

1969



# OCCUPATIONAL RESEARCH

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## ABSTRACTS OF VOCATIONAL RESEARCH IOWA

compiled by the Iowa Research Coordinating Unit  
from completed 4(a) funded projects since 1965

3-1096



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1969



State of Iowa  
DEPARTMENT OF PUBLIC INSTRUCTION  
Grimes State Office Building  
Des Moines 50319

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## I N T R O D U C T I O N

The immediate purpose of this publication is to present abstracts of those 4(a) funded research projects which have been completed. Abstracts are limited to those for which annotations have been provided in the supplements to the initial Selected Bibliography of Iowa Research in Vocational-Technical Education and Related Areas, 1960-1968. (Supplement No. 1 (1963-1968); Supplement No. 2 (1966-1968) and Supplement No. 3 (1960-1969).

The cooperation of local and area personnel in coordinating research efforts is appreciated. The majority of these projects were conducted at the three state universities by graduate students under the leadership of faculty members and have resulted in masters theses and doctoral dissertations. In all projects the 4(a) funds were used to partially finance proposals in cooperation with local and area resources.

Listings of Home Economics abstracts appear through the courtesy of the American Home Economics Association, Washington, D.C.

This publication has been designed to assist researchers in locating related literature; to aid teachers searching for new or improved teaching methods; and to acquaint the educational community at large with abstracts of vocational education research projects that have been conducted in Iowa since 1965 when the Iowa RCU was established.

Additions and corrections are appreciated.

I O W A    R E S E A R C H   C O O R D I N A T I N G   U N I T



## DISSEMINATION

The IOWA RESEARCH COORDINATING UNIT disseminates this series of abstracts of occupational research as a means of fulfilling one of the ten major objectives of RCU to:

1. Stimulate and encourage occupational research
2. Collect and disseminate occupational information
3. Identify potential research problems
4. Establish and maintain working relationships with public and private agencies
5. Provide support for Vocational Education Branch personnel
6. Assist in program, facilities and staff development
7. Assist in program evaluation
8. Assist in information system development
9. Promote vocational and technical education
10. Cooperate with other RCUs in other states



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## HOW TO USE THIS PUBLICATION

Each abstract has been numbered with an IOWA RCU code. In the Abstract section, the abstracts are numbered just as they appeared in previous RCU publications (the original bibliography or one of the supplements).

The reader who is searching for material on a special subject should first consult the Subject Index. Each abstract has been listed under a subject heading, e.g., abstract number IRCU 2 (1099) is under the heading of Agriculture and related.

If the reader is looking for an abstract of a study by a known author, he would consult the Author Index.

The Iowa Research Coordinating Unit is partially funded by a grant from the Office of Education, U.S. Department of Health, Education and Welfare. Reports within this publication do not necessarily represent official Office of Education position of policy.



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AHRENS, DONALD LOUIS. Influences of High School Vocational Agriculture on the Matriculation, Graduation, and Employment of Agricultural Engineering Graduates from the Iowa State University of Science and Technology. M.S. Ames, Iowa: Iowa State University of Science and Technology, 1966, 109 p. [4(a) RCU research project No. 2]

PURPOSES: to determine the influence of high school vocational agriculture on the achievements both during and after college of agricultural engineering graduates from Iowa State University.

METHODS: Data were collected from 419 graduates of the classes between 1942 and 1964. Groups were divided according to whether they had taken high school vocational agriculture training: 112 graduates who had taken at least three or more semesters of high school vocational agriculture were compared with 112 who had not.

FINDINGS: 95 percent of the vocational agriculture graduates compared to 78 percent of the nonvocational agriculture graduates had lived on farms between their 10th and 17th birthdays. More of the fathers than mothers of each group had less than a high school education. More of the vocational agriculture graduates (28 percent) than the nonvocational graduates (16 percent) listed "own idea" as factor most influential for graduates' attendance at college. Twelve percent of the vocational agriculture graduates were influenced by high school vocational agriculture instructor. Vocational agriculture graduates learning of the agricultural engineering profession occurred as early as the ninth grade. A larger number of vocational agriculture than nonvocational agriculture graduates earned a higher percentage of college expenses.

Final cumulative college quality point averages were found to be highly correlated for each group with high school quality point averages, first quarter college quality point averages, and third quarter college cumulative quality point average.

A larger percentage of vocational agriculture than nonvocational agriculture graduates took their first job in Iowa. First employment occurred in the farm equipment industries as testing and/or designing. A higher percentage of vocational agriculture graduates than nonvocational agriculture graduates had moved into supervision and administration area in 1964 employment.

IRCU 6 (1087)

ANDERSON, KATHERINE KRISTA. "Experiences of Iowa Senior High School Girls in Housing." M.S. Ames, Iowa: Iowa State University, 1967, 85 p. Inter-library loan. [4(a) RCU research project No. 18]

PURPOSE: to determine the family housing experiences of Iowa girls in grades 9 through 12; to discover the differences in kinds and frequency of experiences in relation to grade level and to study relationships between experiences and the grade level, intellectual capacity and place of residence of the girls, social status of the family and working status of the mother.

METHOD: Data were collected by questionnaire from a stratified random sample of 406 girls in grades 9 - 12 representing 34 Iowa schools. Analyses involved obtaining frequencies of responses for each item by grade level, identifying clusters of items, and correlating cluster scores with personal characteristics.

FINDINGS: Household tasks done by most girls most frequently were the simple and routine tasks. The heavier, more major and time consuming tasks were done less frequently and by fewer girls. The number who did household tasks outside the home for pay increased between grades 11 and 12. From one-fourth to one-third of the girls had the opportunity to make housing selections. Articles chosen by the largest numbers of girls were: wall covering, fabric accessories, nonfabric accessories, recreation equipment, window treatment, and furniture.

Guides used in making selections were: appearance, cost, and harmony with location. The higher the grade level the more experience girls had with housecleaning tasks outside the home for pay and interior decorating activities. The higher the intellectual capacity, the more experience girls had with housecleaning tasks outside the home and knowledge of social conditions influencing housing. When mothers worked outside the home girls tended to do housecleaning outside the home for pay.

IRCU 415 (2224)

AREA I, Area One Vocational-Technical School, 142 Main, Calmar, Iowa 52132. R. Gene Gardner, Principal investigator. Skilled Needs Survey, Area One Vocational School District. 1968. [4(a) RCU research project No. 60]

PURPOSE: to determine the number of projected job openings by occupational category through January 1, 1969, and January 1, 1970. Results will be one of criteria utilized to determine future program needs.

METHOD: A mail survey of 800 employers returned 320 or 40 percent completed questionnaires.

FINDINGS: Projected job openings are listed.

IRCU 416 (2225)

AREA II. North Iowa Area Community College, 220 E. State Street, Mason City, 50401. Jerry Backens, principal investigator. Occupational Needs Survey of Employers with Four or More Employees within Floyd County. 1968 [4(a) RCU research project No. 59]

PURPOSE: After Charles City was declared a major disaster area, devastated by tornado, it was necessary to carry out an extensive occupational needs survey of employers to ascertain their needs for workers who might be trained by the North Iowa Area Community College or other state and federal agencies.

METHOD: A questionnaire listed jobs for 13 occupational areas. Of the 565 questionnaires mailed, 250 or 44.2 percent were returned. Answers were coded according to Standard Industrial Code (SIC). New job titles and Dictionary of Occupational Title numbers were provided.

FINDINGS: Information has been summarized in tables to indicate trends.

IRCU 417 (2226)

AREA II. North Iowa Area Community College, 220 E. State Street, Mason City, 50401. Jerry Backens, principal investigator. Occupational Needs Survey of Employers of Four or More Employees within Cerro Gordo, Franklin, Hancock, Mitchell, Winnebago and Worth Counties. 1968. [4(a) RCU research project No. 61]

PURPOSE: to ascertain number and kinds of semi-skilled, skilled and technical employees needed in these counties in September 1968, September 1969, and September 1971; to ascertain job vacancies.

METHOD: A questionnaire was developed to cover these counties in Area II similar to that developed for Floyd County.

FINDINGS: Information has been summarized in tables to indicate present and future needs.

AREA III. Iowa Lakes Community College, Estherville, Iowa. Manpower and Training Needs Curriculum Development Survey: Automotive Technicians, Welding Technicians, Office and Clerical Workers, Farm Management Workers. 1967. [4(a) RCU research project No. 47]

PURPOSE: to survey geographic area including Clay, Dickinson, Emmet, Kossuth, and Palo Alto counties as to manpower needs in 1967 and in 1970.

METHOD: A questionnaire was mailed to each of 1,955 firms; results were tabulated on 763 returned questionnaires or a 30 percent return.

FINDINGS: Automotive: 38 percent return shown by the automotive survey is adequate for validation. Approximately 70 percent of the five county work force in automotive trade is in Clay and Kossuth counties. Some workers are reconditioning men such as assembly line workers. This survey points out the immediate need for an automotive mechanics program to not only train new mechanics but to develop an adult program for upgrading of employed personnel. A definite need for training in tune-up, electronic diagnosis and other areas of automotive training. Customer relations item indicated employers are conscious of the communications between customers and employees.

Office Workers: return shows 1,095 people employed in offices. Questionnaire was designed to indicate need for clerical and secretarial programs. A 30 percent return shows 85 office personnel vacancies. Projected to 1970 the figure increases to 410.

Farm Management: 268 questionnaires were sent to firms; 92 were returned for a 34 percent return. The writer feels a definition of Farm Management is needed to better determine where employment can be found. A closer look may be needed for the training of on-the-farm youth.

Welding: 238 questionnaires were sent to employers believed to be in the welding business or who used a welding process. The 18 percent return is insufficient to validate this survey.

AREA V. Iowa Central Community College, 22 N. 12th Street, Fort Dodge, Iowa 50501. Occupational Needs Survey of Employers within the Area V Community College District. 1968 [4(a) RCU research project No. 43]

PURPOSE: to determine number and kind of semiskilled, skilled and technician level workers who will be needed currently in district and in 1970; to determine vacancies for each area and for job titles listed on questionnaire; to determine number of workers in occupational areas anticipated to be employed by 1970; to determine turnover rate; to determine in-plant training currently and 1970 totals; to secure estimates to availability of trained personnel for each job title as being short, adequate or surplus; to better plan the curricula from results of survey. Nine counties were included: Buena Vista, Calhoun, Greene, Hamilton, Humboldt, Pocahontas, Sac, Webster, and Wright; and in addition, Carroll.

