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ABSTRACT

To identify the concepts and instruction that are common in secondary vocational courses, a questionnaire was developed which consisted of 91 concepts/ideas grouped into these categories: (1) elements of educational programs, (2) the worker: benefits and obligations, (3) the worker as a person, family member, and consumer, (4) getting a job, (5) job information, (6) understanding economic principles and concepts, (7) safety practices, and (8) grooming/physical fitness. The questionnaire was mailed to a panel of experts consisting of 100 North Dakota secondary vocational teachers, teacher educators, and field practitioners who were asked to respond to the importance of the items in their vocational fields. Responses from each of the 100 panel members were rank-ordered by project personnel into those items considered most essential, useful, and least essential. The highest ranked items related to personal characteristics of the worker and dealt with attitudes of the worker rather than job skills. Items viewed as useful pertained to the economic system, worker's benefits, and types of business. The commonalities identified could serve as a basis for curriculum development or for a prevocational course. A booklet of suggestions for teachers, based on this study, is available as VT 019 908 in this issue. (SB)

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FINAL REPORT

IDENTIFICATION OF COMMON CONTENT IN COURSES OFFERED BY VARIOUS VOCATIONAL SERVICES AT THE SECONDARY LEVEL

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June, 1972

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The project reported herein was performed pursuant to a grant from the Research Coordinating Unit, North Dakota State Board for Vocational Education. Points of view or opinions stated do not, however, necessarily represent official Research Coordinating Unit or State Board for Vocational Education position or policy.

North Dakota Research Coordinating Unit
State Board for Vocational Education
Bismarck, North Dakota

FORWARD

The North Dakota Research Coordinating Unit supports numerous projects in its effort to promote vocational education research in North Dakota. This report accompanied by a booklet of practical suggestions for teachers, Teaching for Employability, represents the final results of a project designed to identify the common content in courses offered by the various vocational services at the secondary level in North Dakota. Such identification is especially important in a sparsely populated State such as North Dakota where it is not feasible to offer comprehensive programs in all vocational areas at every secondary school.

Additional copies of both the final report and booklet are available from:

North Dakota Research Coordinating Unit
State Board for Vocational Education
State Office Building
900 East Boulevard
Bismarck, North Dakota 58501

Ben Doutt, Director
Research Coordinating Unit

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NATURE OF THE PROBLEM

The intent of the vocational education legislation is to insure adequate vocational training for all youth. The problems inherent in implementing this are manifold in a rural state such as North Dakota. It is easier to provide vocational training with young people concentrated in metropolitan areas, those with the same vocational interests can be brought together in organized courses. This is not easy to do in sparsely populated rural areas. Yet the need for adequate vocational education continues.

Vocational education offerings are limited in secondary schools in North Dakota. There are presently 111 programs in home economics, 79 in agriculture, 52 in office education, 13 in distributive education and 13 programs in trades and industrial in 252 high school districts.[1] These programs enroll 16,470 students. In many rural schools the opportunities are limited to course offerings in vocational agriculture or home economics. Students need a broader range of vocational skills than is presently being offered. More realistic offerings are needed to provide effective vocational training for all youth.

The problems in providing this quality education are many. The Rural Task Force on Vocational Technical Education has identified these and other problems faced by rural states in implementing vocational education.[2] The equipment for vocational courses may be too costly or there may not be sufficient demand to justify a staff. In addition, the Master Plan Committee Report for Vocational Education in North Dakota dramatically pointed up the scarcity of qualified vocational teachers.[3]

The Rural Schools Project carried out by Michigan State University proposed solutions to some of these problems.[4] The report of the Rural Schools Project proposed that common vocational education courses be taught. There is believed to be a certain amount of duplication in courses presently being offered in different vocational programs. If the common elements of these courses were identified, courses could be taught related to a wider variety of occupations.

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[1]Reuben Guenther, Fiscal Officer, State Board for Vocational Education, personal communication, March 1972.

[2]Rural Task Force on Vocational and Technical Education, Vocational and technical education in rural America. U. S. Department of HEW, April, 1970.

[3]North Dakota vocational education master plan committee report 1970-1975, September 1969.

[4]Michigan State University, Research and development programs in vocational-technical education, n.d., pp. 8-91.

The first task is to identify the commonalities in vocational education courses at the secondary level. Teachers could then develop vocational education curricula to better meet the needs of secondary students in smaller schools. The identification of the common elements would aid in determining whether common vocational courses are feasible. If the teachers in the various occupational services view nothing in their courses as common with other vocational services, or if each vocational teacher jealously regards concepts as his alone, common vocational courses are not likely to be developed.

The purpose of this study was to identify the concepts and instruction that are not unique to any one vocational area but are common to more than one.

RELATED RESEARCH

Studies have shown that rural youth are disadvantaged compared to urban youth when it comes to seeking employment.[5] An extensive state-wide study in Montana revealed that the small high school districts in that state were limiting vocational-technical education.[6] The educational needs of rural people are changing and these needs must be reflected in changing curricula, training and programs for youth in rural areas. Research by Bishop pointed to the great need for broadly based curricula to meet the needs of all students.[7] The major conclusion drawn by Griessman and Densley from their review of research in vocational education in rural areas was the need for diversified curricula to provide breadth in training.[8] The aspirations, expectations, and needs of rural youth have been extensively studied by Kuvelsky who concluded that while rural and urban youth are alike in many respects, the needs of rural youth are more urgent

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[5]See, for example, D. L. Williams, Personalized vocational education for rural disadvantaged families. Paper read at Institute IV for Vocational and Related Personnel in Rural Areas, Mississippi State University, July 1970.

[6]School Survey Service, Improving opportunities for vocational-technical education in Montana: Report of a statewide survey by a 10-member staff. Columbus, Ohio, 1968. VT 006 604.

[7]C. E. Bishop, The changing educational needs of rural people. University of Arkansas, 1970.

[8]B. E. Griessman and K. G. Densley, Review and synthesis of research on vocational education in rural areas. VT Research Series No. 50. December 1969.

for they have been educationally neglected.[9] Little concerted effort has been made to identify common competencies across the world of work.

