | 6.5 | 7. |
| Reports | 9. | 8. | 10.5 |
| Peer Communication | 10. | 13. | 9. |
| Advanced courses in communications | 11. | 11. | 10.5 |
| Safety report talks | 12. | 9. | 13. |
| Report talks | 13. | 12. | 14. |
| Investigation reports | 14. | 15. | 12. |
| Public speaking | 15. | 14. | 15. |
| Conference writing | 16. | 16. | 16. |

communication and written documentation procedures in the two-year post-secondary construction technology program.

The Third Questionnaire asked the participants to review the communication topics listed, and to indicate if any item should have a different ranking, and tell why the item should have a different ranking. Table VII lists the individual opinions of building construction general contractors who changed communication topics rank order. A total of three participants changed topic rank orders.

Table VIII lists the individual opinions of two-year post-secondary construction technology educators who changed communications topics rank order. A total of two participants changed topic rank orders, there was no duplication in ranking change among educators and general contractors.

Delphi Questionnaire Number Two was used by the participants to rank human relations course topics items suggested by the participants on a six-point continuum (0 through 5). A copy of Questionnaire Number Two is enclosed in Appendix C. Twenty-three participants ranked all of the human relations on the questionnaire with one of the participants adding one more human relations topic. The topic: case studies (for example - conflict management, or persuasion) was submitted to the group in the third questionnaire. The topics, self-motivation and motivation, were ranked number one by educators with a ranking of 5.00. Self-motivation was also ranked number one by the general contractors with a ranking of 4.56. The topic receiving the highest composite group average was self-motivation with a group average of 4.70. Table IX presents information about the human relations topic needs as ranked by participants on the second Delphi mailing.

TABLE VII

INDIVIDUAL OPINIONS OF BUILDING CONSTRUCTION GENERAL CONTRACTORS
CONCERNING COMMUNICATION TOPICS IN THE THIRD DELPHI MAILING

| Composite Rank Order | Recommended New Rank Order | Reason for the Change |
|--|----------------------------|---|
| 4. Documentation and future reference procedures | 1. | We live in a world that requires more and more paperwork. One either effectively controls the paperwork or it controls you. |
| 6.5 Techniques in reviewing technical literature to gain knowledge of materials and methods | 14. | Not as important in a communications course |
| 10. Advanced courses in communications | 14. | Advanced communications courses should be left to the 4-year program |
| 14. Public Speaking | 8. | Prerequisite for topics 8 through 13 |

TABLE VIII

INDIVIDUAL OPINIONS OF TWO-YEAR POST-SECONDARY CONSTRUCTION
TECHNOLOGY EDUCATORS CONCERNING COMMUNICATION
TOPICS IN THE THIRD DELPHI MAILING

| Composite Rank Order | New Rank Number | Reason for the Change |
|-------------------------------|--------------------|--|
| 5. Business Letters | 2. | The ability to write an intelligent letter is an absolute must in today's business world. It not only serves as a means of communication, but also as an excellent tool for documentation. |
| 11. Safety report talks | 3. | Workers' compensation cases make this topic a necessity |