METHOD: Questionnaires developed.

FINDINGS: Total 1968 employment was 14,166 with estimated total employment rising to 17,270 in 1970. Auto mechanic was job title involving greatest number of employment opportunities.

Part II. Student Interest Survey 1968. Questionnaires were answered by 2,874 high school seniors from 46 high schools; 1,158 would enroll in college preparatory programs; 1,193 would enroll in general education and 448 would enroll in vocational-technical education. Of these latter, 148 wanted to take commercial courses; 68 agriculture; 16, homemaking; 102, trade and industrial; 90, distributive education.

Part III. Placement Services: 89 percent of the 1967 graduates were employed in Iowa; 76 percent in Area V; 2 percent continued their education; 8 percent were unemployed; 1 percent, status unknown; of the 1968 graduates, 86 percent found employment before graduation. Average salary ranges: \$3,304 for graduates of secretarial programs to \$6,558 in food marketing. Total first year salary of all vocational-technical program graduates is estimated at \$320,804. Average number of offers per student ranged from 1.1 to 7.1.

AREA VI. Area Six Community College, 22 West Main, Marshalltown, Iowa, 50158. KRUSKOP, LeROY LAWRENCE. A Skilled Needs Survey with Implications for Vocational-Technical Education within the Area Six Community College District. Doctoral dissertation. Ames, Iowa: Iowa State University, 1968. [4(a) RCU research project No. 37]

PURPOSE: to obtain employers' data concerning need for semi-skilled, skilled, and technician-level workers in district; to provide reliable method of projecting need for vocational and technical education programs to be offered by the community college; to develop priorities in determining need to offer specific full-time programs.

METHOD: 867 usable questionnaires were returned or 28.44 percent. A total of 3,048 employers were contacted regarding 320 job titles. An additional 299 questionnaires, 9.81 percent, were returned with letters explaining the business was closed or not applicable to survey. Personal interviews were conducted with 97 employers, firms employing 25 or more employees and resulted in 83 completed questionnaires for an 85 percent return.

FINDINGS: Based on training needs reported, it is recommended that training programs be assigned these priorities:

1. Machine operators
2. Sheet metal workers
3. Mid-management marketing
4. Retail selling
5. Power sewing machine operator
6. Carpentry
7. Mechanical draftsman
8. Brick-block-concrete training
9. Commercial cooking
10. Feed, fertilizer and seed service
11. Food processing
12. Waiter and waitress

IRCU 330 (2001)

AREA IX. Eastern Iowa Community College, 1829 State Street, Bettendorf, Iowa, 52722. Eastern Iowa Community College Occupational Survey (a study of the needs for post-high school education in the community college district). 1967. 149 p. [4(a) RCU research project No. 33]

PURPOSE: This study, with emphasis upon vocational-technical, college parallel, and adult educational programs, is a comprehensive, regional occupational project. It was conducted in cooperation with Black Hawk College (Illinois). Questionnaires were sent to graduates and to parents.

FINDINGS: Seem to indicate both scope of offerings and image of community college should be improved upon. Pre-employment programs are needed in business and technology. Needs exist for preprofessional programs in engineering, social work, teaching and medicine.

The college should review its programs, articulation procedures and guidance services to determine how it might best serve youth in the middle and lower thirds of their classes, those not desiring to enter the professions and those graduating from high school in a general curriculum which does not prepare for occupational entry or necessarily for college.

IRCU 376 (2196)

AREA X. Area Ten Community College, 4401 - 6th Street, S.W., Box 2068, Cedar Rapids, Iowa 52406. Skilled Needs Survey of All Employers of Four or More Persons within the Area Ten Community College District. 1967. [4(a) RCU research project No. 31]

PURPOSE: to determine number and kind of semi-skilled, skilled and technician level workers that will be needed in the seven counties of Area Ten Community College district: Benton, Cedar, Iowa, Johnson, Jones, Linn, Washington. To determine from employers their needs for workers who might be trained by the college.

METHOD: More than 500 job titles in 12 major occupational groups were surveyed and reported according to Standard Industrial Classification code.

FINDINGS: Current employment (1967) was set at 45,686 with September 1968 employment projected to 48,637 and for September 1970 to 52,476.

AREA XI. Area XI Community College, now Des Moines Area Community College, 2006 Ankeny Boulevard, Ankeny, Iowa 50021  
LANGERMAN, PHILIP DUANE. A Skilled Needs Survey with Implications for Vocational Technical Education in Central Iowa. Doctoral dissertation. Ames, Iowa: Iowa State University. 1968 [4(a) RCU research project No. 32]

PURPOSE: to determine number and kind of semi-skilled, skilled and technician-level workers that will be needed in district in January 1967 and by fall of 1968 and 1970; to determine current vacancies in each occupational area and for job titles listed on each questionnaire; to determine number of workers that each employer anticipates he will employ by September 1968 and September 1970. To determine percent leaving employment due to death, retirement or promotion per year in each occupational area. To determine extent of formal in-plant training, to include current number of trainees and projected number to complete training by 1968 and 1970. To secure from employers estimates of availability of trained personnel for each job title as being short, adequate or surplus; to develop a questionnaire and job descriptions to establish a procedure for carrying out a skilled needs survey that might be adapted for statewide use.

METHOD: Mailed questionnaire to all employers who employ four or more persons plus personal contact with the largest 64 employers in district. Response was 78 percent.

FINDINGS: Results indicate a need for 10,000 workers to be trained in major occupational areas by 1970 in the Area XI district.

Recommendations include that this study be repeated in five years to determine changes for semi-skilled, skilled and technician level workers in district. It is recommended that studies include all government workers. This investigator recommends surveying on a random basis or all employers for districts of limited population.

It is recommended that a uniform statewide study be undertaken by the U.S. Department of Labor to provide current information to area schools and the Department of Public Instruction and the State Board of Public Instruction.

IRCU 380 (2200)

AREA XI. Des Moines Area Community College, 2006 Ankeny Boulevard, Ankeny, Iowa 50021

OMVIG, CLAYTON PHIL. Characteristics of the Disadvantaged Residents and Potential Human Resources in Area XI Community College District. Doctoral dissertation. Ames, Iowa: Iowa State University, 1968. 259 p. [4(a) RCU research project No. 42]

PURPOSE: to obtain current information about educational socio-economic or other handicapping characteristics of the district's population defined as disadvantaged according to criteria established for this study. Screening criteria were: educational attainment of household head, employment status of household head, whether or not household contained children between ages six and eighteen who were not in school for any reason other than graduation, and total family income.

METHOD: Data were gathered by personal interview with interviewees selected at random from entire population of the Area XI district. All households in the sample classified as disadvantaged were interviewed, as well as a sub-sample of nondisadvantaged. This permitted general population data to be gathered and comparisons to be made between groups.

#### FINDINGS:

1. A total of 18.2 percent of households were classified as disadvantaged, the greatest proportion of these being households with head over 60 years of age.
2. Nonwhites comprised 7.3 percent of disadvantaged, and 32.1 percent of all nonwhite families were classified as disadvantaged.
3. Highest concentration of disadvantaged was in urban center with highest proportion in open country.
4. Women headed 28 percent of all disadvantaged households. Women headed 49.3 percent of the nonwhite disadvantaged households.
5. Lack of income was the largest single factor which caused a household to be classified as disadvantaged; lack of education ranked second.
6. About ten percent of the disadvantaged household heads under 60 years of age had not completed the eighth grade and 62.5 percent had not completed high school.
7. Nearly one-half of the disadvantaged lived in less than sound housing and 45.6 percent of all dilapidated houses were occupied by disadvantaged.
8. Thirty-three percent of the disadvantaged household heads were rated to be in less than good health.
9. Findings revealed a strong desire on the part of residents to take part in further vocational-technical training. Twenty areas of programs were listed in order of preference.
10. It is recommended that a Human Engineering Laboratory be established to serve this district.

IRCU 358 (2178)

AREA XIII. Iowa Western Community College, 321 - 16th Avenue, Council Bluffs, Iowa 51501. Skilled Needs Survey of Employers of Four or More Persons within the Iowa Western Community College District. 1968. [4(a) RCU research project No. 38]

PURPOSE: to determine number of skilled workers needed in firms employing four or more persons in this community college district. Area includes Cass, Fremont, Harrison, Mills, Page, Pottawattamie and Shelby counties, Iowa; and Douglas and Sarpy counties of metropolitan Omaha, Nebraska.

METHOD: Thirteen different occupational questionnaires were used.

FINDINGS: This summary will be analyzed in conjunction with present and future graduates from existing training programs in area. Training programs for semi-skilled, skilled and technician level workers will be planned from this analysis.

IRCU 381 (2201)

AREA XIV. Southwestern Community College, P.O. Box 458, Creston, Iowa 50801. A Survey to Determine the Educational Needs of Present and Prospective Employees in Light of Vocational and Technical Skills Desired by Employers and Existing and Future Employment Opportunities in the Area XIV Community College District. 1967. [4(a) RCU research project No. 36]

PURPOSE: to determine educational needs of present and prospective employees and employers in the eight county district: Adair, Adams, Clarke, Decatur, Montgomery, Ringgold, Taylor, and Union counties; to provide a base by which programs of Southwestern Community College may be assessed.

METHOD: A Questionnaire was sent to each of 1,250 area employers; replies were received from 88 percent of those agencies contacted. In response to questions concerning training programs provided by employers, 330 reported they provided training with 503 trainees while 770 employers did not provide training.

FINDINGS: The total reported employment population was 10,190. Fifty-two percent were men and 48 percent were women. This area is predominantly an agricultural section, reflecting the high ratio of women to men workers outside of actual farm enterprise. Some 600 vacancies were reported with the largest single category of health occupations. The need for trained personnel is evident in this occupational field. At present no training programs exist in the eight counties which would help alleviate this shortage. The present 10,190 employees will be increased by 1,926 in 1968 and by an additional 1,209 by 1970. Employees now in training programs will not fulfill designated number of employees needed in near future. The labor market surveyed did not reflect a need for untrained workers. Overall picture suggests the need for skilled, semi-skilled, and professional level workers.