In the last decade there has been much work in curriculum including the preparation of study guides, course outlines, and curriculum guides in all vocational areas. More recently the concept of occupational clusters has appeared. For example, Sherman prepared a curriculum guide for training agricultural technicians.[10] He recommended establishing a core curriculum including content common to training several types of technicians. Sjorgren and others identified common pre-entry level behaviors for agricultural technicians and metal fabricating workers.[11] Dailey and Neyman identified three basic vocational talents -- abstract reasoning, mechanical comprehension, and spatial visualization -- and developed and tested curriculum materials to teach these concepts.[12] These studies and others of the same type have identified concepts, competencies, or content common to clusters of occupations.

Occupational survey courses and orientation to world of work courses have also been developed using various procedures. A study by Warren identified concepts and generalizations important to the world of work by reviewing the literature.[13] Altman used a test of job skills to identify general vocational capabilities.[14] Duncan found "lack of adequately defined content" frequently given as a reason for turnover of teachers of courses on introduction to vocations.[15] The lack of identified commonalities across vocational services seems to be involved here. Morgan and

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[9] W. P. Kuvlesky, Implications of recent research on occupational and educational ambitions of disadvantaged rural youth for vocational education. Paper read at Institute IV for Vocational and Related Personnel in Rural Areas, Mississippi State University, July 1970.

[10] G. A. Sherman, A guide for curriculum development for educating agricultural technicians. 1964. VT 001 781.

[11] D. Sjorgren and others, The identification of common behavioral factors as bases for pre-entry preparation of workers for gainful employment. 1967. ED 019 471.

[12] J. T. Dailey and C. A. Neyman, Development of a curriculum and materials for teaching basic vocational talents. 1967. ED 017 689.

[13] M. A. Warren and others, Generalizations related to concepts important for youth orientation to the world of work. 1967. ED 029 998.

[14] J. W. Altman, Research on general vocational capabilities. 1966. ED 013 870.

[15] J. A. Duncan, Survey of reasons for turnover of introduction to vocations teachers as reported by superintendents of schools and former introduction to vocations teachers. 1966. VT 002 681.

Bushnell have proposed the development of an "organic" curriculum as it is more responsive to present-day needs of students.[16]

The studies cited also reflect different approaches to curriculum development. Yet another approach is the conference and seminar where guidelines for selection of concepts are outlined.[17]

The conceptual inadequacies of these formulations are apparent as is the fact that attempts have not been made to identify commonalities across vocational services but rather within a particular vocational educational area. Courtney has developed a conceptual basis for building common curricula. He generated a rationale and design for developing common needs.[18] Dillon and Horner surveyed workers in Nebraska to identify occupational commonalities as a basis for course construction.[19] Workers were asked to respond to a check list of 144 activities, duties, and areas of knowledge. Activities with 33 percent or more responses were viewed as common components for vocational course instruction. Arnold was successful in identifying general curriculum and individual cores from technician's responses as a base for technical education curricula.[20] The methodologies and approaches of these three investigations appeared useful for this study.

METHODS AND PROCEDURES

Secondary vocational teachers, teacher educators, and field practitioners from the vocational areas of agriculture, distributive education, health, home economics, office education, trade and industry, and vocational counseling were solicited to serve as a "panel of experts." These persons were nominated by their respective State Supervisors. The letter soliciting their participation was sent over the signatures of the State Director of Vocational Education and the project director (Appendix A).

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[16] R. M. Morgan and D. S. Bushnell; Designing an organic curriculum. 1966. VT 005 133.

[17] See for example, Division of Vocational Education, A guide for the development of curriculum in vocational and technical education. California University, Los Angeles, 1969. ED 037 535.

[18] E. W. Courtney, A conceptual basis for developing common criteria in teacher education programs for occupational education. 1968. ED 022 028.

[19] R. D. Dillon and J. T. Horner, Occupational commonalities: A base for course construction. 1967. ED 024 792.

[20] J. P. Arnold, A study of recommendations for technical education curricula. 1965. VT 002 464.

The panel of experts numbered 100 and the representation was as follows in Table 1.[21]

Table 1 Representation on Panel of Experts
(N=100)

Vocational Area	Teachers	Teacher Educators	Workers	Totals
Agriculture	8	3	4	15
Distributive	3	1	5	9
Health	1		3	4
Home Economics	15	3	2	20
Office	11	2	4	17
Trade & Industry	11	2	6	19
Vocational Counseling	10	3	3	16
Totals	59	14	27	100

A questionnaire was built from an extensive search of the literature in vocational education. All issues of Abstracts of Instructional Materials in Vocational and Technical Education (AIM) and Abstracts of Research and Related Materials in Vocational and Technical Education (ARM) were searched. Curriculum materials available in the offices of the State Supervisors were also examined. Each idea, concept, objective, or generalization which might represent a possible commonality was typed on a separate card. More than 1400 cards were sorted and categorized. Duplicates were eliminated. Some examples of the ideas on the cards were:

Typewriting skill
Effectively guiding children's play activities
Pulleys
Leisure time activities
Office procedure
How to condition a screw driver
Building codes
Arithmetic skills.

Items that were extremely specific, i.e., how to condition a screw driver, were re-written as broader concepts, i.e., care of tools.

[21]Teacher representation was determined by the State Director and the project director based on the number of teachers in the respective services in North Dakota.

The list of concepts/ideas was prepared and revised by project personnel. The questionnaire (which was the list of concepts) was pilot tested with a group of persons in vocational education who were not on the panel of experts. The revised questionnaire (Appendix B) consisted of 91 items grouped in ten logical categories. The grouping and labeling of categories was done by project personnel. The ten categories were:

Elements of Educational Programs
The Worker -- Benefits and Obligations
The Worker as a Person
The Worker as a Family Member
The Worker as a Consumer
Getting a Job
Job Information
Understanding of Economic Principles and Concepts
Safety Practices
Grooming/Physical Fitness

The categories served to organize the questionnaire items into meaningful parts. It was hoped the categories would also be useful in interpreting the results.

The questionnaire was sent to the 100 experts who were asked to respond to the items as to their importance in their vocational field at the secondary level. Questionnaires were returned by all 100 members of the panel of experts.

RESULTS

For each item, the number (and percentage) of persons marking "essential," "useful," and "not important" was computed. (Data are reported in Appendix C.)