TABLE IX
HUMAN RELATIONS TOPICS LEVEL OF IMPORTANCE AFTER
THE SECOND DELPHI MAILING

| Topic | Educator Group Average | General Contractor Group Average | Composite Group Average |
|---|---------------------------|--|----------------------------|
| Self-motivation | 5.00 | 4.56 | 4.70 |
| Self-discipline | 4.86 | 4.38 | 4.52 |
| Organization-time management | 4.71 | 4.44 | 4.52 |
| Dealing with conflicts among contractors | 4.57 | 4.31 | 4.39 |
| Motivation | 5.00 | 4.19 | 4.34 |
| Motivation of subordinates | 4.43 | 4.19 | 4.26 |
| Delegation of responsibility | 4.43 | 4.19 | 4.26 |
| Leadership Development | 4.57 | 3.63 | 3.91 |
| "Frank" discussion with individuals | 4.14 | 3.88 | 3.91 |
| Conflict management | 3.86 | 3.81 | 3.83 |
| Supervision course inclu- ding a section covering human relations | 4.43 | 3.38 | 3.70 |
| Persuasion of other people, while maintain- ing a level of motiva- tion and not alienating them | 4.00 | 3.44 | 3.61 |
| Negotiating for a win/ win solution | 3.14 | 3.81 | 3.61 |
| Making groups function | 4.00 | 3.25 | 3.49 |
| Persuasion of individuals | 3.14 | 3.50 | 3.39 |
| Dealing with owner on items outside the scope of the contract | 3.86 | 3.13 | 3.35 |
| Structuring of relation- ships with individuals to compensate for their strengths and weaknesses | 3.71 | 3.07 | 3.27 |

Delphi Questionnaire Three was used to allow participants to evaluate the human relations topics in relation to their rank order. A copy of Questionnaire Number Three is enclosed in Appendix D. The topics receiving the highest group ranking on the questionnaire were listed first with topics that had the same ranking given the same rank order, there were a total of seventeen topics. Table IX lists the rankings so that comparison can be made as to how close the rank order numbers were. Table X lists the human relations topics needed in a two-year post-secondary construction technology program as perceived by the Delphi participants. Table X reports that the top three ranked topics deal with personal attributes, while the remainder of the list covers interpersonal relationships.

Upon receiving the third questionnaire the participants were asked to review the human relations topics listed and indicate if any topics should have different rankings. Table XI lists the individual opinions of building construction general contractors who changed human relations topics rank order. Only two participants suggested changes in rank order.

Table XII lists the individual opinions of two-year post-secondary construction technology educators who changed human relations topics rank order. Only one participant suggested a change in the rank order, there was no duplication in ranking change among educators and general contractors.

The item that was added to the third questionnaire, case studies (for example - conflict management, or persuasion) was answered by 22

TABLE X

RANK ORDER OF HUMAN RELATIONS TOPICS NEEDED IN A TWO-YEAR
POST-SECONDARY CONSTRUCTION TECHNOLOGY PROGRAM

| Course Topic | Composite Rank Order | Educator Rank Order | General Contractor Rank Order |
|---|-------------------------|------------------------|-------------------------------------|
| Self-motivation | 1. | 1.5 | 1. |
| Self-discipline | 2.5 | 3. | 3. |
| Organization-time management | 2.5 | 4. | 2. |
| Dealing with conflicts among sub-contractors | 4. | 5.5 | 4. |
| Motivation | 5. | 1.5 | 5.5 |
| Motivation of subordinates | 6.5 | 7.5 | 5.5 |
| Delegation of responsibility | 6.5 | 7.5 | 5.5 |
| Leadership Development | 8.5 | 5.5 | 11. |
| "Frank" discussion with individuals | 8.5 | 10. | 8. |
| Conflict management | 10. | 13.5 | 9.5 |
| Supervision course including a section covering human relations | 11. | 7.5 | 14. |
| Persuasion of other people, while maintaining a level of motivation and not alienating them | 12.5 | 11.5 | 13. |
| Negotiating for a win/win solution | 12.5 | 16. | 9.5 |
| Making groups function | 14. | 11.5 | 15. |
| Persuasion of individuals | 15. | 17. | 12. |
| Dealing with owner on items outside the scope of the contract | 16. | 13.5 | 16. |
| Structuring of relation- ships with individuals to compensate for their strengths and weaknesses | 17. | 15. | 17. |