IRCU 448 (2261)

AREA XV. Iowa Tech-Area XV Community College, Ottumwa Industrial Airport, Ottumwa, Iowa, 52501. Wayne Gerken, principal investigator. Skilled Needs Survey of Employers of Four or More Persons within the Area XV Community College District. 1968. [4(a) RCU research project No. 48]

PURPOSE: to determine training needs for semi-skilled, skilled and technician level jobs in the Area XV Community College District by September 1968 and September 1970.

METHOD: Reviewed procedures used by other area community colleges in implementing surveys of respective areas; a questionnaire was developed and pretested on 10 industries to gain their reactions. Personnel visited sample group of employers; separate questionnaires were developed for job titles in 10 major areas; job titles were keypunched according to D.O.T. code numbers; data processing compiled final report totals.

FINDINGS: Area XV has 6,725 total number of individuals employed, 3,946 men and 2,779 women. Industries returning questionnaires reported 654 vacancies.

IRCU 353 (2173)

AREA XVI. Southeastern Iowa Community College, Highway 34, West, P.O. Box 1001, Burlington, 52601. Skilled Needs Survey of All Employers of Four or More Persons within the Southeastern Iowa Community College District. 1967-68. [4(a) RCU research project No. 35]

PURPOSE: to gain objective view of current and future (1968, 1970) employment situation regarding skilled and unskilled labor needs in this area of Iowa.

METHOD: A questionnaire was distributed to employers of four or more persons. Fifty of the largest employers were contacted personally. Usable questionnaires were returned by 576 employers. Responses represented 14,701 employees of a total work force of approximately 27,000. Current listed openings were 526, with machine and industrial making up more than 56 percent of the vacancies. Increases in vacancies by 1970 plus turnover rate indicate need for 2,000 trained workers to fill positions.

FINDINGS: The survey was designed to determine skilled employment needs in area through 1970 so the community college could establish or seek to continue those educational programs that would most nearly prepare students in needed areas.

IRCU 11 (2002)

BAKER, HARLAN K. A Study of Teachers and Students in Iowa Area-Technical Electronics Programs, with Implications for Teacher-Education Curriculum in Iowa. M.S. Ames, Iowa: Iowa State University, 1967, 48 p. [4(a) RCU research project No. 4]

PURPOSES: students and teachers at eight area-technical schools were studied to obtain information for developing a curriculum for teachers of technical electronics.

METHODS: Instructors completed questionnaires and students took tests.

FINDINGS: The technical electronics teacher requires an educational preparation different from either a vocational teacher curriculum or an engineering teacher curriculum. Based on tests, a majority of electronics technology students were capable of doing college level work. The majority of students were slightly low in mathematics, but they did appear to have proper technical knowledge to work in industry within the broad classification of test technician.

The composite electronics teacher had received some training in the armed services schools before earning his bachelor's degree. He also spent several years in industry before teaching. The average electronics teacher relies heavily upon prepared laboratory experiments but must be ready to revise existing experiments or in some cases, develop new ones.

IRCU 37 (1096)

BROWN, DUANE. A Survey of Guidance Services in Iowa. Ames, Iowa: Iowa State University, 1967, 85 p. [4(a) RCU research project No. 14]

PURPOSE: to provide a description of current (1967) status of guidance services in Iowa high schools.

METHOD: All high schools in 455 school districts in Iowa received a mailed questionnaire; two follow-up letters were sent. Eighty-three percent or 378 school districts returned this questionnaire.

FINDINGS: 85 percent of the responding schools indicate they have a formally organized guidance program. Many schools listed principals and assistant principals as pupil personnel staff members; 463 guidance staff members were listed including 149 psychologists and a wide variety of others. Counseling Type activities were rated as being of greatest importance in the guidance program. Research, job placement, and follow-up, and orientation were rated as least important.

CAGE, BOB N. Cost Analysis of Selected Educational Program in the Area Schools of Iowa. Doctoral dissertation. Ames, Iowa: Iowa State University. 1968. 137 p. [4(a) RCU research project No. 40]

PURPOSES: the main purpose was the development of a cost analysis for selected educational programs in the Iowa area schools. This cost analysis focused attention on deriving current unit costs for arts and science transfer curricula and for selected vocational-technical programs for fiscal year 1967-68. The rationale underlying this study was expressed in the basic assumption that current-unit-costs-per-student-contact-hour for particular curricula were dependent upon the factors of enrollment, instructional costs, administrative costs, operation and maintenance of plant, fixed charges, and auxiliary services.

A secondary purpose was to ascertain source and amount of funds received by each institution.

METHOD: Each of the 15 area schools was visited by the investigator and data collected. Financial data were obtained on 117 vocational-technical and 16 arts and science programs.

Relationships were ascertained between the average-annual-per-student-cost for arts and science curricula and vocational-technical programs, using the cost for arts and science in each area school as a base of unity, and deriving ratios for the vocational-technical programs with respect to that base. Current-student-costs-per-contact-hour for each vocational-technical program was found in order that comparisons could be made across areas.

A correlation analysis was used to determine any relationship that existed between current-student-costs-per-contact-hour and the factors of enrollment, salaries, instructional supplies, minor equipment, and indirect, prorated expense. Factors of capital outlay and original equipment were not included in study.

Correlation analysis revealed highly significant relationships between current-student-costs-per-contact-hour and related factors with the exception of minor equipment. The correlation between cost and enrollment was the highest at  $-.72$ . The one determining factor was enrollment. When programs had fewer than ten students the costs were substantially higher than for similar programs across the state.

Annual average cost of educating an arts and science student was \$1,018. All vocational-technical programs averaged higher except one clerical program.

CARPENTER, KAREN F. Competencies Needed for Common Tasks in Three Home Related Occupations. M.S. Ames, Iowa: Iowa State University, 1968. [4(a) RCU research project No. 29]

PURPOSES: 1) to identify competencies needed for tasks and clusters of tasks found to be common in three home related occupations: of homemaker/home health aide, motel/hotel housekeeping aide and nursing home housekeeping aides, 2) identify common competencies needed for the common tasks and common clusters of tasks, 3) distinguish between those needed competencies important and not important for entry into the three occupations, 4) determine the clusters of similar competencies.

METHOD: A checklist was developed to obtain personal data concerning managers for these occupations and to determine competencies needed by aides in the three occupations. The instrument was mailed to the total population of homemaker/home health aide directors in Iowa. Motels, hotels, and nursing homes were chosen at random from a list of existing motels, hotels, and nursing homes within 100 miles of Ames. The instrument was administered personally to 28 nursing home managers and 33 motel/hotel managers. The instrument was mailed to 9 nursing home managers and 7 motel/hotel managers whose establishments were isolated from other establishments in the sample. Respondents indicated on the check lists the competencies needed for the common tasks and common clusters of tasks as found in the study made by Shipley (1967)<sup>1</sup>. Participants responded according to the following five point scale: (1) not needed, (2) needed, (3) needed before entry into this occupation, (4) desirable before entry but can be gained after entry, and (5) best gained after entry. If the respondent replied that the understanding was needed, he replied that the understanding should be gained. Frequencies and means were determined for each item. Items having an expected of five or more in each cell were tested by chi square. Subject matter content of the common competencies was examined to determine clusters of similar competencies.

FINDINGS: Data were analyzed from completed check lists by 28 homemaker/home health aide directors, 25 motel/hotel managers and 27 nursing home managers. Personal data indicated that homemaker/home health aides were participating in short course training programs while in general the aides in the other two occupations were not. A majority of managers in all three occupations would encourage their employed aides to participate in training if it were offered, and would be more likely to hire an aid with previous training.

Recommendations were that a core training program including the 57 common competencies be developed and tested to train employees for these occupations. It was also recommended that a second phase of the training program be developed and tested to include the 40 competencies common to motel/hotel housekeeping aide and nursing home housekeeping aide. Training for unique competencies for each occupation would be offered in addition to the core course.

<sup>1</sup>Shipley, Anna Frances, 1967. Analysis of Tasks in Three Home Related Occupations, M.S. Ames, Iowa: Iowa State University, Library. [4(a) RCU research project No. 19]

CHRISTMANN, PHYLLIS A. Recognized Problems of Single Girls in Iowa Entering the Work World Following High School Graduation. M.S. Ames, Iowa: 1967. 91 p. Interlibrary loan. [4(a) RCU research project No. 27]

PURPOSE: Because many girls are having adjustment problems as they enter the work world following graduation, there is a need to identify bases for providing educational experiences in home economics curricula that will help girls make these adjustments.

The purpose of the present study is to identify the recognized problems of single girls in Iowa entering the work world and to study relationships between the kinds of problems and population of home town, present place of residence, semesters of home economics completed, living arrangement and occupation.

METHOD: Data were collected by questionnaire which was developed using information obtained from interviews. The girls indicated the degree of difficulty experienced. Names of 491 girls were received from high school counselors and participated.

FINDINGS: Intercorrelation of items resulted in six clusters labeled: employment, clothing, social adjustment, money, food management, food preparation. Cluster mean scores based on a 1-9 scale were: 3.92, 2.63, 3.36, 3.33, 3.4, 2.52, respectively.

Girls living with parents recognized the greatest problems as parental acceptance of them as adults. Those away from home recognized problems with budgeting and finding clean, well-kept places in desirable neighborhood. Sharing apartment created difficulties in housekeeping and finding compatible roommates. Interpersonal relationships on a social basis were of greater concern than those on the job. Nutrition problems were recognized as creating more difficulty than food preparation problems. Decision making problems about jobs created more difficulty than those dealing with keeping jobs or getting along at work.

As the population of hometown increased, problems in employment and food management decreased. As semesters of home economics completed increased, the problems in clothing and food preparation decreased. Clerical workers had the fewest problems with employment.

CRABTREE, BEVERLY D. Predicting and Determining Effectiveness of Homemaking Teachers. Doctoral dissertation. Ames, Iowa: Iowa State University, 1965, 151 p. [4(a) RCU research project No. 6]

PURPOSE: to investigate the usefulness of selected predictors in terms of criteria relating to effectiveness of first-year homemaking teachers in Iowa who were graduates by Iowa State University.