In order to assess the degree of importance a weighted score was computed for each item as follows: essential = 2, useful = 1, not important = -1. It seemed reasonable to conclude that an item which, for example, 80 persons marked as "essential" and 20 persons marked as "not important" represented less overall importance than an item which was rated as "essential" by 75 persons, "useful" by 20, and "not important" by 5. The weighted score for the first example was 140; for the latter, 165.

Items were then rank-ordered. Top-ranked items represent the greatest "essentialness" to vocational education while lower-ranked items were viewed as less important by the panel of experts (Appendix C).

The distribution of items using the weighted scores was slightly negatively skewed. The range of weighted scores was 76 to 192; mean = 142.19. The median score (percentile rank of P_{50}) was 153. Other

percentile ranks were P_{75} = 163, P_{80} = 169, and P_{85} = 173 while P_{40} = 136, P_{25} = 117 and P_{20} = 113. In Table 2 are reported the top-ranked items, i.e., those above the percentile rank of P_{80}. The eightieth percentile was chosen (albeit arbitrarily) as the cutting point for the top-ranked items as it represented those items on which more than 70 percent of the respondents marked the item as "essential." These items represented the greatest degree of "essentialness" as seen by the panel of experts.

Table 2 Items Rated as Most Essential by Respondents[a] (by weighted score)

Rank	Item
1	Develop sense of responsibility (32)[b]
2	Develop work habits and attitudes necessary for individual maturing and job competence (28)
3	Develop an awareness of skills, knowledges, attitudes and personal qualities necessary in becoming a more employable person (30)
4	Accepting responsibility for one's own behavior (27)
5	Pride in work (25)
6	Attitudes toward the job (5)
7	Ability to follow directions (37)
8	Characteristics necessary for satisfactory relationships with people such as employer, employee, supervisors, customers (38)
9	Maintenance of good physical, mental and emotional health in relation to work (88)
10	Well-groomed look for work (90)
11	Develop communication skills (21)
12	Ability to plan and carry out plans (24)
13	Factors contributing to success on the job (77)
14	Understanding of what a customer expects, such as quality work and materials, honest answers, good service (41)
15	Develop problem-solving abilities (22)
16	Analysis of self in relation to demands of a job (26)
17	What do I have to offer to the job (62)
18	Job interview techniques (58)

[a]Items ranked above the eightieth percentile.
[b]Item number on the questionnaire.

The items in the bottom portion (below P_{20}) of the distribution are reported in Table 3. These lowest-ranked items were seen by the majority of the panel members as being "useful" rather than as either "essential" or "not important" although 6 to 22 percent of the respondents viewed the items as "not important," and from 14 to 37 percent of the experts viewed the same items as "essential." In fact, there were no items on the questionnaire which were checked as unimportant by more than 22 percent of the respondents. In general, the respondents viewed all the items as relevant to vocational education.

Table 3 Items Rated as Least Essential by Respondents[a] (by weighted score)

Rank	Item
91	How to complete federal and state income tax forms (12)[b]
90	Principles of a free economic system compared to other economic systems (78)
89	Business management compared to personal life management (82)
88	How a business is set up and operated (81)
87	Types of business organizations: individual, partnership, cooperation, cooperative, government (80)
86	Classification of occupations, e.g., professional, skilled, etc. (67)
85	Small town and big city living experiences (53)
84	Labor union functions; workers responsibilities, benefits (9)
83	Unemployment compensation and unemployment insurance (13)
82	The American economic system (79)
81	Federal and state wage and labor laws and regulations (10)
80	Workman's compensation (16)
79	Consumer protection and information agencies (48)
78	Social security (14)
77	Paycheck deductions (11)
76	Insurance and liability (15)
75	Summer/part time employment opportunities (66)
74	Problems peculiar to women who work (46)
73	Knowledge of employment trends (74)
72	Understanding of advertising and its effects on consumers-workers (50)
71	Observation and study of occupations (68)
70	Appreciation of contribution of work in contemporary society (73)
69	Selecting goods and services (49)

[a]Items ranked below the twentieth percentile.

[b]Item number on the questionnaire.

Comments were offered on the questionnaire by 26 of the respondents. The comments dealt with the "essentialness" of items on the list. Several mentioned that time was not available to teach all these although all were important. Several also commented that while all were important they wondered whether it was the responsibility of vocational education to teach all the ideas. However, they did discriminate degrees of essentialness. In any distribution certain items (or scores) must fall at the lower end.

Agreement Across Services

Data were examined to determine if persons representing each of the vocational services agreed with those of other vocational services (chi-square test). The null hypothesis being tested was:

There is no difference in the response patterns of persons representing various vocational education areas.

Acceptance of the null hypothesis would indic... ...milarity of perception across the vocational service areas; not t... ...ull hypothesis would indicate the experts from the vari... ...reas did not agree as to the importance of the item. The ... ...gnificance was selected for rejection of the null hypothes...

There was agreement across the vocational services on 73 of the 91 items on the questionnaire. In other words, persons from all vocational services agreed as to the essentialness, usefulness, or lack of importance of over 80 percent of the items.

On approximately one-fifth of the items there was lack of agreement among persons from various vocational services ($p<.05$). See Table 4. The panel of experts did not agree as to whether these items represented an "essential," "useful" or "not important" concept in vocational education. The higher the chi-square value the greater the disagreement as to the importance of the item.

Table 4 Items on Which There Was Not Agreement Among Vocational Services as to the Importance of the Item

Item	Chi-square Value
Combining job and home responsibilities (45)[a]	27.12 **[b]
Problems peculiar to women who work (46)	35.13 **
Preparation for role as a family member (47)	24.92 *
Consumer protection and information agencies (48)	24.70 *
Selecting goods and services (49)	29.17 **
Understanding of advertising and its effects on consumers-workers (50)	33.99 **
How to prepare a personal data sheet (55)	23.00 *
Writing business letters (56)	21.68 *
Summer/part time employment opportunities (66)	24.19 *
Principles of a free economic system compared to other economic systems (78)	28.50 **
The American economic system (79)	28.47 **
Types of business organizations (80)	28.35 **
How a business is set up and operated (81)	29.02 **
Know emergency first aid procedures (83)	37.90 **
Develop an attitude toward safety to apply in all situations (84)	32.54 **
Know good sanitary practices (85)	43.66 **
Able to handle emergency situations (86)	27.01 **
Care and maintenance of tools and equipment (87)	30.17 **

[a]Item number on the questionnaire.
[b]* $p<.05$; ** $p<.01$.