TABLE XI

INDIVIDUAL OPINIONS OF BUILDING CONSTRUCTION GENERAL
CONTRACTORS CONCERNING HUMAN RELATIONS TOPICS
IN THE THIRD DELPHI MAILING

| Composite Rank Order | Recommended New Rank Order | Reason for the Change |
|--|-------------------------------|--|
| 7. Conflict Management | 3.5 | A priority goal of managing a construction project is to deliver the quality of product specified in the time specified. When a snag is encountered a background in proper techniques to resolve conflicts and persuade individuals is essential. The method used to untangle the snag can directly impact the quality of the final product and the time of completion. Conflict management should involve conflicts with subcontractors, suppliers, owners, and architects. |
| 8. Supervising course including a section covering human relations | 4. | Effective management and foreseeing of conflicts, is one of the more important keys to job completion |
| 12.5 Persuasion of other people while maintaining a level of motivation and not alienating them | 5. | Conflict is an everyday obstacle in the industry |
| 11. Persuasion of individuals | 3.5 | Case studies can benefit students in this situation. Present the student with "real world" situations he is likely to encounter, then challenge him to activate his classroom knowledge and creativity. |

TABLE XII

INDIVIDUAL OPINIONS OF TWO-YEAR POST-SECONDARY CONSTRUCTION
TECHNOLOGY EDUCATORS CONCERNING HUMAN RELATIONS TOPICS
IN THE THIRD DELPHI MAILING

| Composite Rank Order | Recommended New Rank Number | Reason for the Change |
|---|--------------------------------|---|
| 8. Supervision course inclu- ding a section covering human relations | 3. | It could be more cost effective to teach these topics under one super- vision course. |

of 24 participants. Using (5) as "most important" and (0) as "not important" the topic received a group average rating of 2.78. This ranking would put this topic at the bottom of the human relations list.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was brought about by perceived need of continued improvements that could be made in two-year post-secondary construction technology programs. It is the responsibility of construction technology educators to continually update and revise existing and future construction technology curriculums at a level which allows the graduate to function at a most effective level in industry. Therefore, this study sought to determine what kind of communication and human relations topics should be included in communication and human relations courses of a two-year post-secondary construction technology program.

Summary

The purpose of this study was to determine the kind of communication and human relations topics that are needed in a two-year post-secondary construction technology program as perceived by industrial and educational representatives.

Oklahoma building construction general contractors and Oklahoma two-year post-secondary construction technology educators throughout Oklahoma were contacted by use of the modified Delphi technique. By use of the Delphi technique the following objectives were achieved:

1. Determination of the kind of communication education topics needed in a two-year post-secondary construction technology curriculum

as perceived by Oklahoma building construction general contractors, and Oklahoma two-year post-secondary construction technology educators.

2. Determination of the kind of human relations education topics needed in a two-year post-secondary construction technology curriculum as perceived by Oklahoma building construction general contractors, and Oklahoma two-year post-secondary construction technology educators.

Table XIII lists the communication topics chosen by building construction general contractors and construction technology educators to be included in a two-year post-secondary construction technology program. Table XIV lists the human relations topics chosen by building construction general contractors and construction technology educators. Both tables list highest ranked composite group average topics first on the list.

Conclusions

The first objective was: To determine the kind of communication education topics needed in a two-year post-secondary construction technology curriculum as perceived by Oklahoma building construction general contractors, and Oklahoma two-year post-secondary construction technology educators. From the communication topics which were ranked in the top one-third of the list it can be concluded that, documentation writing, listening and communicating with subordinates are of critical importance to a two-year construction technology graduate as perceived by contractors and educators. From the communication topics ranked in the middle one-third of the list it can be concluded that, interpersonal communication and techniques in reviewing technical literature are of importance to the two-year construction technology program. From the

TABLE XIII

COMMUNICATION TOPICS NEEDED IN A TWO-YEAR POST-SECONDARY
TECHNOLOGY PROGRAM

| Course Topic | Composite Rank Order | Educator Rank Order | General Contractor Rank Order |
|---|-------------------------|------------------------|-------------------------------------|
| Learning to listen effectively | 1. | 1. | 2.5 |
| Communicating with subordinates | 2. | 2. | 2.5 |
| Explaining problems in writing in reference to disputes on the project | 3. | 6.5 | 1. |
| Documentation and future reference procedures | 4. | 4. | 4. |
| Business letters | 5. | 5. | 6. |
| Gaining commitments through conversation | 6.5 | 10. | 5. |
| Techniques in reviewing technical literature to gain knowledge of materials and methods | 6.5 | 3. | 8. |
| Over the desk speaking | 8. | 6.5 | 7. |
| Reports | 9. | 8. | 10.5 |
| Peer Communication | 10. | 13. | 9. |
| Advanced courses in communications | 11. | 11. | 10.5 |
| Safety report talks | 12. | 9. | 13. |
| Report talks | 13. | 12. | 14. |
| Investigation reports | 14. | 15. | 12. |
| Public speaking | 15. | 14. | 15. |
| Conference writing | 16. | 16. | 16. |