METHODS: Personal qualities (measured by Guilford-Zimmerman Temperament Survey and Minnesota Counseling Inventory), vocational interests (measured by three keys on the Johnson Home Economics Interest Inventory) and attitudes toward groups different from one's own (measured by an unpublished inventory, Just Suppose), and cumulative quality point average (CQPA) were used as predictors.

Criteria of success were pupil gain in ability to solve problems in homemaking (measured by pre- and post-achievement tests for ninth- and tenth-grade pupils), teacher-pupil rapport (measured by Student Estimate of Teacher Concern Inventories), and adjustment to school and community (measured by a checksheet filled out by a school administrator). Sixty-six subjects were studied. Due to the small sample and the large number of variables (34) an adaptation of the J-Coefficient was used to obtain weightings for importance of predictors and success data. A panel of six judges, professors of education and educational psychology, estimated the importance of each of the 34 predictors and the six measures of success using a certainty scale. Weights were assigned the predictors and the indicators of success using the mean responses and the standard deviations. Composite prediction and criterion scores were derived and inter-correlations were obtained. Predictors yielding low or negative correlations with the composite criterion score were removed; a new prediction formula and correlations were computed.

FINDINGS: After predictors which yielded low or negative correlations with the composite success score were dropped from the analyses, the remaining predictors correlated .41 with success, highly significant but too low for individual prediction. The 11 predictors found to be most useful were two scores from the G.Z.T.S. (restraint and general activity), two from the M.C.I. (emotional stability and conformity), five subscores and total score from the J.S.I. (attitudes toward foreign born, toward persons with different educational backgrounds, toward low-income families, toward middle and upper class groups, toward ethnic groups), and academic achievement.

Before another attempt is made to determine the usefulness of predictors more subjects are needed and additional predictors need to be added. Judgments of the importance of predictors and success criteria should be obtained again after the panel is better oriented to the measures used.

CRAWFORD, HAROLD R. Factors Affecting the Establishment of Young Farm Operators in Iowa and Implications for Agricultural Education. Doctoral dissertation. Ames, Iowa: Iowa State University, 1969. Ag. Ed. Research Publication No. 31 [4(a) RCU research project No. 56]

PURPOSES: to ascertain factors which influenced establishment in farming, to estimate the number, to determine the needs for agricultural education and to determine characteristics of young farm operators in Iowa.

METHOD: Personal interviews of 307 young farm operators who were farming in 56 townships of 20 randomly selected counties stratified by economic areas of Iowa.

FINDINGS: The estimated number of young farm operators was 8.6 per township, 149 per county and 2,726 per economic area. The Western Livestock Area had 27 percent of the young farmers and only 15 percent were in the Southern Pasture Area. A population adjustment factor was used for each area which resulted in an estimated 13,630 young farm operators in Iowa.

Present mean age of all respondents was 26.2 years of age. Young men who started to farm in 1965-68 were older when they began farming than those who started to farm in 1956-60. Nearly three-fourths of the young men were high school graduates, but only three percent were college graduates. However, 32 percent had some post high school education.

Relatives contributed toward establishment of young farm operators in farming. Capital and machinery were mentioned most frequently. Parents ranked first among all relatives as sources of assistance. Over one-half of respondents lived at home with their parents their first year of farming.

Respondents had a mean of two occupations prior to the time they began farming and 42 percent worked off their farms their first year of farming. Number of days worked off farm decreased as they became established in farming. Three major sources of finance for the first year's farming operations were the young farmer, his father, and a lending agency.

About three-fourths began farming as individual operators and one-fourth as a partner. Two-thirds raised hogs, 50 to 60 percent had feeder cattle, 25 percent had dairy, 25 percent had beef cows, 15 percent had sheep, and 15 percent had poultry.

Findings revealed a definite need for organized educational programs for young farm operators. Current participation is minimal. High School vocational agriculture teachers, area school personnel, agricultural extension personnel, Land Grant university faculties, all have a responsibility in meeting these educational needs.

Data indicate that 66.4 percent had access to vocational agriculture in high school and 88.7 percent of this number took advantage of such training. During 1968-69 Iowa had 11 post high school centers offering 8 different vocational programs in agriculture with an enrollment of 554. Farm management programs for young farmers and veterans were offered. Farmers have an opportunity to participate in area school agriculture programs.

IRCU 73 (1093)

DOUGLAS, LLOYD V. The Development of Suitable Shorthand Tapes for Effective Utilization of the EFI Multi-Channel Wireless Shorthand System in Preparing Vocational Office Education Teachers. Cedar Falls, Iowa: University of Northern Iowa, 1965. [4(a) RCU research project No. 3]

PURPOSES: This was a developmental project making use of new-type electronic equipment, and was inaugurated partially to make use of available instructors at a time when no shorthand tapes were available otherwise for effective use of the equipment.

METHODS: Tapes were prepared covering the first 30 lessons and the dictated materials permanently recorded on 150 of the 15-minute channels provided on the specially timed EFI broad tapes.

FINDINGS: These tapes enabled teacher education instruction to start in the fall with the immediate use of equipment; additional tapes were prepared during the fall in advance of time needed for classroom work. These tapes with others added since are now a part of the laboratory used in preparation of vocational office education teachers.

IRCU 74 (1094)

DOUGLAS, LLOYD V. A Pilot Study to Explore Implications of the Teaching and Learning Patterns of Touch Shorthand by the Use of the Stenography and the Touchmate Machines. Cedar Falls, Iowa: University of Northern Iowa, 1966, 176 p [4(a) RCU research project No. 13]

PURPOSE: In this pilot study the "Touchmate" which is an experimental machine used only for learning the operation of the Stenograph, developed by the Stenograph Corporation was first used.

METHOD: Students in a college three-hour course for one semester were equated into an experimental group and a control group. The problem involved was that of determining the effect of the use of the Touchmate on the proficiency of learning touch shorthand; the control group used only the regular stenograph machine.

FINDINGS: In general, no significant differences were found to exist between the two groups as a result of various types of measurements. Recommendations, however, point out that the touchmate could be used effectively in certain specific phases of the learning process, including keyboard introduction, development of stroking accuracy, in speed development practice, and in some remedial work.

EBERT, GLADYS M. Suggestions for Homemaking Programs to Meet Needs of Educable Mentally Retarded Pupils. M.S. Ames, Iowa: Iowa State University, 1967. 243 p. Interlibrary loan. [4(a) RCU research projects 9 & 16]

PURPOSES: This was a pilot investigation designed to obtain information needed as a basis for developing curriculums in home economics programs aimed at meeting the needs of the educable mentally retarded.

METHOD:

1. Review characteristics of individuals placed in special education classes for the educable mentally retarded in public high schools.
2. Interview special education teachers, homemaking teachers, supervisors of work-study programs, and employers of girls who have completed the program.
3. Make case studies of the five girls enrolled in the senior high school program in home economics for the educable mentally retarded.
4. Analyze content and methods of home economics program in one senior high school program for the academically retarded, 1965-66.
5. Develop recommendations for methods and a curriculum for the educable mentally retarded individuals enrolled in home economics classes in high schools.

FINDINGS: Suggestions developed for high school curriculum in home economics for the educable mentally retarded include:

1. Basing content on the three major objectives: occupational adequacy, social competence, and personal adequacy.
2. Correlating subject matter content of home economics program with the experience units currently presented in their special education classes.
3. Planning the content, methods, and rate of progress in a manner that allows for their individual differences, particularly those relating to abilities and needs.
4. Employing methods based on theories of learning that seem to have the greatest implications for the educable mentally retarded, namely, those of Piaget and Hebb.
5. Accepting each pupil as he is and basing evaluation on progress relating to each pupil's particular interests and abilities.

FROEHLICH, LOREN HUGO. Factors Related to the Tendency of Iowa State University Agricultural Education Graduates to not Enter or to Leave the Vocational Agriculture Teaching Profession. M.S. Ames, Iowa: Iowa State University, 1966. 150 p. [4(a) RCU research project No. 1]

PURPOSES: to survey possible environmental factors which may have a tendency to influence agricultural education graduates to not enter or to enter and leave the vocational agriculture teaching profession, and to evaluate the reasons for leaving the vocational agriculture teaching profession as given by graduates who left teaching.

METHODS: Questionnaires were sent 1,127 agricultural education graduates of Iowa State University. Responses were obtained from 823 nonteaching agricultural education graduates and used in this study. Data were obtained from the questionnaire and the graduate's permanent record in the University files. Income figures were adjusted in order comparison of incomes of different time periods might be made.

FINDINGS: Over 43 percent of the nonteaching graduates were aware of the vocational agriculture teaching profession before college enrollment, while 26.4 percent were unaware of the profession until they were sophomores.

Tenure data revealed that graduates who had taken vocational agriculture in high school had a somewhat longer tenure in vocational agriculture teaching.

Graduates who had never taught had some of the highest high school and college quality point averages of 2.82 and 2.72 respectively. Only rarely were these quality averages exceeded by graduates who had entered vocational agriculture teaching and then quit.

Four hundred and six graduates (50.8 percent) reported vocational agriculture teaching as their first employment area. Factors of greatest influence on the nonteaching graduate's decision to enter vocational agriculture as his first employment were: felt best trained in this area, working closely with people, and salary. Owning of home and evenings free had least influence.

When mean scores were compared for the first and 1964 employment areas for salary, freedom and independence of the job, security, felt best trained in this area, own my own home, and wife happy with line of employment, it was found that the 1964 scores were much higher and reflected increased influence of these factors upon the nonteaching graduates' choice of 1964 occupations. Factors influencing agricultural education graduates to leave vocational agricultural teaching were: lack of advancement opportunities, salary, too many evening responsibilities, and long hours.

GIESE, HARLAN E. Training Needs for Metalworking Manufacturing Concerns in Iowa. M.A. Cedar Falls, Iowa: University of Northern Iowa. 1967. [4(a) RCU research project No. 23]

PURPOSE: To identify the industrial training needs of manufacturers and business firms in the State. This need of identification is necessary so that students trained in occupational curricula in the area community colleges and area vocational schools and local high schools will find jobs available in their field of specialty when they graduate. This study attempted to identify:

1. How many new and replacement metal tradesmen should be trained in each merged area and in the State to fill the needs of Iowa manufacturing firms in 1968, 1970 and 1972?
2. How many persons are employed in metal working trades at present?
3. What classes are needed to upgrade metal tradesmen presently employed by Iowa firms?
4. How many replacement workers were employed during the past year in each of the job classifications to be included in this study.

