DOCUMENT RESUME

ED 309 261 CE 052 874

AUTHOR Zuga, Karen F.; Lindstrom, Michael R.
TITLE A Tentative Framework of General Work Knowledge, Skills and Attitudes for Secondary Vocational Education.
INSTITUTION Minnesota Univ., St. Paul. Minnesota Research and Development Center for Vocational Education.
SPONS AGENCY Minnesota State Board of Vocational-Technical Education, St. Paul.
PUB DATE Jul 89
NOTE 39p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Basic Skills; *Daily Living Skills; Job Analysis; *Job Skills; Secondary Education; *Skill Analysis; Skill Development; State Programs; *Vocational Education
IDENTIFIERS Minnesota

ABSTRACT

A study was conducted in Minnesota to identify generic knowledge, skills, and attitudes (KSAs) that are germane to all of the fields of vocational education--that all students will need for future roles in the family and work force. The research consisted of a review of the literature pertaining to generic skills needed for work and a validation of the identified skills by a panel of subject-matter specialists in agriculture, home economics, and industrial education. The review of literature focused on work from 1980 to the present; documents from both education and industry were searched. The KSAs were identified and compiled into a master list, then grouped into categories. Categories included self-education, basic academic (functional literacy), oral communication, adaptability, personal management, group effectiveness, and influence. The validation panel revised the list, combining the "self-education" and "personal management" categories and focusing the statements on practice concepts. The results of the project provide a possible framework for clusters of generic skills suitable for secondary vocational education in Minnesota. (21 references) (KC)

Minnesota Research and Development Center for Vocational Education

A Tentative Framework of General Work Knowledge, Skills and Attitudes for Secondary Vocational Education

Minnesota Research and Development Center
for Vocational Education
Department of Vocational and Technical Education
College of Education
University of Minnesota
St. Paul, Minnesota 55108

A Tentative Framework of General Work Knowledge, Skills and Attitudes for Secondary Vocational Education

BY

Karen F. Zuga

Michael R. Lindstrom

July 1989

Minnesota Research and Development Center for Vocational Education
Department of Vocational and Technical Education
R460 VoTech Building, 1954 Buford Avenue
University of Minnesota
St. Paul, Minnesota 55108

Funding for this project was provided by the State Board of Vocational Technical Education, the Minnesota Department of Education, and the Department of Vocational and Technical Education, University of Minnesota.

Interpretations of the findings described in this report represent those of the authors, and are not necessarily those of the State Board of Vocational Technical Education, the Minnesota Department of Education, or the University of Minnesota.

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CHAPTER 1

THE PROBLEM

Business, industry and education leaders have initiated a search for clusters of skills which students will need to acquire for successful participation in tomorrow's economy. There have been changes in the work place which have contributed to the urgency of this effort. Two of them are the shifts in management practices toward quality of work life programs (Pratzner & Russell, 1984) and the changing nature of work due to technology (Carnevale, Gainer, & Meltzer, 1988).

The first is a movement toward what Pratzner and Russell (1984) identify as quality of work life. Whether this movement is embodied in the more rigid form of methods such as quality circles or simply supported by the attitudes of managers and workers, the emphasis rests on improving the daily work experience of both the employee and the employer. This approach adheres to the ideology that the possession and application of good, basic occupational skills allows employees to modify and improve their daily work life and produce a more effective work organization.

The second is the increasing importance of generic occupational skills due to the rapid change of technology and its influence on occupational tasks. Today's workers must be able to

assimilate new information, adapt to new technologies and prepare to be occupationally mobile. Many factors such as demographics and economics influence this situation and Carnevale, Gainer, and Meltzer (1988) state, "The work place is changing and so are the skills that employees must have in order to change with it" (p. 11).

