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ABSTRACT

The market research ideas and techniques presented here were developed for two reasons: (1) to appraise and project job market conditions that now or will later influence the employment opportunities for graduates of vocational and technical programs; and (2) to use the collected manpower data for immediate and long-range curricular planning. The business-industry survey, properly implemented, can also serve as an important communications link between local employers and the college. Survey procedures are incorporated into overall institutional planning activities throughout the process--from the examination of institutional philosophies and goals to the use of survey results in long-range planning. The market research procedures involved in developing and administering the survey, which include defining the population, developing the questionnaire, selecting the sample, and administration techniques, are described. A case study of the use of the survey at Haywood Technical Institute in North Carolina is presented. It is concluded that by matching specific programs with specific jobs, the community college or technical institute can formulate long-range plans that will benefit both the institution and the community. (Author/AH)

THE BUSINESS-INDUSTRY SURVEY: ITS USE IN INSTITUTIONAL PLANNING

by

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I. GENERAL RESEARCH DESIGN AND CONSIDERATIONS

A. Rationale

The general public and state legislatures recently have been quite insistent in asking community/junior college planners to answer a most pertinent question: Can technical institutes and community colleges plan according to the changing demands of local and regional job markets?[1] In response to this question, a market research technique has been derived that provides planning data on job market opportunities for graduates of technical and vocational programs in two-year institutions.

The market research ideas and techniques presented in this paper were developed by administrators and research coordinators in a group of community colleges and technical institutes[2] for two reasons: (1) to appraise and project job market conditions that now or will later influence the employment opportunities for graduates of vocational and technical programs and (2) to use manpower data, thus collected, for immediate and long-range curricular planning, as required by public policy.[3]

The insistence that educators perform manpower surveys has been reflected in requests to various governing bodies that accountability procedures, similar to those market research techniques used by business, be implemented in planning for postsecondary education. With the support of Title III funding, the following business market research procedures were gradually adopted by educational

planners at the institutions: (1) Determination of product need before production begins; (2) Evaluation of production costs, e.g., PPBS and simulation modeling; (3) Assessment of the public's attitude, use of, and future need for marketable products; (4) Determination of optimum conditions between production processes and market demand; and (5) Systematic planning that entails evaluating the production-market relationship and calls for modification of the quality or quantity of products being produced.

Assumptions that further support the use of job market research for assessing employment opportunities for graduates of postsecondary educational institutions are as follows:

1. Output-oriented long-range institutional plans, linking costs for producing graduates with data on the suitability of the job market for graduates, should be the basis for allocating public resources to two-year institutions.

2. Because state agencies are allocating taxpayers' dollars to "open door" colleges, public policy makes it mandatory for administrators in public two-year institutions to derive community manpower data (in long-range plans) that point out employer's needs for graduates of specific curricular programs.

B. Specific Purposes of the Survey

In addition to the foregoing broad rationale, the business-industry survey has two rather important specific purposes:

1. To gather information facilitating five-to-ten-year projections of the number and types of jobs that are expected to be available in an institution's service area--jobs for which the community college or technical institute can provide training.

2. To provide a direct personal communications link between an employing organization in an area and its local two-year institution so that information about community needs and community college/technical institute capabilities can be exchanged.

C. Pre-survey Procedures

To accomplish the specific purposes of the study, the analyses formulated from the business-industry survey data included comparisons of the number of

incoming students selecting particular education-training programs with the number of graduates (GRADS) and "early leavers with marketable skills" (ELMS) of curricular programs; these two numerical items were then contrasted with the demands of the job market. It should be noted that the "interview" technique, which was used in administering the questionnaire, was considered indispensable to accomplishing the second purpose.

Consortium researchers incorporated survey procedures into overall institutional planning activities---from the examination of each institution's goals and purposes to the use of the survey results in long range plans. This was done by utilizing a four-step process:

1. Reviewing Institutional Philosophies

   Institutional philosophies were examined. Goals (the unquantified statements of institutional purposes) were formulated so that they encompassed the programs being offered by the community colleges and technical institutes. Administrators, faculty members, students, and community leaders assessed constraints arising from the institutional service environments.