FINDINGS: This study included all metalworking manufacturing firms in Iowa plus all firms not classified as metalworking manufacturing firms that employed more than 100 persons. A 43 percent return was received from the 1,012 firms that were mailed survey questionnaires. These metalworking manufacturing firms reported they would need an annual average of 3,505 trained metal tradesmen to fill vacancies in their firms for the six year period from 1966-1972. These needs were also identified by merged area district within the state. Largest need was for production machinist and next largest need was for molder-foundry workers.

The 440 responding firms employed 31,663 metal tradesmen in 11 occupations in January 1967. The highest level of employment occurred in job classification of production machinist, assembler, and combination welder. The fewest persons were employed as patternmaker, hydraulic mechanic, and forge press operator.

Employers expressed the need for employees to have supplementary training in blueprint reading, and applied shop mathematics; industrial hydraulic circuits, welding, use of mechanics handbooks, and machine tool operation.

State-wide average employment of replacement workers in the 11 occupations was 19.7 percent of the work-force of metal tradesmen employed by 440 respondents. Employment of replacement molder-foundry workers and combination welder far exceeded the state mean percentage for all 11 occupations.

The study demonstrated that public education, at present, is not preparing sufficient workers for employment in industry in the 11 job classifications included in this study. The vast majority of the 440 respondents stated they preferred that public education train their metal tradesmen. This study also found that local and area schools should expand supplemental classes to upgrade skills and knowledge of workers already employed by industry.

GILBERT, ARDYCE LUCILE. Clinical Evaluation of Predictive Data for Prospective Home Economics Teachers. M.S. Ames, Iowa: Iowa State University, 1966. Interlibrary loan. [4(a) RCU research project No. 15]

PURPOSE: to explore usefulness of clinical judgments to predict effectiveness of home economics teachers.

METHOD: This study was part of a longitudinal research project to predict effectiveness of 80 homemaking teachers who are graduates of Iowa State University. Since statistical analysis of data revealed the predictive formula inadequate for reliable estimates of an individual, a clinical analysis was employed using these predictive data: the cumulative quality point average, and a battery of four instruments designed to determine personality traits, vocational interests, and attitudes toward other persons and groups. These were supplemented with information concerning precollege activities and work experiences, an estimate by the adviser of the student's strengths and limitations, and the student's statement of motivation to teach.

Ten judges analyzed 16 randomly assigned cases, providing two evaluations for each case. An 11-point scale was used to determine the degree of certainty of the estimation. Judges evaluated each subject twice, as a teacher in a small community and in a larger urban area. In addition, they were to indicate reasons for a score less than 5, with the hope that the explanation would be useful in understanding differences among judges and in determining which data to continue to collect. An analysis of variance was used to determine the error due to judges, subjects, and measures or estimates. The plan was to determine the reliability of the judges' estimates and to correlate their estimates and the composite success scores of the homemaking teachers.

FINDINGS: A high significant difference existed among judges, subjects, and measures. The reliability coefficient computed for one judge, .142 and estimated for 10 judges, .623, indicated that a correlation of the judges' estimates and the composite success scores was not feasible. The differences among the judges' estimates may have been influenced by the lack of experience with the certainty scale; however, three judges exhibited this difference more than other judges. It was suggested that the cases estimated by them be re-evaluated by the judges who less frequently disagreed and another analysis be made to determine the reliability.

HAVENER, CHARLES PAUL. Part-Time Cooperative Industrial Education as Viewed by Cooperating Employers in Ames, Marshalltown, and Newton. M.Ed., Ames, Iowa: Iowa State University, 1966, 78 p. [4(a) RCU research project No. 20]

PURPOSE: to determine the relative value of the cooperating employer as a source of research data; to describe personal characteristics and skills of student-learners. Describe various aspects of program operation from cooperating employers' point of view.

METHOD: During 64 personal interviews with cooperating employers, 101 student-learners were rated on 19 personal characteristics and 16 skill related items. Various aspects of program operation were rated. Cooperating employers' comments were considered to be a vital part of the data.

FINDINGS: Cooperating employers are interested in helping, are an excellent source of data and should play a major role in future research. Student-learners exhibited weaknesses in listening, legibility, spelling, and care of tools and equipment. Programs have been effective but there is opportunity to improve them. Most employers favored operation of a coordinated summer program. Numerous other comments suggested ways of strengthening programs.

HORNBACHER, ROSE MARIE. Nutrition Concepts Held by Seventh and Eighth Grade Pupils in Iowa. M.S. Ames, Iowa: Iowa State University, 1968. 83 p. Library. [4(a) RCU research project No. 27, Phase 3]

PURPOSE: To identify concepts of nutrition held by seventh and eighth grade pupils in Iowa and determine the relationship of these concepts to sex, grade level, academic achievement and the amount of home economics completed; and to refine an instrument to identify and measure such concepts.

METHOD: 28 nutrition concepts were divided into four sets, each containing both unguided and guided response items for each of seven concepts. Respondents were instructed first to complete each unguided item with the meaning the concept held for them. For the guided response items, the respondents were instructed to select, first, the best answer and, then, other correct answers among the four provided. Of the 44 Iowa schools in the stratified random sample, 11 were arbitrarily assigned to each of the four sets of the instrument. From each school, three boys and three girls from grades seven and eight were systematically selected. The number of usable instruments returned from 42 schools was 490. A weighted key was used to score the guided responses for both best and total answers. Mean scores were computed for each of the 28 concept-items. Correlations determined the significant relationships that existed between the concepts and the personal characteristics. Data from the unguided response items were used to make empirical observations to gain further insight into pupil thinking.

FINDINGS: For the total sample based on best response, the concepts of mineral, snacks and milk received highest mean scores; the concepts of nutrients and daily food guide had the lowest scores. Based on total responses, the concepts of health, milk, and mineral received highest mean scores while enrichment, calories, and daily food guide had lowest scores. Based on best response only three of the 28 concept-items were related to academic achievement for more than one sex-grade sub-group. These were minerals, sugar, and weight control. Only a limited number of relationships were found between the scores for the concept-items and the characteristic, amount of home economics completed, were studied. Project reliability of an instrument of 128 items was established to be .892 by the Spearman-Brown modified formula from the four sets. This was judged high enough to allow the instrument to be used with individuals for predictive purposes.

HOVLAND, MARCIA KAISER. Case Studies of Single Female High School Graduates Adjusting to the Work World. M.S. Ames, Iowa: Iowa State University. Library. 1968, 124 p. [4(a) RCU research project No. 27, Phase 3]

PURPOSES: to develop instructional material that would aid high school girls in preparing for entrance into the work world after graduation. Case studies were developed of the experiences of seven working girls employed in one of the following occupations: clerk typist, secretary, telephone operator, nurse's aide, hospital ward clerk, assembly-line worker, and student beautician.

METHOD: To ascertain some educational needs of high school girls in this area, a questionnaire was developed and administered to 42 juniors and seniors. The source for item content was the 1967 study conducted by Christmann which identified recognized problems of single working girls. Results indicated the respondents lacked a realistic anticipation of situations in which single working girls had found themselves. Case studies were chosen as the kind of instructional material to be developed. The names and addresses of potential case participants who were 1967 high school graduates, employed, unmarried, and residing either in the parental home, in their home town but away from the parental home, or in a community other than their home town were secured from home economic teachers. Two techniques, questionnaires comprised of open-ended items and interviews, were used to collect data. The questionnaire which was to obtain the cooperation and background information of each girl was sent to 64 girls meeting the criteria. Seven of the twelve who completed and returned the questionnaire were interviewed to secure more extensive information.

FINDINGS: Case studies which incorporated actual experiences of girls from data collected were written in two forms: formal to facilitate comprehensive presentation of data, and narrative to be used as an instructional material. Narrative case studies may be used collectively in an employment-preparation unit or individual, subject matter area.

HUNSICKER, NORMA ANN. Management Problems of Young Employed Homemakers. M.S. Ames, Iowa: Iowa State University, 1967. 136 p. [4(a) RCU research project No. 28, Phase I of long-range developmental pilot program]

PURPOSE: to identify time and money management problems realized by young, full-time employed homemakers and to consider implications of these problems for Iowa area school curricula.

METHOD: Data were gathered by questionnaire from 250 married, full-time clerical and sales employees 16 through 24 years of age. These women were employed primarily by insurance companies in Des Moines, Iowa.

FINDINGS: Most frequently mentioned time management situations which caused some or much difficulty are finding time for sewing, ironing, seasonal home care, clothing care, and resting. Delaying disliked jobs, using short cuts, and adjusting to the unexpected were indicated as difficult problems for 30 percent of the respondents. Money management problems most often mentioned were money for emergencies, anticipating future money needs and staying within the budget. Deciding about sound bargains, avoiding impulse buying and expenditures for home furnishings, clothing and gifts were difficult for over 30 percent of these women. Educational programs in home management to prepare women who will be in the dual homemaker-wage earner role would be useful. Such instruction should be included in post-high school programs. Home management instruction emphasizing flexible spending plans, consumer education, and organization for conservation of time would be of immediate use to young women who are preparing for employment.

KERR, ELIZABETH E. and PETERSEN, DALE F. A Study of Practical Nurses Who Have Been Licensed in Iowa But Are Not Presently Employed in Iowa as Practical Nurses. Contract Study, 1966. Iowa City, Iowa: Program in Health Occupations Education, Division of Medical Service, The University of Iowa. 52 p.  
[4(a) RCU research project No. 22]

PURPOSES: The study was undertaken to examine practical nurses, licensed in Iowa on the basis of educational preparation, who at the time of the study were not employed as practical nurses in this State. Purposes were: to describe the social, educational and occupational characteristics of this group; to determine factors which tend to influence the employment status of this group; and to provide information about future employment plans of this group.

METHODS: A questionnaire was mailed to 125 subjects representing a select group of an overall ten percent sample of the 4,346 licensed practical nurses in Iowa through 1965. The subjects held a current license and were grouped in the following categories: employed in non-health fields; moved out of state-employed; moved out of state-unemployed; out-of-state residence; and in-state residents holding an inactive license. Areas investigated included: 1) background characteristics, 2) reasons for leaving the work force, and 3) factors important in determining possible re-entry into the work force. Data gathered for the initial phase of the study, An Integrated Longitudinal Study of Practical Nursing, provided the basis for this study.