TABLE XIV
 HUMAN RELATIONS TOPICS NEEDED IN A TWO-YEAR POST-SECONDARY
 CONSTRUCTION TECHNOLOGY PROGRAM

| Course Topic | Composite Rank Order | Educator Rank Order | General Contractor Rank Order |
|---|-------------------------|------------------------|-------------------------------------|
| Self-motivation | 1. | 1.5 | 1. |
| Self-discipline | 2.5 | 3. | 3. |
| Organization-time management | 2.5 | 4. | 2. |
| Dealing with conflicts among sub-contractors | 4. | 5.5 | 4. |
| Motivation | 5. | 1.5 | 5.5 |
| Motivation of subordinates | 6.5 | 7.5 | 5.5 |
| Delegation of responsibility | 6.5 | 7.5 | 5.5 |
| Leadership Development | 8.5 | 5.5 | 11. |
| "Frank" discussion with individuals | 8.5 | 10. | 8. |
| Conflict management | 10. | 13.5 | 9.5 |
| Supervision course including a section covering human relations | 11. | 7.5 | 14. |
| Persuasion of other people, while maintaining a level of motivation and not alienating them | 12.5 | 11.5 | 13. |
| Negotiating for a win/win solution | 12.5 | 16. | 9.5 |
| Making groups function | 14. | 11.5 | 15. |
| Persuasion of individuals | 15. | 17. | 12. |
| Dealing with owner on items outside the scope of the contract | 16. | 13.5 | 16. |
| Structuring of relation- ships with individuals to compensate for their strengths and weaknesses | 17. | 15. | 17. |

communication topics ranked in the lower third of the list it can be concluded that; reports, safety and investigation report talks, public speaking, and conference writing are of least less importance to the two-year post-secondary construction technology program.

The second objective was to determine the kind of human relations education topics needed in a two-year post-secondary construction technology curriculum as perceived by Oklahoma building construction general contractors, and Oklahoma two-year post-secondary construction technology educators. From the human relations topics which were ranked in the top one-third of the list it can be concluded that: self-motivation, self-discipline, organization-time management, dealing with conflicts among subcontractors, and motivation of subordinates are of critical importance to a two-year construction technology graduate. From the human relations topics ranked in the middle one-third of the list, it can be concluded that: delegation of responsibility, leadership development, "frank" discussion, conflict management, a supervision course, and "persuasion of other people while maintaining a level of motivation and not alienating them" are of importance to the two-year construction technology program. From the human relations topics ranked in the lower one-third of the list it can be concluded that: negotiating for a win/win solution, making groups function, persuasion of individuals, dealing with owner on items outside the scope of the contract, and structuring of relationships with individuals to compensate for their strengths and weaknesses are of less importance to the two-year post-secondary construction technology program.

Recommendations

Due to the emphasis being placed upon practical applications of communications topics, it is recommended that a communications course be designed strictly for construction technology students. The course should incorporate the topics of listening skills, documentation of various types, and conversation with individuals of non professional, semi professional and professional backgrounds. Also with the human relations topics emphasis being placed upon motivation, conflict management, and dealing with various individuals, it is recommended that a human relations course be designed strictly for construction technology students. The course should incorporate the above items plus a background in the theoretical concepts of the subjects.