2. Compiling Institutional Curricular Program Lists

   Institutional lists that itemized both current and proposed vocational, technical, and college transfer programs were developed. These "Program Lists" became for each institution a factor for controlling overall program planning. The lists reflected a number of known constraints such as: (1) the complement of education-training programs assigned to each institution by the North Carolina Department of Community Colleges, (2) the program preferences of incoming students, and (3) the "proprietary" rights of other two-year institutions.

3. Writing Curricular Performance Objectives

   Program objectives for each curriculum were written for proposed and current curricula. These objectives quantified the output of GRADS and ELMS for each curriculum. An example of a program performance objective would be---"to educate and/or train 27 GRADS and 3 ELMS per year to be practical nurses."

4. Establishing Survey Planning Guides

   A special form was used that matched institutional goals, program performance objectives, estimates of numbers of GRADS and ELMS that would be available for the job market over the next five

years (ten years if desired), job clusters, and places of employment by curriculum reference.

The list of firms and community agencies which had employed GRADS and ELMS was derived from an alumni study completed previously by consortium members. The alumni study also furnished research coordinators with occupational titles and these titles were grouped to form program job clusters. The list of firms and community agencies and the list of job clusters not only assisted the research team in its efforts to design the survey instrument and define the survey population, but these documents also provided institutional planners with the historic data necessary to describe institutional output in terms of employment by curriculum.

D. Administering the Survey

The market research procedures involved in developing and administering the business-industry survey included defining the population, developing the questionnaire structure, selecting the sample, and determining techniques for administering the questionnaire.

1. Defining the Survey Population

Utilizing the historic data noted previously, one segment of the survey population (universe) was defined as those community agencies, industrial firms and services, mercantile outlets, and professions which are the "clientele" of the institutions. Documents, such as the Directory of North Carolina Manufacturing Firms[4] and the "Community Audit" conducted by the North Carolina Commerce and Industry Division,[5] and contacts with community leaders were used to establish this part of the survey population. This population of firms and agenices was subjected to the sampling procedures described below.

In defining the population of employees to be included in the survey, two variables were considered. What elements of the total manpower/employment force represent the targets for the survey? And how can employees be, by occupational category, tied into the education program planning structure of the technical institute and community college?

The population was further defined as those persons in the work force whose educational level is

--beyond that provided on the job

--comparable to that provided in two-year institutions, but

--less than that requiring a baccalaureate or higher degree.

2. Developing the Questionnaire

A questionnaire was developed which had sections designed for accumulating data in concert with North Carolina Department of Community Colleges classifications, e.g., agricultural and biological sciences, art and design technologies, and business technologies.

A unique feature of the questionnaire grew out of the intention to collect manpower information in such a way that it might be immediately tied by occupational title to North Carolina Department of Community Colleges curricular programs. To establish this "crosswalk" feature, a cross reference was prepared, which linked academic program titles and occupational titles from the Dictionary of Occupational Titles (DOT)[6] that seemed reasonable to be tied as outputs of vocational and technical programs.

The instrument also had a scheme for recording employment data: (1) permanent positions, 1971; (2) permanent positions, 1974; (3) employers estimated needs, 1979; (4) employment separations; (5) employment accessions; (6) true turnover; and (7) number of unfilled jobs.

The last page of the questionnaire consisted of a supplementary information section from employers relevant to training needs, emerging or phasing-out operations, the educational status of employees, and total employment figures.

3. Selecting the Sample

The research design provided for a relatively large sample that was representative of all employing organizations in a technical institute or community college service area.

Where local employment patterns permitted, the survey population consisted of the following:

1. All organizations employing 50 or more persons, and
2. A random sample of all other employing organizations.

4. Survey Interviewing and Liaison Techniques

Since an ancillary purpose of the survey was that of improving relations with business and community agencies, it was decided to use the interview technique, especially, with firms which have a large number (above fifty) of employees. The portion of the population represented by firms and agencies having fewer than fifty employees was, in some instances, interviewed by phone.