FINDINGS: The majority of subjects, all women, came from rural backgrounds with none of them having obtained a baccalaureate degree. Over one-half had made decisions to become practical nurses between ages of 15 and 19 through exposure to mass media and a large percentage held health-related occupations before becoming licensed practical nurses. Mobility of practical nurses from place of birth to the location of their nursing preparatory program and between jobs since licensure was relatively low. The majority of practical nurses licensed in Iowa remained in Iowa. "Family responsibilities" was the reason most often given for present unemployment. As children mature and family responsibilities lessen, the majority planned to return to practical nursing.

KERR, ELIZABETH E. A Study of the Developments, Trends and Current Status of Practical Nursing in Iowa. A contract study. Iowa City, Iowa: The University of Iowa, Program in Health Occupations Education, Division of Medical Affairs, 1968. [4(a) RCU research project No. 39]

PURPOSE: A 39-month project, An Integrated Longitudinal Study of Practical Nursing, was conducted under a prime contract negotiated between the University of Illinois and the U.S. Office of Education in compliance with the provisions of the Vocational Education Act of 1963, Section 4(c). The University of Iowa cooperated in this study under subcontract with the University of Illinois. Utilizing data available from the major project, but not obligated to it, this substudy determines current trends and status of practical nursing in Iowa.

METHOD: To achieve the objectives of the major project, data were collected on a 10 percent systematic random sample of all practical nurses ever licensed in Iowa through December 31, 1965, including both those licensed on basis of experience (waiver provision) and those licensed on the basis of nursing education preparation. Data on 435 subjects in the sample were obtained from official records of the Iowa Board of Nursing and included: selected personal, social and educational characteristics, basis for licensing, annual renewal information and last known address. This substudy provided a descriptive profile of all practical nurses ever licensed in Iowa, including their intra- and inter-state mobility patterns, and reports this profile in relation to historical developments in practical nursing at national level in general, and in Iowa in particular.

FINDINGS: Of 4,360 practical nurses licensed in Iowa since the start of licensure July 4, 1949, through December 31, 1965, 31.3 percent were licensed on the basis of experience (waiver provision) and 68.7 percent were licensed on the basis of having had educational preparation for nursing.

Median age for practical nurses licensed in Iowa shows a general downward trend: from 53 in 1949 to 21 in 1965. Current age of those licensed by experience prior to July 4, 1951, however, continues to rise and in 1965, 61 percent of this group was 60 years of age and over. This will have a definite impact on Iowa's demand for licensed practical nurses in the years immediately ahead.

There is a general trend for those who receive their nursing education in rural areas to remain in the same area while those who receive nursing preparation in urban areas are prone to migrate to other areas.

Although there was noticeable mobility between place of birth, location of high school attended, location where nursing education was achieved and current residence, individual geographic divisions in Iowa tend to retain a stable number of licensed practical nurses.

LAUDA, DONALD PAUL. Factors Related to the Granting of College-University Credit for Trade and Industrial Experience in Institutions Offering Industrial Education. Doctoral dissertation. Ames, Iowa: Iowa State University, 1966. 106 p. [4(a) RCU research project No. 5]

PURPOSE: to determine factors related to granting of college or university credit for trade and industrial experience in those institutions offering industrial education. To investigate administrative procedures used in granting such credit, including testing, payment of fees, grading, transfer credit, and procedure used in granting the credit.

METHODS: Every institution in the United States and Puerto Rico that offers industrial education was contacted by questionnaire. Of 201 respondents, 100 percent answered the questionnaire. The questionnaire was divided into four parts: general information, granting of credit, prerequisites for credit, and methods of evaluation. Chi square was used to test the hypotheses that institution characteristics influence the decision to grant such credit.

FINDINGS: There was a highly significant relationship between institution type, size, geographical location, and type of program offered, and whether or not such credit is granted. Proximity to industry, being a land grant institution, and the number of industrial education teachers graduated had no bearing on the decision to grant trade (usually 1 to 3 years), enrollment in institution, and passing a series of examinations. Tests were found to be oral, written, and skill. Most institutions grant credit earned immediately after the test.

MALONE, FRANCIS E., Jr. A Study of Students Enrolled in Post-High School Public Vocational Education Programs in Iowa During the 1964-1965 School Year. Doctoral dissertation, 1965. 282 p. Iowa City, Iowa: University of Iowa. [4(a) RCU research project No. 0]

PURPOSES: Major purpose was to describe students enrolled in post-high school public vocational education programs in Iowa during the 1964-1965 school year. This study was intended to serve as a benchmark against which later studies may be compared, so that eventually a methodology will be available for studying secondary school children.

METHODS: 923 students comprised sample and represented 13 curricular programs with the largest being practical nursing. Students were enrolled in programs conducted in a junior or community college setting. They were described in terms of (1) past performance environment involving information from high school records, (2) present environment as it relates to aspects of post-high school training and (3) numerous variables analyzed in terms of predictors of success in post-high school training. Data were obtained by use of two questionnaires, the Student Data Form and the Resident Student Blank.

FINDINGS: In general, students enrolled in Iowa post-high school vocational education programs were nearly all high school graduates, were above average students in high school and had somewhat above average intelligence as a group. For practical nursing trainees, actual rank in high school class and grade point average were best single predictors of success in training. Other significant predictors of success included: (1) grade point averages in individual high school subject areas, (2) Dailey Vocational Test scores, except for electrical and electronic scores, (3) age and a measure of vocational maturity, (4) intelligence quotient, and (5) student estimates of their rank in high school graduating class. Most work values, as well as size of high school graduating class and parents' occupational and educational levels did not predict success for practical nursing trainees.

MARTIN, DONALD HUGH. Development of Criteria for a Vocational-Industrial Education Laboratory Evaluation Guide. M.Ed.; Ames, Iowa: Iowa State University, 1968. [4(a) RCU research project No. 24]

PURPOSE: To develop an instrument which could be used to evaluate trade and industrial education laboratories and shops in the area schools in Iowa; to establish criteria whereby trade and industrial education laboratories may be evaluated in accordance with the Vocational Education Act of 1963; to develop a list of items that might be used in evaluating vocational industrial education laboratories; to determine the value of each item by submitting the list to a group of specialists for their judgment; to design an evaluation instrument that can be used for evaluating vocational industrial education laboratories.

METHOD: Extensive searching of past research, professional journals, textbooks and construction guidelines resulted in compilation of an instrument containing 142 separate items relating to facilities. Written responses received, as a result of mailing the original instrument to vocational technical educators, and verbal responses received as a result of personal visitations with several Iowa vocational technical educators, led to the development of the final evaluation instrument. This instrument is designed to implement that part of the Vocational Education Act of 1963 related to evaluation of facilities. The author believes the guide could be adapted for facilities planning. The instrument might be used as a check list in planning a new facility.

PICKLES, LeROY J. Personnel and Training Needs of Iowa's Printing Industry. M.Ed. field study. Ames, Iowa: Iowa State University, 1967. [4(a) RCU research project No. 25]

PURPOSE: to determine the personnel and training needs of Iowa's printing industry; to identify the equipment the industry would recommend for a comprehensive course in printing; to determine present and future employee vacancies for the next three years; to identify present sources of printers being hired for the industry. Overall purpose was to ascertain if an educational program were needed to train skilled workers for the printing industry in Iowa.

METHOD: The questionnaire was prepared in consultation with experts from the industry and limited to the newspaper and the commercial firms. The service industries such as typesetters and plate makers and binders were not included in this study. Information requested was divided into letterpress and offset lithography. The total population of newspaper and commercial firms amounted to 813, out of which a sample of 200 was drawn. A final return of 75 percent of the newspaper questionnaires was returned of which 72 percent were useable; of the commercial firms, 71 percent of the sample responded with a useable response of 69 percent.

FINDINGS: The findings were listed in table form and where possible were ranked in the tables according to their importance as reported by the industries. Weighted mean calculations were made on responses obtained from the questionnaire.

Newspaper firms surveyed ranked second to the commercial firms in the total number of employees with 701. The greatest number of workers were employed in the machine composition (hot type) area. Greatest need for employees in the next three years appeared to be in the area of machine composition (hot type).

Commercial firms ranked first in number of employees, 1,914. In the next three years, the research showed a need for 500 new employees, with 87 lithography pressmen needed. Only 43 letterpress pressmen were needed which indicated possible growth in the lithography area.

A state-wide projection was made on total number of employees needed presently and three years hence in the printing industry. Newspaper industry projected 1,133 and commercial industry, 2,671.

The information collected may be used by the Area Schools to evaluate the needs of the printing industry; to determine the need for post-high school programs in printing. The Area Schools are in a position: 1) offer a longer and more extensive training period along with more modern up-to-date equipment than high school printing programs, 2) be more selective in approval of students for training, and 3) hire instructors from a specific jurisdictional area within the industry.

ROMAN, MARYLIN J. Concepts of Early Parenthood Held by Senior Pupils in Iowa High Schools. M.S. Ames, Iowa: Iowa State University, 1967. 90 p. Interlibrary loan. [4(a) RCU research project No. 18]

PURPOSE: to identify concepts of Iowa seniors concerning early parenthood and to discover relationships of these concepts to sex and dating status of pupils and to social status of their families.

METHOD: Seventy seniors completed free response statements related to aspects of parenthood. Responses were utilized in development of 25 multiple-choice items which were organized into an inventory to collect data to fulfill purposes of the study. Respondents were directed to mark within each multiple-choice item their first, second, and third choice of six concepts which best explained their thinking on the particular aspect of parenthood. Of the thirty schools that were randomly selected, 19 participated by having a sample of five boys and five girls, systematically chosen, respond to the instrument. Weighted mean scores for the 150 concepts were computed according to the variables sex, dating status, and social status. A high score indicated that the majority selected the concept as their first or second choice. Correlations were calculated to determine significant relationships between the variables and the concepts.