The G-test was used to break down the chi-square tables to determine which cells contributed proportionately the greatest amount to the significant chi-square value.[22] The G-test was used to partition the total chi-square value into contributions due to individual samples; in this case, vocational areas. The following discussion is based on examination of the resultant subsets.

"Combining job and home responsibilities" (item 45) was viewed by home economics respondents as more essential than by persons from other vocational areas. Home economics, then, contributed proportionately more to that significant chi-square value. The same was true for "Problems peculiar to women who work" (item 46), "Selecting goods and services" (item 47), and "Consumer protection and information agencies" (item 48).

Experts from distributive education and from home economics viewed "Understanding of advertising and its effects on consumers-workers" (item 50) as more essential than did the other experts and made the major contribution to the significant chi-square value.

Home economics experts did not view "How to prepare a personal data sheet" (item 55) to be as important as did the other vocational experts.

Vocational agriculture experts did not perceive "Summer/part time employment opportunities" (item 66) in the same manner as their colleagues. Persons in vocational agriculture rated this item as essential more often than did the other vocational experts.

"Principles of a free economic system compared to other economic systems" (item 78) was rated differently by home economics experts than by other experts. A larger proportion of ratings of useful and not important were given by home economics respondents than by others.

The major contribution to the significant chi-square value for "The American free economic system" (item 79) came from experts in distributive education who viewed it as essential more frequently while other experts more often viewed it as not important. This was also true for "Types of business organizations" (item 80), and for "How a business is set up and operated" (item 81).

There was not any one vocational area that made the difference for "Know emergency first aid procedure" (item 83).

On item 84, "Develop an attitude toward safety to apply in all situations," the experts from office education viewed the item as useful whereas most of their colleagues viewed it as essential. The response pattern

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[22]The G-test (likelihood ratio test) is a repeated goodness of fit test and uses a chi-square value. Further explanation may be found in R. R. Sokal and F. J. Rohlf, Biometry. W. H. Freeman and Co., 1969.

of the office education experts contributed proportionately more to the significant chi-square value than did the other experts. Office education experts also made the major contribution to the significant chi-square value on item 85, "Know good sanitary practices," which they did not perceive as "essential" but only as "useful." The same was true for item 86, "Able to handle emergency situations."

No one vocational area made the difference on "Care and maintenance of tools and equipment" (item 87).

Agreement by Occupational Group

Data were also examined by occupational group: teacher educators, teachers, and workers. The teacher educator group included teacher educators from all the vocational educational areas. Similarly, the occupational groups of teachers and workers included those from all the vocational service areas. The reason for dividing the data in this way was to determine if there were differences among the three occupational groups. The null hypothesis being tested was:

> There is no difference in the response patterns of persons in the three occupational groups, i.e., teacher educators in all services, vocational teachers, and workers.

The chi-square test was used to determine if the response patterns of the three groups were significantly different ($p<.05$). Teachers, teacher educators, and workers agreed on the importance of 85 of the 91 items, or 93.33 percent. In general, there does not appear to be a difference in what is perceived to be important by the college professor, the secondary teacher, and the employee.

In Table 5 are reported the six items on which there was statistically significant lack of agreement among teachers, teacher educators, and workers ($p<.05$). In other words, there was not agreement among these three occupational groups as to whether the item represented an "essential," "useful," or "not important" concept in vocational education.

The chi-square tables were again broken down using the G-test into subsets in order to determine from which cells the major contribution(s) to the significant chi-square values were obtained. On item 7, "Future educational opportunities," examination of the subsets revealed the major discrepancy came from the workers who more often rated the item as "useful" and "not important" while teachers and teacher educators more often rated it as "essential."

The major contribution to the significant chi-square value could not be ascribed to any one occupational group for "Consumer protection and information agencies" (item 48) and "Care and maintenance of tools and equipment" (item 87).

Table 5 Items on Which There Was Not Agreement Among Occupational Groups as to the Importance of the Item

Item	Chi-square Value
Future educational opportunities (7)[a]	14.3353 **[b]
Consumer protection and information agencies (48)	10.1811 *
Understanding of career ladder opportunities (65)	10.9628 *
Job clusters (70)	12.5615 *
Knowledge of employment trend[illegible]74)	10.4297 *
Care and maintenanc[illegible] equipment (87)	18.4479 **

[a]Item number on questionnaire.
[b]* $p<.05$; ** $p<.01$.

Teachers and workers viewed "Understanding of career ladder opportunities" (item 65) as useful while teacher educators saw it as essential, representing the major contribution to the significant chi-square value. The same was true for "Knowledge of employment trends" (item 74).

Item 70, "Job clusters," was perceived as essential by teacher educators while teachers and workers rated it "essential" and "useful" about equally.

DISCUSSION

It is evident that there was substantial agreement among the panel of experts on what is essential, useful and not important in vocational education for the secondary level. The items receiving top priority by the panel of experts, i.e., items having the highest rank order, seem to represent "characteristics of the worker" and deal primarily with attitudes toward the world of work. These top-ranked items indicate that attitudes rather than job skills per se are what is considered essential at the secondary level in vocational education. Re-examination of the top-ranked items in Table 2 also reveals that an understanding of the self, the self-concept, or awareness of the self appears equally essential in vocational education at the secondary level. This supports Willers' point that workers must develop human behavioral skills.[23]

Examination of the lowest-ranked items (Table 3) seems to reveal that these are primarily concerned with concepts from economics, such as principles of a free economic system, how a business is operated, and

[23]J. D. Willers, The quality of life in the seventies and implications for vocational teacher education. In R. N. Evans and D. R. Terry (eds.), Changing the role of vocational teacher education. McKnight and McKnight, 1971.

types of business organization. Items pertaining to job benefits such as insurance, workmen's compensation, and social security, were also among the low-ranked items. Two plausible explanations emerge. Vocational education experts may feel these belong to the domain of some other more general area of education in the secondary school, such as mathematics or social studies rather than to vocational education, or they may feel the concepts are not very important at the secondary level.