This project addresses the question, "What kinds of clusters of skills will students need to successfully compete in the workforce?" The research is a continuation of a line of inquiry conducted by the Minnesota Research and Development Center (MRDC) which deals with vocational education in the secondary schools. Prior studies have focused on purposes of secondary vocational education (Copa, Daines, Ernst, Knight, Leske, Persico, Plihal, & Scholl, 1985; Copa, Plihal, Scholl, Ernst, Rehm, & Copa, 1985) and re-visioning of secondary vocational education (Copa, Plihal, & Johnson, 1986).

The purpose of this study was to identify generic knowledge, skills and attitudes (KSAs) which are germane to all of the fields, rather than identify the entire content universe of a basic secondary vocational education curriculum for the secondary school. This project begins to identify the clusters of prerequisite knowledge, skills and attitudes all students will need for future roles in the family unit and workforce. Prerequisite KSAs refer to those cognitive, affective and psychomotor aptitudes considered to be essential for general employment in the workforce.

At present, the study consists of a review of the literature pertaining to generic skills needed for work and a validation of the identified skills by a panel of subject matter specialists in agriculture, business and marketing, home economics and industrial education. It is assumed that a future Delphi survey of parent, employer and worker attitudes using the validated generic KSAs will be conducted in order to validate further and to tailor the list to the needs of Minnesota.

CHAPTER 2

METHODS

Initially, skills were identified through a survey of literature and a small validation (advisory) group of vocational education subject matter specialists. A framework of skills was developed from a literature review.

Developing the List of Knowledge, Skills and Attitudes (KSAs)

The review of literature focused on recent work from 1980 to the present. Since the work place is in a constant state of change and the requirements for working today and in the future reflect those changes, it was decided that current information would be most relevant. Books, journal articles and microfiche were searched for any information relevant to generic occupational KSAs. While there were many references from specific vocational fields, these were used only to determine if they contained universal KSAs. Some which did were incorporated, but the bulk of the information comes from documents which discuss KSAs in a universal sense. In addition, a few documents from prior to 1980, due to their outstanding quality, were incorporated.

The origin of the documents used for the review of literature came from two sources: education and industry. It is clear that both vocational educators (Illinois State Board of Education, 1986; Mathews, 1986; McGee, 1985; Thiel, 1985) and

industrialists (Carnevale, Gainer, & Meltzer, 1988; Carter, 1987) are interested in the basic skills needed in order to successfully perform work. In addition, some of the documents were generated with government funds indicating an interest of government officials in basic work performance (Carnevale, Gainer, & Meltzer, 1988; Forbes, 1976; National Institute of Education, 1984).

The KSAs were identified and compiled into a master list. Due to the length and complexity of the list, the KSAs were grouped into categories in an attempt to provide some organization and to break the KSAs into manageable units. These smaller units provided the validation panel with less KSAs to discuss at one time.

The descriptors which were chosen for the categories were used in a comprehensive study of the skills wanted by employers which was conducted by Carnevale, Gainer and Meltzer (1988). The comprehensiveness of the study and the categories plus the recency of the Carnevale et al. study contributed to the decision to use the following categories: (a) self-education, (b) basic academic, (c) oral communication, (d) adaptability, (e) personal management, (f) group effectiveness, and (g) influential KSAs. These loosely correspond to the areas of

> 1. learning how to learn; 2. 3 R's (reading, writing, computation); 3. communication: listening & oral communication; 4. creative thinking/problem solving; 5. self-esteem/goal setting-motivation/ personal & career development; 6. interpersonal/negotiation/ teamwork; and 7. organizational effectiveness/ leadership (Carnevale et al., 1988, p. 9)

However, the KSAs listed within each category are not an exact duplication of the list provided by Carnevale et al. Many KSAs identified through the literature search have been added and some reclassification has been done.