To assure consistency in the manner in which data were collected during the interviews, a "List of Instructions for Interviewers" was developed. Also, faculty and administrators who were to do the interviewing received special instructions.

E. Analyses and Application of the Results

The worth of the business-industry survey is dependent upon the validity and reliability of the derived data and upon the relevance and application of the results of the various analyses. Validity of the survey instruments was determined by conducting small-scale pilot tests at three of the institutions. Analysis of regression was utilized in making the manpower projections; reliability was checked by comparing derived data with Bureau of Labor Statistics turnover figures.[7]

The collected data were grouped as noted below, in two different time frames; and then the statistical analyses were run.

Research Projection Patterns	3 Years Ago Employ. Figures	This Year's Employ. Figures	Five Year -- Future Estimate by Employers
I Factual Data Only	X	X	
II Includes Employer Estimates		X	X

It was determined that the output of statistical analyses from the business-industry survey ought to include:

1. Occupational projections run on technical and vocational program tallies. For comparative purposes a separate set of projections has been run for each of the data collecting time patterns noted above.

2. Occupational projections run on each job title as described by code numbers taken from the Dictionary of Occupational Titles. These projections were also run for both time patterns.

It was concluded that running statistical analyses based on these two different time frames would be an experiment, providing for a comparison between two sets of occupational projections when all the data from the colleges and technical institutes were assessed.

II. A CASE STUDY OF USE OF THE SURVEY AT HAYWOOD TECHNICAL INSTITUTE

A. The Institution

Haywood Technical Institute is located in Haywood County, North Carolina, approximately twenty miles West of Asheville, near the entrance to the Great Smokey Mountains National Park. With a population of 42,000, the county has a fairly diversified economy. Agriculture, industry, and tourism are the major sources of income for the county. The county ranks 27 out of 100 in North Carolina in per capita income and has two industries employing approximately 2,000 employees each.

Educational training is strongly emphasized in the county. All of the 17 elementary schools, 3 junior high schools, 2 senior high schools, and Haywood

Technical Institute are accredited by the Southern Association of Schools.

Vocational training begins in the public school system middle grades and continues through junior high and senior high school, both of which have comprehensive vocational programs. Haywood Technical Institute (HTI) attempts to complement and add to the vocational training provided in the public school system.

Haywood Technical Institute was chartered in 1968 as a member of the North Carolina Department of Community Colleges. The institute offers 16 vocational diploma programs and 7 technical associate degree programs and certificate offerings through its Department of Continuing Education. The institute also has several unique features. A complete sawmill complex is located on campus and provides the lumber industry of America with much needed skilled employees in sawing, saw filing, lumber grading, and dry kiln operating. This may be the only educational institution in America to provide such training. Also, HTI offers a curriculum in Occupational Adjustment for physical, mental, or emotionally handicapped persons.

From an enrollment of 200 FTE's, the institution has grown to over 1,500 FTE's. Consequently, this growth has placed a tremendous burden on the facilities and has necessitated the development of long-range curriculum and facility planning.

B. Use of the Survey

Because of the size of the county and its peculiar employment patterns, specific procedures used were as follows:

1. Employment tallies for business-industry organizations in the county, according to SIC categories, showed that 58 organizations employed 20 or more and 700 employed less than 20. Therefore, it was decided that the survey population for Haywood Technical Institute would consist of:

   a. All organizations employing 20 or more persons, and

b. A 25 percent random sample of all other employing organizations.

2. A final list and a stratified random sample of organizations in the survey population was developed. A 25 percent stratified random sample, using SIC categories of the organizations employing less than 20, yielded a total of 175 organizations. This 175 added to the 58 organizations employing 20 or more yielded a population to be surveyed of 233.