Questionnaire Categories

When data are examined by categories on the questionnaire some interesting trends can be observed. In the first category, Elements of Educational Programs, were listed the common features of secondary vocational programs, including such emphases as entry level job skills and supervised work experience. Of these only "Attitudes toward the job" (item 5) was found among the top-ranked items. Approximately two-thirds of the experts viewed job skills, entry level skills, career possibilities and future educational opportunities (items 1, 2, 6, 7) as essential while less than half of the respondents viewed supervised work experience and simulated experience (items 3, 4) as essential. The vocational education literature is replete with articles recommending and justifying the need for all of these as essential elements in secondary programs. However, the respondents in this study did not perceive these elements to be as essential as the writers in vocational education.

None of the items from the second category, The Worker -- Benefits and Obligations, was found among the top-ranked items, although eight of the eleven items were found among the lowest-ranked items (items 9 through 16). Apparently an understanding of the workers' benefits and obligations was not seen as extremely important in secondary programs. It may be that the respondents felt one learned about the benefits and obligations while on the job rather than in school.

The top-ranked items came primarily from the third category, The Worker as a Person. Twelve of the top 18 items were from this category. There were no lowest-ranked items in this category.

In the category, The Worker as a Family Member, one item, "Problems peculiar to women who work," ranked in the bottom group. With increased numbers of women in the labor force and the increased pressures on the home one might have expected some of these items to be viewed as more essential than they were.

Of the seven items in the category, The Worker as a Consumer, four ranked in the lowest group. Apparently either vocational education is not perceived as being responsible for training workers to function as consumers or being a consumer is not viewed as being particularly important.

The techniques represented by the items in the Getting a Job category ranked primarily in the middle except for "Job interview techniques," and

"What do I have to offer to the job" (items 58, 62) which were ranked 17 and 18. Again it may be that such things as writing business letters, requesting references, preparing personal data sheets, and understanding of employment agencies are perceived by vocational education experts as being the domain of someone else. It may also be simply that other items were considered more essential.

One item, "Factors contributing to success on the job" from the category, Job Information, appeared among the top-ranked items. Five of the items in this category appeared among the lowest-ranked items. The majority of the items on Job Information were ranked in the middle. Apparently job information was not seen as very essential to the panel members. This is an unexpected finding for a field of study which focuses on vocations.

All five items in the category, Understanding of Economic Principles and Concepts, were ranked very low (below P_{20}). Vocational educators apparently do not feel this is important to their field; they may feel that general education is responsible for developing an understanding of the American economic system.

The items in the category, Safety Practices, were among the middle-ranked items. Three of the four items in the Grooming/Physical Fitness category were ranked above P_{80}.

Identifying Commonalities

Many different labels have been applied to attempts to provide a total program for vocational education, such as core, unified, and fused. While there has been much written advocating the commonalities approach in vocational education there has been little empirical evidence gathered relative to the commonalities component. The Rural Schools Project, for example, proposed to develop "unified programs in vocational education for small rural schools."[24] The project suggested a course be organized and taught covering "common competencies" and subsequently such a course was offered in their participating schools. No mention was made, however, of the method(s) used to identify the common competencies.

In a recently reported study, Lee set out to identify commonalities in vocational education in Mississippi.[25] His study involved experienced vocational teachers in secondary schools in Mississippi from agriculture,

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[24] H. P. Sweany, The development and demonstration of unified vocational-technical education programs in small rural high schools. 1967. ED 019 472.

[25] J. S. Lee, Levels and similarities of instruction in selected content areas of vocational education. Report 8000, Mississippi State University, 1971.

home economics, distributive, office, and trade and industrial education. His instrument consisted of a list of 92 skills needed by most workers to perform their jobs. The "list of skills" came from course outlines examined by project personnel. The null hypothesis, "There is no difference in the skills taught by vocational education areas" was rejected at the .20 level of significance. He found no similarity among the five vocational areas regarding skills taught.

Lee set .20 as the level of significance for rejection of the null hypothesis. In the field of statistics one usually assumes that events are alike unless significant differences can be established. Lee, however, chose to make the opposite assumption, that events are different until demonstrated to be alike. In the study by Dillon and Horner,[26] activities with 33 percent or more response were viewed as common. In the present study 21 of the 91 items (22.8 percent) were not rated as "essential" by at least 33 percent of the experts. There is not agreement among statisticians as to what constitutes "agreement." Therefore one needs to examine carefully the methodology of these studies to determine the definition of agreement being used and interpret the results accordingly.

RECOMMENDATIONS

Smith and Moss[27] have stated that curriculum improvement offers more payoff potential than any other form of educational change. The time seems to be opportune to propose curriculum change. There was agreement among the vocational services as to the importance of many concepts. Vocational education concepts are not as esoteric as many writers in the field would have us believe.

The separateness that has been encouraged for so long in vocational education need not be.[28] Emphasis has been placed on vocational service integrity and identity rather than on cooperative planning and teaching to meet a range of student needs, occupational choices, and settings. This has been especially damaging in the smaller schools characterized by limited numbers of students.

On the basis of the evidence from this study and others the base for

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[26]Dillon and Horner, loc. cit.

[27]B. B. Smith and J. Moss (eds.), Processes and techniques of vocational curriculum development. University of Minnesota, 1970.

[28]The encouragement of separateness is cited, for example, by J. D. McComas, Expanding horizons curriculum for vocational education -- An organizational plan for the 70's. The Center for Vocational and Technical Education, Ohio State University, 1970.

a common course in vocational education has been established.[29] Curriculum developers from each vocational service need to work together to build a common course in vocational education.

The material could be developed in the form of a curriculum resource unit or an instructional materials package and made available to vocational educators at the secondary level. The modular approach [illegible] posed by Wallace might be used.[30] This would then provide the basis for a common vocational course offering in many secondary schools. However, it would be of little assistance to the high school districts who have no vocational educator.

The concepts common across vocational education might also be developed as an independent study package and be made available to administrators, teachers, and secondary students. This would make the basic vocational education concepts available to more students which must be the ultimate goal. The independent study package could be directed by an administrator or teacher, not necessarily a vocational educator.

The concepts that emerged as essential and common in vocational education may seem to fall within the domain of career education, e.g., development of the self-concept, orientation to the world of work, and attitudes toward work. McComas[31] has argued that the climate is now favorable for incorporating vocational education into total curriculum planning and development. The development of a common offering by vocational educators could make a significant contribution to the developing concept of career education.

It might also be suggested that some of these concepts be developed through the vocational youth group such as Future Farmers of America, DECA, and others.