It is of interest that the categories as listed in this 1988 study were arranged so that they were hierarchical, with the first category serving as a foundation for the following categories, and so on. This point is important for two reasons. First, each level of the categories incorporates the KSAs from previous categories and assumes prior knowledge. This, then, indicates that this is a desired list and that not all future students may be exposed to or possess all of the KSAs if they have not completed an educational program and have job experience. Second, as we think about future employees in the work place and current trends, more of them will possess postsecondary and college certificates and degrees and have opportunities for on-the-job training. People will actually spend their working lives learning and perfecting the kinds of KSAs which are listed here.

Taking a similar hierarchical approach to the categorization of KSAs, the following definitions were used for each category descriptor:

1. self-education: contributing to the motivation, ability and receptivity to learn
2. basic academic: functional literacy

3. oral communication: listening and speaking in order to perform effectively

4. adaptability: critical thinking and problem solving

5. personal management: goals and values

6. group effectiveness: ability to work in groups

7. influential: leadership qualities

The KSAs

The following list of KSAs presented in Table 1 represents a number of resources. Each KSA is coded with a letter representing the citation(s) in which it was listed. Some of the KSAs came from a number of sources and some of them came from single sources. Since the attempt here is to be as comprehensive as possible, all KSAs were listed; none were eliminated. The only form of editing which took place was the determination of duplication and rephrasing a statement to accommodate attached multiple citations.

The list is presented by category in the hope that it will be easier to read and discuss. All KSAs are coded to indicate the source of the KSA. The references and their codes are presented at the end of Table 1.

Table 1

List of KSAs and Citations by Category

KSAs	Citation(s)
SELF-EDUCATION	
Knows how to learn	C,C2,D
Applies a variety of learning strategies	C

Table 1 (continued)

KSAs	Citation(s)
Able to locate a variety of learning sources	D
Understands his/her own best learning style	C,D
Motivation toward lifelong learning	N,I
Sets own learning objectives and goals	D
Investigates educational opportunities	I
Identifies own skills acquired and skills needed	D
Participates in continuing education	I
Reads current job-related publications	I
Investigates occupational opportunities	I
Possesses ability to be retrained	C
Seeks work challenges	I
Applies new knowledge to job duties and tasks	C
Capable of abstract conceptualization	D
BASIC ACADEMIC	
Reads adequately	C,C2,T,M3
Monitors one's own comprehension	C,I
Able to locate and use sources of written information	C,F,N,I,D
Analyzes/summarizes information	C,V
Able to infer meaning	T
Able to generalize	T
Detects fallacy and persuasive intent	T
Reads for facts, information and ideas	T

Table 1 (continued)

KSAs	Citation(s)
Writes adequately	A3,A2,C, F,T,N,M, I,V,A
Writes legibly	I,V
Uses proper grammar	T,N,M3
Spells correctly	N,A2,M3
Uses proper sentence/paragraph structure	T
Articulates proposals clearly and succinctly	C,M,V,M3
Understands job application procedures/criteria	F,I
Able to complete reports, forms and applications	T,A2
Accurately records observations	D
Computes adequately	M3,C,F,T, M2,I,V, A,A2
Identifies problems	C
Able to organize/set up problems	A3
Reasons adequately	C
Estimates adequately	C,M2,A2
Estimates rate and time	M2
Estimates size/dimensions	M2
Able to use decimals	T,I
Able to use fractions	I
Able to use metric measurements	T,I
Understands numeric relations	T
Able to convert between units	I
Able to work simple linear equations	T

Table 1 (continued)

KSAs	Citation(s)
Problem solves	C,T,I
Understands scientific principles	A
Interprets data/instruments accurately	F,M2,A2
Able to locate and use sources of graphic information	C,F
Interprets numerical and related information	M2
Accurately measures and calibrates	N,M2
Synthesizes information	N
Possesses computer literacy	C2,N,I, A,M3
Possesses keyboarding skills	N,I
Understands file storage/retrieval	N
Understands how to use common tools and machines	A2
Understands properties and uses of common materials	A2
Thinks critically	C2
Evaluates and analyzes	C2,N,A3
Compares data	M2
Recognizes costs	M2
COMMUNICATION (non-written)	
Communicates effectively orally	M3,A3,A2, D,C,C2,N, M,M2,I, V,A
Uses correct grammar	I,A2,M3
Uses job-related terminology	I
Uses adequate vocabulary	A2