FINDINGS: In an analysis of data by sex, both girls and boys had highest mean scores for the same concepts in 15 of the 25 multiple-choice items. The five highest mean scores for girls were for the concepts; responsibilities of parents involving play activities of their preschool child include seeing that he has a chance to be with other children; sources of help on child rearing practices of young parents include books on child growth and development; advice from in-laws, other relatives and friends about the rearing of the child is at times helpful but parents should weigh the facts and make their own decisions; relationship between parents and relatives when the child is an infant is strengthened by being kind, whole hearted, and friendly; and ways of providing for the safety of small children include keeping dangerous objects and materials out of reach.

The five highest mean scores for boys were for the first four concepts given above and the concept, parents continue to develop as a couple by learning to solve their problems together.

There were 30 significant relationships between the variable sex and the 150 concepts. Eight were highly significant with girls tending to rate higher than boys the following three: adjustments to be made by the father during pregnancy period include taking time to acquire knowledge about pregnancy and childbirth; adjustments to be made by the mother during the pregnancy period include taking time to acquire knowledge about childbirth; serious disagreements among parents of the preschool child cause a child to feel insecure and unhappy.

Nine significant relationships existed between dating status and 150 concepts; and five, between social status and the concepts. Two of the concepts that tended to be rated higher with an increase in dating status were: parents continue to develop as individuals by going out once a week with friends of same sex, and parents continue to develop as couples by accepting one another as individuals.

SCHULTZ, RICHARD H. A Study of Fifteen Public Post-High School Vocational and Technical Schools in Iowa During the 1964-65 School Year. M.A. Iowa City, Iowa: The University of Iowa, 1966. 76 p. [4(a) RCU research project No. 12]

PURPOSE: to determine the general status of vocational and technical education at the post high school level in Iowa.

METHOD: A questionnaire was covered during personal interviews. This study was undertaken prior to the time that the Vocational Education Act of 1963 and the Iowa area school legislation (Senate File 550 and Senate File 616) became effective. Therefore, this study may serve as a benchmark for further investigation to determine what impact this legislation may have upon these schools.

SUMMARY OF FINDINGS: 39 programs were offered in the 15 area schools encompassing 16 different occupational areas. There was little duplication of offerings among the schools except the 10 practical nursing programs and the 8 electronic technology programs reported. Results of study may be used in further development of post high school vocational and technical education schools in Iowa inasmuch as it is an inventory of the area schools in 1964-65.

SCHWIEGER, CHARLOTTE DOROTHEA. Experiences of Iowa Junior High School Pupils in the Area of Family Housing. M.S. Ames, Iowa: Iowa State University, 1966, 136 p. [4(a) RCU research project No. 8]

PURPOSES: to identify experiences of Iowa seventh-, eighth-, and ninth-grade boys and girls in the area of family housing and to determine differences in responses according to grade level, sex, and working status of the mother.

METHOD: Data were collected by means of a questionnaire designed to discover pupil participation in selected family housing experiences. Areas of housing included in the questionnaire were household tasks; safety practices; selection of home furnishings and household equipment; remodeling, redecorating, and rearranging activities; family activities for fun; entertainment activities with friends; places where friends are entertained; collections; individual leisure-time activities; the bedroom with whom it is shared and activities for which it is used; items made for the home; and storage in the home. Sample consisted of 475 junior high school boys and girls from a stratified random sample of 20 Iowa schools. Data were analyzed according to sex, grade groups and working status of mother. Frequencies of responses were obtained by item and were converted to percentages for the purpose of making comparisons. Percentages of responses to items varying by 15 percent or more between at least two groups were recognized as differences characteristic of the group.

FINDINGS: The following are selected findings from the summary: Regardless of grade level, more than half of the girls often participated in 33 of 44 household tasks and seldom did most of those remaining. Fewer than half of the boys indicated often participating in 38 of the household tasks, and more than half said they never performed 12 of them. More eighth- than seventh-grade girls participated in household tasks; the reverse was true for boys. Regardless of grade level, 50 percent or more of the boys regularly participated in 7 of the 15 listed safety practices; 50 percent of the girls participated in 9.

Kinds of furnishings selected by the highest percentages of pupils were for seventh-grade pupils, accessories; for eighth and ninth grade boys, furniture and lighting, respectively; and for eighth- and ninth-grade girls, fabrics. More seventh-grade girls than pupils at other grade levels selected or helped to select home furnishings.

Activities done for fun with the family as reported by the largest percentages of pupils, regardless of sex or grade level, included watching television, entertaining friends, and playing board or card games. As grade level increased, fewer pupils kept collections, with a larger decrease for the boys. Pupils whose mothers worked for pay outside the home did not carry more responsibility for household tasks or participate less in family activities than those whose mothers did not.

SHERIFF, DON R. A Survey of Employee Selection and Training in Iowa Manufacturing Firms with 100 Employees or More. Iowa City, Iowa: the University of Iowa, 1966. Monograph Series No. 4, Center for Labor and Management, College of Business Administration. [4(a) RCU research project No. 10]

PURPOSE: to provide empirical data on employee selection and training practices.

METHOD: Study was carried out in the private sector--a survey of employee selection and training practices in Iowa manufacturing firms with 100 or more employees. Information was sought in four specific areas through a questionnaire:

1. Background Data -- organizational structure, age of firm, geographic location, main products, number and kind of employees, personnel services offered, and absence or presence of job analysis and performance appraisal programs.
2. Employee Selection -- employment techniques used by major job classification, frequency of their use, and productivity of each technique.
3. Employee Training -- types and kinds of training programs available to employees, training techniques used, company practices used in promotion of training activities, and information on specific training activities.
4. Need Analysis and Evaluation -- the manner in which training needs are determined, the way in which training activities are evaluated, and information on current (1966) and projected manpower shortages.

FINDINGS: Of the 298 questionnaires mailed, (excluding 15 used in the field test) the total returns were 215 and the overall percentage was 76. No attempt was made to evaluate information presented.

SHIPLEY, A. FRANCES. Analysis of Tasks in Three Home Related Occupations. M.S. Ames, Iowa: Iowa State University, 1967. [4(a) RCU research project No. 19]

PURPOSE: to identify the tasks performed by employees in three home related occupations of homemaker/home health aide, hotel/motel housekeeping aide, and nursing home housekeeping aide, and to determine the frequencies with which the tasks were performed by the worker; to determine tasks common to the three occupations and those unique to the individual occupations, and to determine the possibility of clustering tasks of similar functions.

METHOD: Questionnaires were developed to obtain personal data concerning employees and to determine tasks performed. Questionnaires were administered by an interviewer to 87 employees. Sample participants were chosen from six different cities or towns in Iowa, chosen at random from a list of existing Homemaker Services. Five homemaker/home health aides were chosen at random at each location. Hotel/motel and nursing home housekeeping aides were chosen by their employers, after the business had been selected at random from a list of existing hotels, motels and nursing homes. The number of businesses was determined by the number needed to secure five aides in each occupation. Respondents indicated on a checklist, tasks performed in the three occupations. Frequency response was: 1) I never do this task, 2) I sometimes do this task, or 3) I always do this task. Responses were analyzed to determine tasks common to three occupations and tasks unique to each occupation. Clusters of tasks were formed on basis of intercorrelations of tasks within the total sample.

FINDINGS: The employees were predominantly women 36 years of age and over, either married or previously married, and working part time. The only employees participating in a training program were homemaker/home health aides. Mean scores for task performance of 1.90 and above were interpreted to mean that the tasks were being done by the employees. A core of 11 items predominantly relating to household maintenance were found to be common to the three occupations. Homemaker/home health aide had the greatest number of unique tasks. Six clusters of tasks in relation to their function were formed including: 1) food production, 2) child care, 3) general household tasks, 4) household maintenance, 5) care of ill and disabled adults, and 6) safety. Tasks most frequently being performed by homemaker/home health aides were those related to food production, and those performed most frequently by hotel/motel and nursing home housekeeping aides were household maintenance.

Recommendations were that knowledges and competencies be determined for those tasks common to the three occupations and unique to the homemaker/home health aide in order to suggest training programs. Development of a core training program for employees in occupations of hotel/motel housekeeping aide, nursing home housekeeping aide and other related occupations was recommended. Specialized training program for homemaker/home health aides would be necessary. Training programs should be available to both persons of high school age and adults.

SLOAN, SUE KATHERINE. Identification of Clusters of Items Relating to Personal and Home Life Values of Men. M.S. Ames, Iowa: Iowa State University, 1967. 73 p. Interlibrary loan. [4(a) RCU research project No. 17]

PURPOSE: to initiate development of an inventory to identify personal and home life values of men.

METHOD: Behavioral items were written to reflect eight personal and home life values: concern for others, economy, education, family life, friendship, health status, and work efficiency. The 366 items were administered to 30 fathers. The respondent was asked to indicate on a 1 to 99 scale how socially desirable in other men he believed the behavior described in each item to be. Data were used to compute social desirability indexes anticipating that these would be used later in pairing items in a forced-choice format. Also obtained were ambiguity indexes to be used as bases for elementary items.

Eighty items, ten representing each of the values, were administered to 225 men representing different income, education, and occupational levels. Directions instructed respondents to use the 1 to 99 scale: the higher the number chosen, the more certain he was that he would always behave in the manner described. Responses to each of the 80 items were intercorrelated with every other item and characteristic roots calculated to identify clusters.

FINDINGS: Most items received high socially desirable indexes and low standard deviations indicating agreement on the social desirability of the behavior. An examination of the intercorrelations revealed only one cluster instead of the anticipated eight. Reliability of 16 selected items identified in the cluster, .90, was calculated by the Spearman-Brown prophecy formula. The content of the 16 items was varied, with a representation of seven of the eight values originally believed to be incorporated in the study.

SMITH, FRANCES MARIE. The Refinement of an Inventory to Measure Personal Values of Homemakers. Doctoral dissertation. Ames, Iowa: Iowa State University, 1966. 192 p. microfilm. [4(a) RCU research project No. 7 & 17]

PURPOSE: a knowledge of homemakers' values would facilitate prediction concerning their participation in educational programs and adoption of beliefs and practices in addition to success as a person, family member, citizen, and worker. Present research was designed to refine an instrument developed by Kohlmann to measure values of homemakers to determine for a homemaker the hierarchy of eight values: Concern for Others, Economy, Education, Family Life, Friendship, Health, Status, and Work Efficiency. Items in the forced-choice format were to be paired on the basis of equal social desirability indices but to involve different values.