There is need to further develop the concept of vocational education for all teachers, including vocational teachers. All vocational teachers do not view vocational education in the same way.

Some concensus needs to be reached as to the bases for curriculum decisions. Who determines, or should determine, the curriculum? Different kinds of curriculum result from job or task analysis than result when one questions the graduates of a program. McComas stated that when you ask teachers and supervisors to identify those things that are common you may get a reflection of the status quo of what is now common in vocational

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[29]See, for example, Dillon and Horner, loc. cit.

[30]B. F. Wallace, Modular design: Another method of curriculum development, American Vocational Journal, 1972, 47(5), 42-44.

[31]McComas, loc. cit.

education rather than asking the real question of what ought to be.[32]

It has been suggested by some that these concepts identified as common are "really career education." Career education, as a descriptor in the ERIC system, has been defined as "a comprehensive educational program that focuses on individual career developing . . ." Vocational educators need to examine carefully the relationship(s) of vocational education and career education and to consider who is committed to career education, i.e., elementary teachers, biology teachers, algebra teachers, vocational agriculture teachers, some of each, all of these?

IMPLICATIONS OF THE STUDY TO CURRICULUM DEVELOPMENT

If one were to build curriculum based on the results of this study it would be an extremely difficult task for several reasons. First, the persons within a vocational service, such as agriculture or distributive education, did not always agree among themselves as to what is essential in their own vocational field. Second, one cannot clearly delimit vocational education by specifying "what is in" and "what is out." Third, persons in different occupational positions did not always agree. One would develop one curriculum based on the report of teacher educators, another based on the replies of teachers. The curriculum developed from the workers' replies would also be different. To reconcile these very definite differences some philosophical, rational base is needed. A fourth and, again, different curriculum would undoubtedly result if replies had been solicited from students in vocational education programs. What input then is the curriculum maker to use? Or does he decide on the basis of his own biases, beliefs, values, etc.? How does one determine what is important to teach, what should be the content?

It is possible to propose many explanations to account for the varying responses by groups, either by occupational levels of teacher educators, teachers, workers, or by services, agriculture, office education, etc. However the suggesting of reasons is probably not of as great importance as the implications of this approach to curriculum development. Without some rational approach to curriculum development, decisions as to which input to accept are purely arbitrary. Are teacher educators because of their broader experience (according to the State Plan all teacher educators have also had experience as vocational teachers) and because of their observation of teachers in training the ones whose input should be considered in building curriculum?

Since the workers are the products of vocational training are they best able to determine what should be the content? Or is the vocational teacher the one who can bridge the theoretical teacher educator and the

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[32]McComas, loc. cit.

practical worker? The answer, at present, appears to depend on which group the reader identifies most closely with.

Some studies assume that students know best and therefore what is to be taught is determined from what students say they want to learn.[33] Others argue that the teacher is the professional and knows what the students need for now and for later, thus the teacher is the one who determines what should be taught. Others ask the parents what should be taught.[34] Disciplines other than those in vocational education rarely ask parents to help determine the curriculum. Parents do not determine curriculum in English, chemistry, algebra, or spelling but they frequently do, for example, in home economics and agriculture.

There is lacking, and great need for, a rational way to incorporate the input from all three groups into curriculum building. The committee approach has been recommended; as has been the use of the advisory council. But who or how are decisions made when the inputs directly contradict each other?

Researchers in education have long decried the lack of money available to support the development of theory. The failure of vocational educators to give consideration to the theoretical foundations of the field has been noted.[35] Theoretical foundations are imperative for curriculum development. Most curriculum research money is spent for projects in which the project personnel develop content based on their own ideas; decisions on what to include and what to omit are made solely on personal bases.

SUMMARY AND CONCLUSIONS

The purpose of this study was to identify possible commonalities in vocational education at the secondary level. In small high schools in rural areas it is very difficult to provide quality programs in all the areas of vocational education. If certain ideas are common to several areas of vocational education these commonalities could be combined into

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[33]See, for example, H. M. Hamlin, Citizen evaluation of public occupational education. Center Monograph No. 1, Contract No. E-5-85-107. North Carolina State University, 1967.

[34]F. Smith, Home economics is beautiful but . . . is it relevant? What's New in Home Economics, February 1971, pp. 73-74.

[35]For an example see E. J. Simpson and M. L. Ellis, Curriculum development in vocational teacher education: State of the art and developmental needs. In R. N. Evans and D. R. Terry (eds.), Changing the role of vocational teacher education. McKnight and McKnight, 1972.

a single offering for secondary schools.

The literature of the vocational services was thoroughly searched to develop a list of possible common ideas. The over 1400 ideas were reduced to a list of 91 concepts. A panel of 100 experts made up of teachers, teacher educators, and workers from the vocational services of agriculture, distributive education, health, home economics, office education, trade and industry, and vocational counseling reacted to the list by rating each item as "essential," "useful," or "not important" to their vocational area at the secondary level.

Weighted scores were computed where essential = 2, useful = 1, and not important = -1. The items were then rank ordered. Items above the percentile rank of 80 represent those seen as most essential by all respondents while items below the percentile rank of 20 were perceived as least important in vocational education.

The highest ranked items related to "personal characteristics of the worker," and dealt with attitudes of the worker rather than job skills per se. Items viewed as "useful" rather than "essential" were the low-ranked ones on the questionnaire. These pertained to such items as our economic system, worker's benefits, and types of businesses.

The following conclusions may be drawn from the data in this study.

1. Generally, vocational educators saw the 91 concepts presented in this study as important to vocational education at the secondary level.

2. There was agreement among the persons representing the vocational services of agriculture, distributive education, health, home economics, office education, trade and industrial education, and vocational counseling regarding the importance of 80.23 percent of the items.

3. The three occupational groups (teachers, teacher educators, and workers) agreed on the importance of 93.4 percent of the items.

The commonalities identified could serve as a basis for curriculum development, or for a "prevocational" course. Some way (or ways) of making these common concepts available to students is needed.

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APPENDICES

APPENDIX A

LETTER SENT SOLICITING PARTICIPATION ON PANEL OF EXPERTS

STATE BOARD FOR VOCATIONAL EDUCATION

STATE OFFICE BUILDING
900 EAST BOULEVARD AVENUE
BISMARCK, NORTH DAKOTA 58501

October 8, 1971

Dear

You have been recommended by your State Supervisor as a person well qualified to help with a research project. Teachers, teacher educators and workers from the various vocational services of agriculture, distributive education, health, home economics, technical, trades and industry, and vocational counselors and counselor educators are being sought to serve as a panel of experts.