Table 1 (continued)

KSAs	Citation(s)
Effectively controls voice	C
Uses appropriate body language	C
Enunciates correctly	N,V
Verbalizes ideas in organized and logical ways	M,A2,M3
Phrases questions to promote elaboration	D
Uses good telephone etiquette	I
Understands own dominant style of communication	C
Identifies dominant communication style of others	C
Adjusts own communication style to match others'	C
Analyzes/adapts to receiver needs	M
Listens effectively	C,M,I, D,A2
Listens actively	M,D
Listens for content	C
Listens to conversations	C
Listens for long-term contexts	C
Listens for emotional meaning	C
Listens to follow directions	C
Resolves conflicts	C
Knows when/how to ask for help	M2
Provides meaningful feedback	C
Selects best medium/media to present ideas	M,M2
Provides information to others through demonstration	M2

Table 1 (continued)

KSAs	Citation(s)
ADAPTABILITY	
Problem solves	A3,A2,C, C2,N,M, M2,I,D
Recognizes/defines problems	C,C2,A2
Invents and implements solutions	C
Makes decisions by evaluating alternatives	M2,A3
Revises course of action	M2
Tracks and evaluates results	C,M2
Troubleshoots	N
Thinks creatively/produces new designs	C,C2,N,M, D,A2
Uses divergent thinking	C
Reasons deductively	A2
Applies reason and logic	M3
Applies basic academic skills to new applications	C
Demonstrates aesthetic judgment	A2
Recognizes need for change	I
Flexibility	M3
Demonstrates willingness to learn	I
Adapts through retraining	C
Evaluates job offers/rejections	I
PERSONAL MANAGEMENT	
Possesses positive self-esteem	C
Evaluates own current skills	C,I
Possesses awareness of own impact on others	C

Table 1 (continued)

KSAs	Citation(s)
Understands own limitations	C,I
Good attitude toward work	C2,A3
Motivated toward work	C,V
Takes pride in work	C,I
Possesses good work habits	C2,N,I, V,A
High frequency of attendance	C2,V
Punctual	C2,I,V
Plans ahead/anticipates	N
Follows instructions	C2,N,I, V,M3
Dependable	I,V,M3
Assumes responsibility for own actions	I
Recognizes consequences of dishonesty	I,V,M3
Observant	N,D
Organized	V,A3
Asks questions	I
Works well without supervision	C2,V
Uses time wisely	V
Produces quality work	C2
Exhibits neatness/precision in work	N,I
Produces thorough research	M
Understands aesthetics of layout and design	N
Completes work on time	I
Produces quantity of work	C2,V

Table 1 (continued)

KSAs	Citation(s)
Works safely	M2,I,V
Selects proper tools/equipment	I
Selects proper clothing	V,A2
Uses equipment correctly	I
Uses appropriate emergency actions	I
Understands/applies principles of first aid	A2
Maintains cleanliness and order	I
Demonstrates good personal hygiene	I,V,A2,M3
Sets and meets reasonable goals	C,I
Adjusts goals as needed	I
Sets priorities	I
Promotes ethical standards	N,V
Is honest	V
Uses confidentiality	N
Clarifies values	D
Reflects on meanings of things or events	D
Plans for personal development	C
Plans for career development	C,I
GROUP EFFECTIVENESS	
Possesses good interpersonal skills	C,M,I
Judges and balances appropriate behavior	C,I,A2
Understands others' verbal/non-verbal behavior	M
Copes with others' undesirable behavior	C,V
Absorbs stress	C,I

Table 1 (continued)