The communication and human relations topics listed in this study reflect the opinions of the Delphi participants (general contractors and construction technology educators) in Oklahoma and the list of topics within themselves may not meet the needs of the students and graduates in the broad area of communication and human relations. Therefore, it is suggested that the construction technology educator consult with specialists in these areas to determine the topic appropriateness in an educational setting.

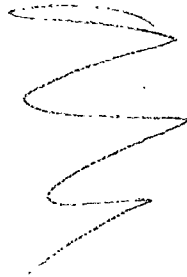
In summary, it is also recommended that construction technology educators share the information gained from this study with professional communication and human relations educators. By doing this communication and human relations educators will have an insight into the communication and human relations topics needed by construction technology students in areas of communication and human relations.

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APPENDIXES



APPENDIX A

DELPHI PARTICIPANTS

Oklahoma Building Construction General Contractors

| | |
|--|---|
| Allen Construction Co. Jud Wood P. O. Box 398 Shawnee, OK 74801 | Barbour & Short, Inc. Joel S. Barbour 322 E. Mosier Norman, OK 73069 |
| Paul Allison, Inc. Paul Allison 3808 "C" S. W. 113th Oklahoma City, OK 73173 | ***D. C. Bass & Sons Const. Co. John Snyder 205 E. Main Enid, OK 73701 |
| Anderson & House Inc. D. B. Self 1627 West Main Oklahoma City, OK 73106 | *Buckner & Moore, Inc. Roland S. Moore 3601 South I-35 Moore, OK 73153 |
| C. Burton & Son Const. Darryl Burton 419 N. Washington Ardmore, OK 73402 | ***E. V. Cox Const. Co. Gerald Cox 2725 W. California Oklahoma City, OK 73148 |
| T. R. Chapman Co. Thomas Chapman 2312 W. Lee Blvd. Lawton, OK 73502 | The Jim Cox Company Jim Cox 5909 N. W. Exp. St. 550 Oklahoma City, OK 73132 |
| Commander Const. Co. Inc. Gus Commander 138 N. E. 38th Oklahoma City, OK 73105 | Delco Construction, Inc. Rod Deano 315 S. Scott St. Del City, OK 73115 |
| **Ray Conrad Const. Co. Steve Conrad 2725 S. Memorial Tulsa, OK 74129 | L. F. Downey Const., Inc. Larry F. Downey 1704 Woodhill Road Edmond, OK 73034 |
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| | |
|--|---|
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| ***Walter Nashert & Sons, Inc. Walter Nashert P. O. Box 14430 Oklahoma City, OK 73113 | ***United Builders, Inc. Bill Thurman N. W. Highway 177 Shawnee, OK 74801 |
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Tonkawa, OK 74653

***Rogers State College
Douglas Russell
Claremore, OK 74101

- * Responded to Delphi Questionnaire No. 1.
- ** Responded to Delphi Questionnaires No. 1 and No. 2.
- *** Responded to Delphi Questionnaires No. 1, No. 2, and
No. 3.

APPENDIX B

TRANSMITTAL LETTER ONE AND DELPHI

QUESTIONNAIRE ONE



Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

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

February 7, 1986

mtitlem mf namem ml namem
mpositionm
mfirmm
mstreetm
mcitym mstatem mzipm

Dear mtitlem ml namem.

In an effort to keep 2-year college building construction technology curricula up-to-date, it is necessary to not only frequently make a study of technical needs in the construction technology program but also the communication (oral and written) and human relations needs. We especially need your help as to what communication and human relations skills are needed by 2-year college level construction technology graduates.

To determine what communication and human relations topics should be included in a 2-year construction technology program, we are using the Delphi technique. The technique is a means of securing your opinions without bringing you and the other participants together in person. In this process you will receive a total of three questionnaires and finally a sheet of information describing the final outcome of the study. In order for this study to be successful your cooperation in completing and returning the questionnaires is necessary.

Questionnaire Number One, which is enclosed, consists of two items. Item One consists of the kind of communication (oral and written) topics you believe are needed in a 2-year college level construction technology program. Item two consists of the kind of human relations topics you believe are needed in a 2-year college level construction technology program. Questionnaires Number Two and Three, which will be sent out at a later date, will further help to refine the topic areas initially recommended by you and other AGC participants. In the next two questionnaires you will be working with their recommendations also.