METHOD: Social desirability indices, means, and standard deviations derived from responses of 30 homemakers were obtained for 392 items, 275 from the Kohlmann inventory and 117 new ones. The 312 items were placed in a trial inventory and 650 homemakers responded to each item indicating the degree to which she would like to be described by the statement.

FINDINGS: Intercorrelations among the 312 items were computed. Two clusters of items that correlated highly within the cluster, but zero or negatively with items in other cluster, were identified. Seventeen items for Factor 1 and 18 for Factor 2 met these criteria: (1) They contribute to the reliability of the factor, and (2) their content differs from other items in the factor. The internal consistency reliability coefficients for these two factors are .824 and .954 respectively.

The two factors were entitled Status and Family Life and became the two scales of the final inventory, Preferences of a Homemaker. Status is defined as holding a position equal to or better than others with whom a person is associated. Family Life primarily involves behaviors of a homemaker in her home. Items on the two scales could not be paired on the basis of equal social desirability indices; hence a free-response format is used which asks the respondent to indicate how well the statement described what she does or would do if she had the opportunity.

SMITH, VETA S. Ability of a Value Inventory to Discriminate Among Homemakers with Different Characteristics. M.S. Ames, Iowa: Iowa State University, 1968. Interlibrary loan. 63 p. [4(a) RCU research project No. 17].

PURPOSE: to evaluate the usefulness of a value inventory a stratified random sample of Des Moines, Iowa, households was used to identify 281 participants personally contacted by the researcher.

METHOD: Thirty-five items comprised the inventory; 17 exemplifying the value, Status, and 18 representing the value, Family Life. Method of response was a certainty scale of 1 to 11, indicating the degree to which the homemaker believed the behavior described by the item was typical of what she does or would do if given the opportunity. Scores were calculated for both values for each homemaker, according to her responses. Chi square calculations were used to determine if differences were existing among the homemakers according to: socioeconomic status, age, educational level, family status, number of children now living at home, employment status, hours worked weekly and pay per week.

FINDINGS: The findings revealed the inventory discriminated among homemakers on both values; it was concluded that it could be used by workers with adults to determine value scores for given individuals or groups of women. From a comparison of resulting data and the findings of the study, the worker could determine the diversity existing among adult members of the group and their general orientation as related to these values.

STEPHENS, ROBERT L. Major Household Appliance Service Technician Training Needs of Iowa. Doctoral dissertation. Ames, Iowa: Iowa State University, 1969. [4(a) RCU research project No. 46]

PURPOSES: to determine number of firms employing persons to service and repair major household appliances in communities larger than 2,500 population; to determine additional needs to employ service and repair personnel both now and for three years in future; to determine knowledge and skills these specialists should possess; and to determine need for part-time educational programs such as night school for upgrading employed appliance service technicians. The study was limited to Iowa to specific appliances of room air conditioners, clothes washer, clothes dryers, refrigerators and freezers, ranges, and dishwashers.

METHOD: Usable questionnaires were returned from 181 firms which could be classified into the 16 areas of the state. Over 92 percent of responding firms employed four or fewer appliance service technicians.

FINDINGS: In general, more firms provide service for electric appliances than for gas appliances. Refrigeration was the field in which most specialists were desired. As of June 1, 1967, reporting firms indicated an employment level of 588 appliance service technicians; June 1, 1968, 719; projected levels ranged from 760 in 1969 to 857 in 1971. Position openings were available for 86 appliance service technicians at time questionnaires were returned. Part-time educational programs were thought to be potentially beneficial to 56 percent of the appliance service technicians. If a training program is to be established to prepare technicians more specifically trained on a particular appliance group, this should be "refrigeration."

SUMTER, PAUL EDWARD. The Aviation Industry in Iowa, Occupational Patterns, Economic Outlook. M.S. Ames, Iowa: Iowa State University, 1967, 73 p. [4(a) RCU research project No. 26]

PURPOSES: This study is a descriptive survey of the 1967 aviation industry in Iowa. Purposes: to identify and classify jobs according to training and FAA certification requirements; to determine demands for trained/skilled persons in the industry; to evaluate usefulness of certain standard high school subjects and courses toward the training of mechanics/technicians; to evaluate a basic core of aircraft mechanic skills; to examine programs appropriate to skills and knowledge required for the jobs.

METHOD: Basic data gathering vehicle was a questionnaire sent to 120 employers of aviation personnel; a sample of employers was interviewed.

FINDINGS: Five headings report the findings: Occupational and Employment Factors; Foundational Education and Training; Vocational-Technical Training; Trends in the Industry; and Growth and Projections.

Shortage. in 1967 in supply of mechanics and pilots was 12 percent in each classification. Job classification showing greatest demand in maintenance occupations was A&P mechanic, 29 percent of all mechanics (airframe and power plant mechanic).

Employers expressed a need for mechanics in about these ratios of licensed to non-licensed: half needed all their Airframe mechanics licensed; two-thirds needed all their Powerplant mechanics licensed; one-fourth needed ratios between 50 to 75 percent.

Four-fifths of the employers favored licensing certain specialists in several categories. The practice could lead to more efficient use of personnel, less shortages and faster entry for trainees. A disadvantage could be the small operators could not afford many specialists to cover all maintenance costs needs.

Continued growth is predicted in aviation firms capital investment and more mechanics will be needed; the majority of occupational positions are in eight counties: Polk, Scott, Woodbury, Linn, Pottawattamie, Plymouth, Cerro Gordo, and Dubuque.

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WEEDE, GARY DEAN. Electronic Technician Personnel and Training Needs of Iowa Industries. Doctoral dissertation. Ames, Iowa: Iowa State University, 1967, 125 p. microfilm. [4(a) RCU research project No. 21]

PURPOSE: to determine the number of Iowa industries which employed electronic technicians along with the number of technicians needed in the future and the skills and knowledge required to perform the jobs in the industries.

METHOD: A survey was conducted in which all manufacturing industries in Iowa which employed 50 or more persons were initially contacted. Industries to which the study applied completed the questionnaire from which data were taken.

FINDINGS: The electronic technician was not well defined in Iowa industries. However, there was a strong demand for technically trained workers in the field of electronics. The large majority of technicians were employed in the electrical machinery, equipment, and supplies manufacturing industries; and they had the greatest needs for additional technicians. Main source of the technicians was in-company training programs.

Related topics such as principles of physics, shop operations, and technical drawing were rated very high in importance for electronic technicians.

WILSON, RICHARD ARLEN. Architectural Drafting Needs as Indicated by Selected Iowa Industries, Architects, and Engineering Firms. M.S. Ames, Iowa: Iowa State University, 1968. 82 p. Library. [4(a) RCU research project No. 30]

PURPOSES: to identify the Iowa industries, architects, and engineering firms which employ architectural draftsmen, to ascertain skills and technical knowledge which these firms desire their architectural draftsmen to possess; to determine the number of architectural draftsmen needed to fill the current needs and projected for the next five years; to determine present source of architectural draftsmen being hired.

METHOD: 14 agencies were contacted and 1,114 double postcard, short form questionnaires were mailed. The main questionnaire was developed, field tested and mailed to 297 Iowa industries, architects, and engineering firms. This questionnaire provided an overview of the educational and occupational objectives. A total of 249 of the 297 firms returned the questionnaire; this was an 83.84 percent return. Personal follow-up interviews were made to five area schools and to leading Iowa industries, architects, and engineering firms to gain an understanding of architectural drafting needs.

Employers wished the architectural draftsmen to be proficient in verbal communication, spelling, listening and note taking, advanced arithmetic, plane geometry, and basic algebra as well as the drafting practices of architectural blueprint reading, dimensioning, architectural lettering, architectural symbols, types of lines and line quality, detailing, architectural conventions, sections, elevations, and floor plans. In addition, skills and technical knowledge in construction practices of a main structure familiarity, roof construction and surfaces, structural steel, reinforced concrete and site considerations were desired.

Number of architectural draftsmen estimated to be needed in state within next five years is 600. Presently there are 533 employed; in the next five years this number should be more than doubled. Employers say the minimum level of education the architectural draftsmen need is vocational technical school or some college education to meet the needs of most firms.

FINDINGS: There is a definite need in the state for well trained architectural draftsmen; there is a need for development of architectural drafting programs in Iowa area schools. Main source (1968) is colleges and universities. Firms report it difficult to predict number of additional employees needed beyond one year. It is recommended that a restudy be instituted in three to five years.

ZOOK, WAYNE HAROLD. Personnel and Training Needs for Skilled and Technical Workers in Iowa Industries Manufacturing and Fabricating Plastics. Doctoral dissertation. Ames, Iowa: Iowa State University, 1968. [4(a) RCU research project No. 41]

PURPOSE: to identify the employee training needs of all Iowa plastic industries. Additional objectives were to identify Iowa plastic industries; to ascertain the skills and knowledge desired of prospective employees by Iowa industries; to ascertain the number of trained and skilled employees needed at present and in next five years; to ascertain present sources of plastic workers being hired by the Iowa industries; to ascertain extent and type of inservice training conducted by Iowa plastic industries; to ascertain production processes used by the various plastic industries in Iowa; to ascertain production materials used and types of products for which they are used; to ascertain extent of use of various processes as indicated by Iowa plastic industries; to draw some implications for the development of instructional programs.

METHOD: Data were obtained by means of mailed questionnaires to 177 Iowa industries which manufactured or fabricated plastic products. Completed questionnaires from 96 industries which employed skilled workers provided data for the study. Personal interviews were held with 27 industries, representative of various plastic processes and different sized industries.

Data are presented by size of industry, major product manufactured, principle production processes and merged areas for vocational schools in Iowa.

FINDINGS: As a result of this study, these conclusions were drawn:

1. The manufacturing industries in Iowa have a definite need for skilled workers in the field of plastics.
2. Training needs vary with size of industry, merged area, principle process used, and product manufactured.
3. It is difficult for industries to predict the number of additional employees needed beyond one year.
4. Main source of skilled plastic workers is in-company training programs.
5. On-the-job training is most frequently used.
6. Molding is major plastic production process and major production material used is thermoplastics.
7. There is a need for development of instructional programs in the field of plastics in the Iowa area vocational schools.

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