KSAs	Citation(s)
Interacts with flexibility	M
Deals with ambiguity	C,C2
Inspires confidence	C
Structures social interaction	C
Shares responsibility	C
Cooperates with peers and supervisors	C2,V,A3
Maintains company standards/appearance	I
Promotes employers' image and purpose	I,M3
Negotiates effectively	C
Separates people from problems	C
Focuses on interests not positions	C
Invents options for mutual gain	C
Identifies objective criteria	C
Operates well as a member of a team	C,N,I
Participates in meetings	I
Identifies and directs appropriate talents and skills	C
Demonstrates procedures/willing to assist	I
Recognizes and copes with unique personalities	C
Understands others' learning styles	D
Shows empathy, respect and support for others	I
Understands group dynamics	C
Identifies responsibilities of employees/management	I
Maintains vertical and horizontal communications	A3

Table 1 (continued)

KSAs	Citation(s)
Understands/promotes systems thinking	N
Relates self/team to the larger organization	N
Participates in the larger organization	I
Understands human/electronic networking	N
Organizes effectively	C2
INFLUENTIAL	
Earns respect of peers	C
Projects sense of reliability	C
Assumes responsibility willingly	C
Projects sense of goal orientation and vision	C
Understands/promotes organizational effectiveness	C
Understands various types of organizations	C
Exhibits effective leadership	C,A3
Influences actions of others	C
Understands leader/follower relationship	C,M3
Uses strategies for sound decision-making	C,C2
Projects emotional stability	C

References and Codes for KSAs

A Anderson, B. H., & King, J. W. (1984). Perceptions of high tech industry executives and administrators of public two-year postsecondary institutions regarding the training needs of high tech industries. (Research Report). Ft. Collins, Colorado: Colorado State University.

A2 Ashley, W. L., & Ammerman, H. L. (1978). Identifying transferable skills: A task classification approach. Columbus OH: National Center for Research in Vocational Education.

Table 1 (continued)

A3 Ashley, W. L., & Others (1979). Occupational adaptability: Perspective on tomorrow's careers. A Symposium. Columbus OH: National Center for Research in Vocational Education.

C Carnevale, A. P., Gainer, L. J., & Meltzer, A. S. (1988). Workplace basics: The skills employers want. (Grant No. 99-6-0705-75-079-02). Washington DC: US Department of Labor.

C2 Carter, M. L. (1987). An analysis of skills and knowledge needed by firms in the Indianapolis, Indiana MSA. Thesis, Economic Development Institute, University of Oklahoma. (ERIC Document Reproduction Service No. ED 285 630)

D Duley, J. (1978). Basic skills for experiential learning: What skills do students need to make the most of experiential learning opportunities? (LES Papers on Learning and Teaching). East Lansing, MI: Michigan State University.

F Forbes, R. H. (1976). Adult work skills and knowledge. (Project No.05-COD-01). Denver, CO: National Assessment of Educational Progress.

I Illinois State Board of Education. (1986). Business, marketing and management occupations: Education for employment task lists. (State Guide). Grayslake, IL: Lake Area Vocational Center.

M3 Martin, J. H., & Tolson, D. J. (1985). Changing job skills in Virginia: The employer's view. Richmond, VA: Virginia Occupational Information Coordinating Committee.

M2 Mathews, D. (1986, September). YTS core skills and the accreditation of work based learning. (Working Paper, Information Bank No. 2220). Blagdon, England: Further Education Staff College.

M McGee, S. L. (1985, October). Communication skills in business and industry. Paper presented at the Michigan Association of Speech Communication Convention. Battle Creek, MI.

N National Institute of Education. (1984). Technological literacy skills everybody should learn. Ideas For Action in Education and Work. (Contract No. 400-83-0005). Portland, OR: Northwest Regional Educational Lab.