A research project, Commonalities in Vocational Education, has been funded by the State Board for Vocational Education. The purpose of the project is to identify ideas or concepts that are common to more than one vocational area.

Your task will be to react to a list (probably a rather long list) of ideas that are important in your field. You will be asked to rate each item on the basis of how important it is to success in your field, that is, is it essential, nice to know, frill, or not important. Since you are in the field you are an "expert."

We would be so pleased if you will accept our invitation to serve the cause of vocational education in this way. Won't you please return the enclosed post card to Dr. Patricia Murphy, the project director, right away saying "Yes, I'll be on your panel of experts."

The project results will be used to determine possible common offerings at the secondary level. If some vocational content can be taught in a common course or courses we may be able to have quality vocational education available to more young people in small as well as larger high schools in North Dakota. We need your help. Please return the post card marked "yes" and be one of our vocational experts. Thank you.

Sincerely yours,

Carrol E. Burchinal

Carrol E. Burchinal
State Director of Vocational Education

Patricia D. Murphy

Patricia D. Murphy
Associate Professor
Home Economics Education
North Dakota State University

Enclosure

"BUY NORTH DAKOTA PRODUCTS"

APPENDIX B

QUESTIONNAIRE SENT TO PANEL OF EXPERTS

#____

Commonalities in Vocational Education
at the Secondary Level

DIRECTIONS: Below is a list of items drawn from all the vocational fields. The purpose of this study is to identify ideas that are common to more than one vocational area and that should be taught at the secondary level. Please react to each statement as to whether this idea should be taught in your vocational field at the high school level using the following scale:

1 = Essential in my field
2 = Useful to know in my field
3 = Not Important, not relevant, obsolete

	1 Essential	2 Useful	3 Not Important
ELEMENTS OF EDUCATIONAL PROGRAMS			
1. Emphasis on teaching job skills			
2. Entry level skills			
3. Supervised work experience in the community			
4. Job-like simulated experiences in the school			
5. Attitudes toward the job			
6. Exposure to career possibilities			
7. Future educational opportunities			
THE WORKER -- BENEFITS AND OBLIGATIONS			
1. Individual rights, privileges, and responsibilities on the job			
2. Labor union functions; workers responsibilities, benefits			
3. Federal and state wage and labor laws and regulations			
4. Paycheck deductions			
5. How to complete federal and state income tax forms			
6. Unemployment compensation and unemployment insurance			
7. Social security			
8. Insurance and liability			
9. Workmen's compensation			
10. Methods of terminating employment: employer, employee			
11. Evaluation of job performance: by self, by supervisor			
THE WORKER AS A PERSON			
1. Assume responsibility for assessment of basic reading skills			
2. Functional competence in basic mathematical processes			
3. Develop communication skills			
4. Develop problem-solving abilities			
5. Coping with unexpected circumstances which may arise			
6. Ability to plan and carry out plans			
7. Pride in work			
8. Analysis of self in relation to demands of a job			
9. Accepting responsibility for one's own behavior			

	Essential 1	Useful 2	Not Important 3
10. Develop work habits and attitudes necessary for individual maturing and job competence			
11. Understanding of one's values and their relationship to a job			
12. Develop an awareness of skills, knowledges, attitudes and personal qualities necessary in becoming a more employable person			
13. Ability to manage resources: time, money, energy			
14. Develop sense of responsibility			
15. Willingness to do routine work			
16. Conserving materials and preventing waste			
17. Respect for law and order			
18. Commitment to ethical behavior			
19. Ability to follow directions			
20. Characteristics necessary for satisfactory relationships with people, such as employer, employee, supervisors, customers			
21. Understanding of how people's personalities vary and affect their working with others			
22. Responsibility for establishing pleasant "work climate"			
23. Understanding of what a customer expects, such as quality work and materials, honest answers, good service			
24. Maintain order in work			
25. Formulation of vocational goals			
THE WORKER AS A FAMILY MEMBER			
1. Human relationships in family and employment situations			
2. Combining job and home responsibilities			
3. Problems peculiar to women who work			
4. Preparation for role as a family member			
THE WORKER AS A CONSUMER			
1. Consumer protection and information agencies			
2. Selecting goods and services			
3. Understanding of advertising and its effects on consumers-workers			
4. Use of credit, credit rating, costs of credit			
5. Managing personal finances			
6. Small town and big city living experiences			
7. Functions and services of agencies in the credit field, i.e., banks, savings and loan, insurance companies			

	Essential 1	Useful 2	Not Important 3
GETTING A JOB			
1. How to prepare a personal data sheet			
2. Writing business letters: application letters, letters of inquiry			
3. Locating and applying for a job			
4. Job interview techniques			
5. How to take pre-employment tests			
6. How to request references (of ability)			
7. Hiring policies of business firms			
8. What do I have to offer to the job			
9. Employment agencies: public, private			
JOB INFORMATION			
1. Problems of adjustment to work			
2. Understanding of career-ladder opportunities			
3. Summer/part time employment opportunities			
4. Classification of occupations, e.g., professional. skilled, etc.			
5. Observation and study of occupations			
6. Interpreting job descriptions			
7. Job clusters: relationships between jobs, opportunity to transfer knowledge and skills from one area to another			
8. Available post-secondary job training opportunities: apprenticeship, adult education, vocational school, correspondence courses			
9. Competencies needed by persons in different occupational classifications			
10. Appreciation of contribution of work in contemporary society			
11. Knowledge of employment trends			
12. Etiquette and behavior on the job			
13. Wages, hours, conditions of work, employee benefits			
14. Factors contributing to success on the job			
UNDERSTANDING OF ECONOMIC PRINCIPLES AND CONCEPTS			
1. Principles of a free economic system compared to other economic systems			
2. The American economic system			
3. Types of business organizations: individual, partnership, corporation, cooperative, government			
4. How a business is set up and operated			
5. Business management compared to personal life management			