Please note the brief instructions which are stated on the enclosed questionnaire. Please remember that your opinions are most critical and your input will be very helpful to us and others.

Your help will sincerely be appreciated. A self-addressed, stamped envelope has been included for easy return of the questionnaire.

Sincerely,

Patrick McVey
Research Associate
Oklahoma State University
406 Classroom Building
Oklahoma State University 74078

PM/wr

Enclosures

QUESTIONNAIRE NO. 1
Item One

Please list in your opinion, the kind of communication (oral and written) topics needed in a 2-year college level construction technology program. Feel free to list any topic.

Such as: Public Speaking
 Report Talks
 Conference Writing
 Report Writing
 Over the Desk Speaking
 Business Letters
 Investigation Report, etc.

We are assuming in this study communication is the imparting or interchange of thoughts, opinions or information by speech or writing.

QUESTIONNAIRE NO. 1
Item Two

Please list in your opinion, the kind of human relations topics needed in a 2-year college level construction technology program. Feel free to list any topic.

Such as: Motivation
 Making Groups Function
 Persuasion
 Conflict Management
 Personality Development
 Leadership Development
 Team Building, etc.

We are assuming in this study human relations is employer-employee relationships and the interaction between personal traits, group membership, and productive efficiency.

APPENDIX C

TRANSMITTAL LETTER TWO AND DELPHI
QUESTIONNAIRE TWO



Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

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

March 7, 1986

mtitlem mf namem ml namem
mpositionm
mfirmm
mstreetm
mcitym mstatem mzipm

Dear mtitlem ml namem:

Thank you for completing the first of three correspondence questionnaires. We appreciate your cooperation in helping us determine what communication and human relations course topics should be in a 2-year college level construction technology program. The initial results look extremely promising. I hope that you will continue to assist us by completing questionnaire number two.

Questionnaire number two contains the communication and human relations topics recommended by you and others for a 2-year construction technology program. In order that we may determine the most important of the recommended topics, we are asking you to rank them on a six point scale.

We would again like to thank you for your time and critical input. A self-addressed, stamped envelope has been included for easy return of the questionnaire.

Sincerely,

Patrick McVey
Research Associate
406 Classroom Building
Oklahoma State University
Stillwater, OK 74078-0406

PM/wr

Enclosure

QUESTIONNAIRE NO. 2

Below are the communication and human relations topics that you and others suggested that we utilize in a 2-year college level construction technology program. In order that a priority can be assigned to essential topics, we are asking you to rank each factor on a six-point scale, ranging from the most important (5) to not important (0).

Please be selective in rating those communication and human relations topics you consider as most important in a 2-year college level construction technology program.

EXAMPLE:

| | Not Important | | | | | | Most Important |
|-----------------------|------------------|---|---|---|---|---|-------------------|
| Group Decision Making | / | / | / | / | X | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| Impromptu Speaking | / | / | X | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |

Communication Topics:

| | Not Important | | | | | | Most Important |
|---|------------------|---|---|---|---|---|-------------------|
| 1. Explaining problems in writing in reference to disputes on the project | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 2. Business letters | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 3. Documentation and future reference procedures | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 4. Public Speaking | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 5. Over the desk speaking | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |

QUESTIONNAIRE NO. 2 (continued)

| | Not Important | | | | | | Most Important |
|---|------------------|---|---|---|---|---|-------------------|
| 6. Gaining commitments through conversation | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 7. Communicating with subordinates | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 8. Report talks | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 9. Peer communication | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 10. Conference writing | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 11. Investigation reports | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 12. Reports | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 13. Safety report talks | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 14. Techniques in reviewing technical literature to gain knowledge of materials and methods | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 15. Learning to listen effectively | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 16. Advanced courses in communications | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |

Human relations topics:

| | Not Important | | | | | | Most Important |
|---------------|------------------|---|---|---|---|---|-------------------|
| 1. Motivation | / | / | / | / | / | / | / |
| | 0 | 1 | 2 | 3 | 4 | 5 | |

QUESTIONNAIRE NO. 2 (continued)

| | Not Important | Most Important |
|---|------------------------------|-------------------|
| 2. Negotiating for a win/win solution | / / / / / / / 0 1 2 3 4 5 | |
| 3. Leadership development | / / / / / / / 0 1 2 3 4 5 | |
| 4. "Frank" discussion with individuals | / / / / / / / 0 1 2 3 4 5 | |
| 5. Conflict management | / / / / / / / 0 1 2 3 4 5 | |
| 6. Persuasion of individuals | / / / / / / / 0 1 2 3 4 5 | |
| 7. Making groups function | / / / / / / / 0 1 2 3 4 5 | |
| 8. Persuasion of other people, while maintaining a level of motivation and not alienating them | / / / / / / / 0 1 2 3 4 5 | |
| 9. Structuring of relationships with individuals to compensate for their strengths and weaknesses | / / / / / / / 0 1 2 3 4 5 | |
| 10. Organization--time management | / / / / / / / 0 1 2 3 4 5 | |
| 11. Self-discipline | / / / / / / / 0 1 2 3 4 5 | |
| 12. Self-motivation | / / / / / / / 0 1 2 3 4 5 | |
| 13. Motivation of subordinates | / / / / / / / 0 1 2 3 4 5 | |
| 14. Dealing with conflicts among sub-contractors | / / / / / / / 0 1 2 3 4 5 | |
| 15. Delegation of responsibility | / / / / / / / 0 1 2 3 4 5 | |

QUESTIONNAIRE NO. 2 (continued)

- | | Not
Important | Most
Important |
|---|------------------|-------------------|
| 16. Supervision course including a section covering human relations | / / / / / / / | / / / / / / / |
| | 0 1 2 3 4 5 | / / / / / / / |
| 17. Dealing with owner on items outside the scope of the contract | / / / / / / / | / / / / / / / |
| | 0 1 2 3 4 5 | / / / / / / / |

If we have somehow missed a factor that you consider important, please write in below the factor and its ranking.

1. / / / / / / /
0 1 2 3 4 5

2. / / / / / / /
0 1 2 3 4 5

Comments:

APPENDIX D

TRANSMITTAL LETTER THREE AND DELPHI

QUESTIONNAIRE THREE



Oklahoma State University

SCHOOL OF OCCUPATIONAL AND ADULT EDUCATION

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

April 4, 1986

mtitlem mf namem ml namem
mpositionm
mfirmm
mstreetm
mcitym mstatem mzipm

Dear mtitlem ml namem:

This study, making use of the DELPHI Technique, has been very successful to this point in time, and your cooperation has been extremely instrumental in this success. The enclosed questionnaire is the final step in the Delphi process. Your agreement or disagreement with each ranked topic is vital to the final outcome of this study.

On behalf of the School of Occupational and Adult Education Department at OSU, I would like to express our appreciation for your time and critical input in identifying the communication and human relations topics needed in a two-year construction technology program. Your comments will be of use to technical educators throughout the nation.

Upon completion of this study, I will send you the final results. A self-addressed stamped envelope has been included for easier return of the questionnaire. Thank you again for your time and assistance.

Sincerely,

Patrick McVey
Research Associate
Oklahoma State University
406 Classroom Building
Oklahoma State University
Stillwater, OK 74078-0406

PM/wr

Enclosure

QUESTIONNAIRE 3

Below are the communication and human relations topics you and others ranked with respect to their priority in a two-year college-level construction technology program. Each item was ranked on a six-point scale, from not-important (0) to most important (5). Those factors with the highest ranking averages are listed first below.