Table 1 (continued)

T Thiel, K. K. (1985). Job related basic skills. (Overview. ERIC Digest No. 42). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. (Eric Document Reproduction Service No. ED 259 212)

V Van Shelhamer, C., & Bishop, D. (1984). Personal characteristics which make people more employable in agribusiness. Bozeman, MT: Montana State University, Dept. of Agricultural and Industrial Education.

Role of the Validation Panel Participants

The validation panel consisted of four members who are subject matter specialists from agriculture, home economics and industrial education (see Appendix for list of names). Their task was to review information which had been abstracted from the literature review, identify any other generic KSAs, and to refine the classification of the KSAs in an attempt to make sure that the list was as complete as possible.

The panel dealt with generic or universal occupational KSAs. The KSAs cut across all of the fields of agriculture, home economics and industrial education. The purpose of this study was to identify generic KSAs which are germane to all of the fields, rather than identify the entire content universe of a basic secondary vocational education curriculum for the secondary school. These KSAs would be one component of such a curriculum.

Specifically, the validation panel spent most of the time reviewing and brainstorming KSAs by category in order to add to the list of KSAs. The following criteria were observed:

1. The KSAs should be generic to all fields.

2. The KSAs should contribute to successful completion of secondary vocational education courses.

3. The KSAs should contribute to occupational success.

4. The KSAs should be initially developed for further rating and ranking by employers, employees and parents.

The validation panel made several recommendations which were incorporated into a revised listing of KSAs. Major recommendations pertained to the role of the context of instruction and reorganization of the list are as follows.

Context

The most important issue which faced the validation panel was the generic nature of the KSAs with respect to role of vocational education in serving to provide educational experiences which will meet the needs of future students. The list of KSAs, in the form that they were taken from the literature, were so general that it appeared that any subject matter specialists the schools could incorporate them into their curriculum thereby eliminating the need for vocational education. The panel recommended that the role of the laboratory context of vocational instruction and the application of concepts through practice be stressed. Therefore, the original KSAs were rewritten to include phrases which focused each statement on practice. In addition, some category names were modified in order to reflect a relationship to vocational education.

Reorganization

As the validation panel reviewed the initial list of KSAs the organization of the list was questioned. This resulted in a reorganization which included the addition, combination and elimination of some KSAs. One category, "Self-Education," was combined with the category entitled, "Personal Management."

Revised KSAs

A list of the revised KSAs is shown in Table 2.

Table 2

List of Revised KSAs

APPLIED ACADEMIC SKILLS

Possesses reading skills

Able to locate and use sources of written information

Analyzes/summarizes information

Understands job application procedures/criteria

Able to infer meaning

Able to generalize

Detects fallacy and persuasive intent

Reads for facts, information and ideas

Possesses writing skills

Able to complete reports, forms and applications

Accurately records observations

Possesses computational skills

Able to apply computational skills in work settings

Able to identify, organize, set up problems

Table 2 (continued)

Estimates rate and time

Estimates size/dimensions

Able to measure with fractions or decimals

Able to use English and metric measurements

Able to convert between units

Able to work simple linear equations

Applies scientific principles to technical situations

Interprets data/instruments accurately

Able to locate and use sources of graphic information

Interprets numerical and related information

Accurately measures and calibrates

Synthesizes information

Possesses computer literacy

Possesses keyboarding skills

Able to use word processor, data base, spread sheet, graphics

Understands file storage/retrieval

Uses common tools and machines

Understands properties and uses of common materials

OCCUPATIONAL COMMUNICATION SKILLS (non-written)

Communicates effectively orally

Uses correct grammar and enunciation

Uses job-related terminology

Uses adequate vocabulary

Effectively controls voice

Uses appropriate body language

Table 2 (continued)

Verbalizes ideas in organized and logical ways

Articulates proposals clearly and succinctly

Phrases questions to promote elaboration

Uses good telephone etiquette

Understands own dominant style of communication

Identifies dominant communication style of others

Adjusts own communication style to match others'