	Essential 1	Useful 2	Not Important 3
SAFETY PRACTICES			
1. Know emergency first aid procedure			
2. Develop an attitude toward safety to apply in all situations			
3. Know good sanitary practices			
4. Able to handle emergency situations			
5. Care and maintenance of tools and equipment			
GROOMING/PHYSICAL FITNESS			
1. Maintenance of good physical, mental and emotional health in relation to work			
2. Role of sound nutrition practices to good health, personal appearance, and maximum production on the job			
3. Well-groomed look for work			
4. Importance of personal health and physical fitness			

COMMENTS:

APPENDIX C

DATA FROM QUESTIONNAIRE INCLUDING RESPONSES OF 100 EXPERTS, WEIGHTED SCORE, AND RANK ORDER OF ITEMS

Commonalities in Vocational Education
at the Secondary Level

DIRECTIONS: Below is a list of items drawn from all the vocational fields. The purpose of this study is to identify ideas that are common to more than one vocational area and that should be taught at the secondary level. Please react to each statement as to whether this idea should be taught in your vocational field at the high school level using the following scale:

1 = Essential in my field
2 = Useful to know in my field
3 = Not Important, not relevant, obsolete

	Essential 1	Useful 2	Not Important 3	Weighted Score	Rank
ELEMENTS OF EDUCATIONAL PROGRAMS					
1. Emphasis on teaching job skills	67	28	5*	157	37
2. Entry level skills	63	35	2	159	34
3. Supervised work experience in the community	40	54	6	128	61
4. Job-like simulated experiences in the school	49	47	4	141	53
5. Attitudes toward the job	88	12	0	188	6
6. Exposure to career possibilities	67	33	0	167	23
7. Future educational opportunities	60	37	3	154	41
THE WORKER -- BENEFITS AND OBLIGATIONS					
8. Individual rights, privileges, and responsibilities on the job	65	34	1	163	27
9. Labor union functions; workers responsibilities, benefits	14	71	15	84	84
10. Federal and state wage and labor laws and regulations	25	61	14	97	81
11. Paycheck deductions	28	60	12	104	77
12. How to complete federal and state income tax forms	16	64	20	76	91
13. Unemployment compensation and unemployment insurance	16	69	15	86	83
14. Social security	26	63	11	104	78
15. Insurance and liability	25	68	7	111	76
16. Workmen's compensation	20	69	11	98	80
17. Methods of terminating employment: employer, employee	39	53	8	123	65
18. Evaluation of job performance: by self, by supervisor	72	25	3	166	24

* Numbers in the columns represent actual numbers of persons from the panel of 100 experts who checked that item.

	Essential	Useful	Not Important	Weighted Score	Rank
	1	2	3		
THE WORKER AS A PERSON					
19. Assume responsibility for assessment of basic reading skills	54	40	6	142	52
20. Functional competence in basic mathematical processes	64	31	5	154	42
21. Develop communication skills	81	18	1	179	11
22. Develop problem-solving abilities	74	25	1	172	15
23. Coping with unexpected circumstances which may arise	63	34	3	157	38
24. Ability to plan and carry out plans	79	20	1	177	12
25. Pride in work	91	8	1	189	5
26. Analysis of self in relation to demands of a job	74	25	1	172	16
27. Accepting responsibility for one's own behavior	89	11	0	189	4
28. Develop work habits and attitudes necessary for individual maturing and job competence	92	8	0	192	2
29. Understanding of one's values and their relationship to a job	70	29	1	168	22
30. Develop an awareness of skills, knowledge, attitudes and personal qualities necessary in becoming a more employable person	89	11	0	189	3
31. Ability to manage resources: time, money, energy	69	31	0	169	20
32. Develop sense of responsibility	92	8	0	192	1
33. Willingness to do routine work	64	30	6	152	48
34. Conserving materials and preventing waste	61	38	1	159	33
35. Respect for law and order	58	41	1	156	39
36. Commitment to ethical behavior	63	37	0	163	30
37. Ability to follow directions	88	12	0	188	7
38. Characteristics necessary for satisfactory relationships with people, such as employer, employee, supervisors, customers	85	15	0	185	8
39. Understanding of how people's personalities vary and affect their working with others	65	34	1	163	29
40. Responsibility for establishing pleasant "work climate"	50	47	3	144	51
41. Understanding of what a customer expects, such as quality work and materials, honest answers, good service	76	22	2	175	14
42. Maintain order in work	63	36	1	161	32
43. Formulation of vocational goals	62	34	4	154	43

	Essential	Useful	Not Important	Weighted Score	Rank
	1	2	3		
THE WORKER AS A FAMILY MEMBER					
44. Human relationships in family and employment situations	59	38	3	153	45
45. Combining job and home responsibilities	44	50	6	132	57
46. Problems peculiar to women who work	33	57	10	113	74
47. Preparation for role as a family member	36	57	10	122	68
THE WORKER AS A CONSUMER					
48. Consumer protection and information agencies	21	70	9	103	79
49. Selecting goods and services	37	53	10	117	69
50. Understanding of advertising and its effects on consumers-workers	29	63	8	112	72
51. Use of credit, credit rating, costs of credit	63	32	5	153	47
52. Managing personal finances	58	40	2	154	44
53. Small town and big city living experiences	15	69	16	83	85
54. Functions and services of agencies in the credit field, i.e., banks, savings and loan, insurance companies	37	57	6	125	64
GETTING A JOB					
55. How to prepare a personal data sheet	65	34	1	163	28
56. Writing business letters: application letters, letters of inquiry	67	32	1	165	25
57. Locating and applying for a job	68	32	0	168	21
58. Job interview techniques	72	28	0	172	18
59. How to take pre-employment tests	38	59	3	132	59
60. How to request references (of ability)	60	39	1	158	36
61. Hiring policies of business firms	33	67	0	133	56
62. What do I have to offer to the job	72	28	0	172	17
63. Employment agencies: public, private	38	59	3	132	58
JOB INFORMATION					
64. Problems of adjustment to work	40	59	1	138	54
65. Understanding of career-ladder opportunities	28	69	3	122	67
66. Summer/part time employment opportunities	28	64	8	112	75
67. Classification of occupations, e.g., professional, skilled, etc.	17	66	17	83	86
68. Observation and study of occupations	35	54	11	113	71
69. Interpreting job descriptions	40	51	9	122	66
70. Job clusters: relationships between jobs, opportunity to transfer knowledge and skills from one area to another	41	51	8	125	63