Examine these average ranked items and each item that you feel should be placed significantly higher or lower, place an "X" in the blank beside the group average. Use the space provided at the end of this questionnaire to indicate each item that you believe should be ranked differently.

| Rank Number | Communication Topics | Group Average | |
|-------------|---|---------------|-------|
| 1. | Learning to listen effectively | 4.56 | _____ |
| 2. | Communicating with subordinates | 4.48 | _____ |
| 3. | Explaining problems in writing in reference to disputes on the project | 4.39 | _____ |
| 4. | Documentation and future reference procedures | 4.26 | _____ |
| 5. | Business letters | 3.78 | _____ |
| 6.A | Gaining commitments through conversation | 3.70 | _____ |
| 6.B | Techniques in reviewing technical literature to gain knowledge of materials and methods | 3.70 | _____ |
| 7. | Over the desk speaking | 3.61 | _____ |
| 8. | Reports | 3.35 | _____ |
| 9. | Peer communication | 3.26 | _____ |
| 10. | Advanced courses in communications | 3.22 | _____ |
| 11. | Safety report talks | 2.96 | _____ |
| 12. | Report talks | 2.77 | _____ |
| 13. | Investigation reports | 2.69 | _____ |
| 14. | Public Speaking | 2.44 | _____ |
| 15. | Conference writing | 2.13 | _____ |

QUESTIONNAIRE 3 (continued)

| Rank Number | Human Relations Topics | Group Average |
|-------------|--|---------------|
| 1. | Self-motivation | 4.70 |
| 2.A | Self-discipline | 4.52 |
| 2.B | Organization--time management | 4.52 |
| 3. | Dealing with conflicts among subcontractors | 4.39 |
| 4. | Motivation | 4.34 |
| 5.A | Motivation of subordinates | 4.26 |
| 5.B | Delegation of responsibility | 4.26 |
| 6.A | Leadership development | 3.91 |
| 6.B | "Frank" discussion with individuals | 3.91 |
| 7. | Conflict management | 3.83 |
| 8. | Supervision course including a section covering human relations | 3.70 |
| 9.A | Persuasion of other people, while maintaining a level of motivation and not alienating them | 3.61 |
| 9.B | Negotiating for a win/win solution | 3.61 |
| 10. | Making groups function | 3.49 |
| 11. | Persuasion of individuals | 3.39 |
| 12. | Dealing with owner on items outside the scope of the contract | 3.35 |
| 13. | Structuring of relationships with individuals to compensate for their strengths and weaknesses | 3.27 |

QUESTIONNAIRE 3 (continued)

The following topic was suggested by a respondent on the last questionnaire. Please rank the suggestion as perceived by you.

Case studies (for example--conflict management, or persuasion, etc.)

/ / / / / / / /
0 1 2 3 4 5

If you agree with the Rank Order of the topics listed on the preceding pages, please check here. ____

If you disagree with the rank of certain topics, write the rank you believe should be given to that topic and the reason as to why you feel this course topic should receive a lower or higher ranking.

Topic Number _____

Rank Number _____

Reason for ranking change:

Topic Number _____

Rank Number _____

Reason for ranking change:

Others:

VITA

Patrick Leon McVey

Candidate for the Degree of
Master of Science

Thesis: COMMUNICATION AND HUMAN RELATIONS NEEDS IN A TWO-YEAR
POST-SECONDARY CONSTRUCTION TECHNOLOGY PROGRAM

Major Field: Technical Education

Biographical:

Personal Data: Born in Shawnee, Oklahoma, September 11, 1960,
the son of Wesley L. and Mary K. McVey.

Education: Graduated from Shawnee High School, Shawnee, Oklahoma,
in May, 1978; received an Associate in Technology degree from
Seminole Junior College in December, 1981; received a Bachelor
of Science in Technical Education degree from Oklahoma State
University in July, 1983; completed requirements for a
Master of Science degree at Oklahoma State University with a
major in Technical Education in July, 1986.

Professional Experience: Field Engineer and Assistant Superin-
tendent, Tribble and Stephens General Contractors, Houston,
Texas, 1983-1985.

Professional Memberships: Oklahoma Technical Society, Iota
Lambda Sigma.