Analyzes/adapts to receiver needs

Listens actively

Listens for content

Listens to conversations

Listens for long-term contexts

Listens for emotional meaning

Listens to follow directions

Knows when/how to ask for help

Provides meaningful feedback

Maintains vertical and horizontal communications

Selects best medium/media to present ideas

Provides information to others through demonstration

ADAPTABILITY

Manages cognitive resources

Problem solves

Capable of abstract conceptualization toward practical applications

Recognizes/defines problems

Invents and implements solutions

Table 2 (continued)

Makes decisions by evaluating alternatives

Revises course of action

Tracks and evaluates results

Troubleshoots systems, situations and equipment

Evaluates and analyzes

Compares data

Recognizes costs

Thinks creatively/produces new designs

Uses divergent thinking

Reasons deductively

Applies reason and logic

Applies basic academic skills to new applications

Monitors one's own comprehension

Demonstrates aesthetic judgment

Recognizes need for change

Demonstrates flexibility with people, procedures, equipment

Understands/promotes systems thinking

Relates self/team to the larger organization

Participates in the larger organization

Understands human/electronic networking and technical systems

Adapts through retraining

Evaluates job offers/rejections

PERSONAL MANAGEMENT/SELF-EDUCATION

Knows how to learn and apply knowledge to practical tasks

Applies a variety of learning strategies to technical situations

Table 2 (continued)

Able to locate a variety of technical learning sources
Understands his/her own best learning style
Motivation toward personal and professional development
Sets own learning objectives and goals
Demonstrates willingness to learn
Investigates and pursues educational and occupational opportunities
Participates in continuing education and occupational training
Identifies own skills acquired and skills needed
Seeks work challenges and applies new knowledge
Possesses positive self-esteem
Evaluates own current skills
Possesses awareness of own impact on others
Understands own limitations
Good attitude toward work
Motivated toward work
Takes pride in work
Possesses good work habits
High frequency of attendance
Punctual
Plans ahead/anticipates
Follows instructions
Dependable
Assumes responsibility for own actions
Observant

Table 2 (continued)

Organized

Asks questions

Works well without supervision

Budgets time wisely

Produces quality work

Exhibits neatness/precision in work

Produces thorough research

Understands ergonomics and aesthetics of layout and design

Completes work on time

Produces quantity of work

Works safely

Selects proper tools/equipment

Selects proper clothing

Uses equipment correctly

Uses appropriate emergency actions

Understands/applies principles of first aid

Maintains cleanliness and order

Demonstrates good personal hygiene

Sets and meets reasonable goals

Adjusts goals as needed

Sets priorities

Promotes ethical standards

Is honest

Recognizes consequences of dishonesty

Uses confidentiality

Table 2 (continued)

Clarifies values

Plans for career and personal development

Manages personal resources, finances, credit

WORKING WITH OTHERS

Possesses good interpersonal skills

Judges and balances appropriate behavior

Understands others verbal/non-verbal behavior

Recognizes and copes with stress

Interacts with flexibility

Deals with ambiguity

Inspires confidence

Shares responsibility at work and at home

Cooperates with peers and supervisors

Maintains professional image

Negotiates effectively

Separates people from problems

Focuses on interests not positions

Invents options for mutual gain

Identifies objective criteria

Operates well as a member of a team

Structures social interaction

Participates in meetings

Identifies and directs appropriate talents and skills

Demonstrates procedures/willing to assist

Recognizes and copes with unique personalities

Table 2 (continued)