With the completion of the sample selection, six teams were established to administer the survey. The teams consisted of 19 faculty and staff members. As far as possible, assignments were made to match the faculty member's area of instruction. For example, automotive mechanics instructors interviewed garage owners and car dealers.

In accordance with the second purpose of the survey (improving relations with business and community agencies), the interview technique was used. A workshop was held for all interviewers, at which the purposes of the survey and proper methods of interviewing were discussed.

Prior to administration of the survey, a public awareness program was initiated. This involved news releases in the local papers, public service announcements on the local radio stations, endorsement by the local Chamber of Commerce and a letter from the President of HTI to each organization participating in the survey.

Administration of the survey took place during the last two weeks of January and the first week of February, 1974. At the conclusion of the survey, a thank you letter from the president of the institution was mailed to each participating organization.

An evaluation was made of each program (curriculum) at Haywood Technical Institute based on data from the Business-Industry Survey, coupled with the results of Attrition Studies, High School Image Study, and in certain cases, regional surveys.

This evaluation consisted of decision such as:

1. Increasing enrollment in a curriculum
2. Establishing a ceiling on enrollment in a curriculum
3. Curriculum revision, for example, combining carpentry and electrical installation and maintenance into a light construction curriculum with several program options
4. Terminating a curriculum
5. Establishing a new curriculum
6. Establishing a certain criteria to keep a curriculum, for example, advise student that employment will be on a regional basis

In addition to the above, the Department of Continuing Education at HTI used the Business-Industry Survey as a basis for the establishment of classes in businesses and industries to retrain and update skills of workers. For example, courses were formulated in apprenticeship training and supervisory training, and specific courses were established for a specific industry.

The administration of the institution used the results of the survey to support master planning efforts which would help determine the need for new facilities, additional equipment, and additional staff members.

Improvement of relations with businesses and industries was achieved by follow-up meetings with leaders in business and industry wherein results of the survey were explained. Follow-up was conducted by departments within HTI to businesses and industries which employed their graduates, and follow-up was made by the Department of Continuing Education, where applicable.

III. CONCLUSIONS

By matching specific programs with specific jobs, the community college or technical institute can formulate a long-range plan that will benefit both the institution and its community. Based on the derived data, programs can be

established, re-structed, or terminated within specific time frames and in response to specific needs. Moreover, the accomplishment of the survey methodology strengthens personal relationships between institutional personnel and community business-industrial leaders.

At Haywood Technical Institute the list of programs that were to be implemented over a ten year period differed somewhat from current offerings. Particularly, the projected programs offered more diversification within broad program areas. It was felt that this diversification was the key to the institution's adequately meeting community needs and better serving its clientele.

It seems logical to believe, then, that institutional planing, state funding procedures, and improved relations with business and community agency leaders are contingent upon continued use of a market research technique such as the one described herein.

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1. Southern Regional Education Board, "Preliminary Prospectus for an SREB Manpower and Education Program" (Atlanta: SREB, 1973), p. 1.

2. The consortium was originated and developed through funding under Title III (Developing Institutions) of the Higher Education Act of 1965. Member institutions are: Asheville-Buncombe Technical Institute, Blue Ridge Technical Institute, Caldwell Community College and Technical Institute, Catawba Valley Technical Institute, Forsyth Tech[illegible]titute, Haywood Technical Institute, Isothermal Community Colle[illegible]bowell Technical Institute, Mayland Technical Institute, Southwestern Technical Institute, Surry Community College, Tri-County Technical Institute, Western Piedmont Community College, Wilkes Community College. The assisting institution is Appalachian State University.

3. In August, 1973, the President of the North Carolina Department of Community Colleges effected the state policy requiring long-range plans from each of the two-year institutions.

4. North Carolina Division of Commerce and Industry, Directory of North Carolina Manufacturing Firms: 1972-73 Edition (Raleigh, N. C.: Office of Industrial, Tourist and Community Resources, 1972).

5. North Carolina Division of Commerce and Industry, "Community Audit" (Raleigh, N. C.: Community Audit Section of Division of Commerce and Industry, 1973).

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