Understands others' learning styles

Shows empathy, respect and support for others

Understands group dynamics

Identifies responsibilities of employees/management

Organizes effectively

Resolves conflicts

LEADERSHIP

Actively participates in vocational/student organizations

Earns respect of peers

Exhibits sense of reliability

Assumes job responsibility willingly

Exhibits sense of personal and corporate goal orientation and vision

Understands/promotes organizational effectiveness

Understands various types of organizations

Influences actions of others

Understands leader/follower relationship

Uses strategies for sound decision-making

Exhibits emotional stability

CHAPTER 3

CONCLUSIONS

The results of this project provide a possible framework for clusters of generic skills suitable for secondary vocational education in Minnesota. Identifying these skills is a prerequisite to planning and evaluating curriculum for secondary vocational education and teacher education designed for secondary vocational education. Due to the recent emphasis on the revision of secondary vocational education in Minnesota and the emphasis of the initial report on outcome-based curriculum in the restructuring of secondary vocational education, a clustering of generic skills for secondary vocational education could contribute to the generation of outcomes. This framework would also be useful in determining the role that secondary vocational education plays with respect to secondary education in general.

The list of knowledge, skills and attitudes (KSAs) generated in this study is not exhaustive and such lists of skills grow with each study that is completed. Were general KSAs the sole responsibility of vocational education, they would engulf the curriculum leaving little time for technical competency skills. Therefore, it is essential to consider the role these generic KSAs play in vocational education curriculum. This could take a variety of forms. Vocational educators could (a) make the teaching of these KSAs their primary responsibility,

(b) monitor and assess the level of competency attained with respect to the KSAs and remediate deficiencies, (c) identify those KSAs which they deem appropriate to teach, or (d) emphasize the technical skills to the exclusion of these KSAs.

Selz, Jones and Ashley (1980) argue against the scenario in which the KSAs become the primary focus of vocational education. Their research with educators, students and employers identifies the school, home and work place as the three major places in which generic KSAs are and should be transmitted. The implication is that no one provider is responsible for or capable of delivering the entire realm of KSAs.

Support for assessing and remediating the KSAs through vocational education efforts is provided by Bradley and Anderson (1982). Their study indicates that KSA deficiencies can inhibit students from obtaining competency in occupationally specific skills. They suggest that students be pretested for deficiencies and remediated. The implication here is that the initial exposure to the KSAs is not a vocational education responsibility and that only the absence of competence with the KSAs creates a need to address them in vocational education. Vocational educators in this role may be a last opportunity for screening and upgrading of generic KSAs.

Selz, Jones and Ashley (1980) address the option of teaching selected KSAs. They suggest that a subset of KSAs be selected for the purpose of applying them in vocational education courses, as opposed to teaching them initially. This implies not

only that certain prerequisite KSAs are most appropriately taught by vocational educators, but that the opportunity for their realistic application prior to further education or employment might provide unique advantages over other skill providers.

Pratzner (1978) rejects the option of excluding the teaching of general KSAs in favor of technical skills based on the limitations for mobility placed upon students and workers in that situation. Current conditions in the work place demand a flexible person who is capable of transferring KSAs from one job to another.

The validation panel in this study strongly endorsed the option of applying general KSAs in vocational education. They did not see vocational educators as being responsible for initial instruction, but they saw vocational educators as applying the KSAs in a teaching context of practical application. Moreover, they saw that secondary vocational educators from different service areas would interpret the KSAs in a variety of ways, some seeking to improve students' entrepreneurship and others seeking to improve students' interpersonal abilities.

It is assumed that the tentative framework and list of KSAs developed through this study will provide the basis for further refinement.

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APPENDIX

Validation Panel Participants

Ronald Johnson	Program Review Specialist Industrial Education Minnesota State Department of Education 630 Capitol Square Building St. Paul, Minnesota 55101
Roslyn Torgerson	Technical Assistant Home Economics Education Mankato State University Mankato, Minnesota 56001
George Wardlow	Assistant Professor Department of Vocational and Technical Education Vocational and Technical Education Building 1954 Buford Avenue St. Paul, Minnesota 55108
Peggy Kennedy	Curriculum Development Coordinator Instructional Services State Board of Vocational Technical Education 550 Cedar Street Capitol Square Building St. Paul, Minnesota 55101