DOCUMENT RESUME

ED 264 438 CE 043 166

AUTHOR Owens, Tom; Cohen, Carolyn
TITLE Planning for New and Changing Occupations. Ideas for Action in Education and Work.
INSTITUTION Northwest Regional Educational Lab., Portland, OR. Education and Work Program.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Jul 85
CONTRACT 400-83-0005
NOTE 10p.
PUB TYPE Reports - Descriptive (141) -- Collected Works - Serials (022)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Career Education; *Data Collection; *Educational Planning; *Emerging Occupations; Employment Programs; Information Dissemination; Job Skills; *Job Training; Postsecondary Education; *Program Development; Secondary Education; Surveys; *Vocational Education

ABSTRACT

Education and employment and training program planners were surveyed to determine how they planned for emerging occupations. Planners identified several formal and informal means used to collect information to evaluate economic, industrial, and occupational trends. Information collection was conducted in five categories: publications, advisory councils (private sector), personal contacts and experience in industry, other personal contacts, and local research. When asked how the information affects program planning, respondents most frequently cited as an example the impact of office automation, which caused them to integrate the use of microcomputers and word processing into the business and office cluster. Respondents offered concrete examples for improving information and making it more useful to them. The three areas targeted for improvement were upgrading the collection, presentation, and dissemination of data; sharing curriculum information; and collaborating more closely with industry. (Reactions of reviewers to draft copies of this issue are attached.) (YLB)

Planning For New and Changing Occupations

The world of work in the future: predictions range from visions of a totally integrated workforce to one composed only of highly skilled and unskilled workers, from full employment to full leisure. At the national policy level, technology, legislation, international trade issues, and social patterns all play a role in determining what new occupations will be in demand. At the local school level, planners must consider many questions: Which new occupations will emerge and which will become obsolete? How will existing occupations be restructured to provide new types of jobs? What new skills will be required in already existing occupations? Which new occupations will offer long-range placement potential in order to warrant allocation of scarce dollars to new equipment and programs? Answering these questions may be as challenging as forecasting the economy, yet educators and employment and training planners must do their best to prepare tomorrow's workforce.

This issue of Ideas for Action addresses how educators and employment and training program planners identify emerging occupations and skills, and what kinds of information they use to plan new vocational and technical programs. Planners' ideas for improving the collection and use of information on emerging occupations are highlighted. Although this issue deals with the preparation of tomorrow's workforce, we recognize the school's role in preparing students for other aspects of life as well, and that helping to meet employment needs of the future is only one of their many responsibilities.

The Research Inquiry

The Northwest Regional Educational Laboratory (NWREL) surveyed in person or by phone State Occupational Information Coordinating Committee (SOICC) directors, administrators from state departments of vocational education, and Job Training Partnership Act (JTPA) directors in the Northwest. In addition to providing information on their experiences in planning for emerging occupations, these people helped identify other planners at the secondary and postsecondary level. A representative sample from this second group was interviewed by telephone.

IDEAS FOR ACTION in Education and Work

Northwest Regional Educational Laboratory

July 1985

Questions for both groups focused on three general categories:

1. How are you gathering information on new and changing occupations?

2. How are you using this information to plan and revise programs?

3. How can the information you have be made more useful?

4. What other information do you need?

This Ideas for Action presents the survey responses.

What is an Emerging Occupation?

For purposes of this inquiry, the terms "emerging" and "new and changing" occupations are used interchangeably. Using a synthesis of definitions collected by the Oregon Occupational Information Coordinating Committee (New and Changing Occupations, 1981), a new occupation is defined as one that:

* has come into existence in the state in the last ten years

* has employment levels large enough to measure

* requires tasks, skills and duties not included in any currently existing occupation

A changing occupation is "an existing occupation that has experienced change in duties, skills or tasks, significant enough to require training beyond a short demonstration, but not significant enough to reclassify into another existing occupation or to create a new occupation." (Page 13)

Many of the survey respondents felt that the issue of planning for "changing" rather than "new" occupations was more relevant to their needs. There was a strong current of feeling that there are few occupations requiring truly new skills. Computer programming, although more than ten years old, was one example of a "new" occupation. Several of those interviewed were planning new programs for occupations that require a combination of skills already found in other occupations. For example, skills used by traffic signal installers are now being applied to the installation of home security systems. In general, respondents argued that the greatest impact on program planning is the effect of technology and/or social changes on traditional occupations. Automotive mechanics, for example, are required to be able to use computerized diagnostic equipment to perform traditional tasks. Microcomputers in automobiles require specialization (USA Today, September 3, 1985). Social changes have provided the basis for occupations such as "child advocate" and "geriatric assistant." Restructuring duties within an established occupational area creates new occupations--for example, "physician's assistant."

What Information Resource Are Planners Using?

Planners identified several formal and informal means used to collect information in order to evaluate economic, industrial and occupational trends. Surveys, informal feedback from graduates, longitudinal studies of graduates, personal contacts, and research and analysis of available data were all noted. In general, information collection was conducted in five categories:

1. Publications--government-sponsored publications, futures literature, trade journals

2. Advisory councils--expertise provided by private sector committee members

3. Personal contacts and experience in industry--supervision of students in cooperative education or work experience and including faculty retraining (See Ideas for Action, "Out of the Classroom, Into Industry: Summer School for Teachers," November 1983)

4. Other personal contacts--professional meetings, discussions with colleagues

5. Local research--specially conducted studies usually directed to a specific occupation or industry.

Publications: What Are They Reading?

Most respondents indicated that reports from SOICC and the Research and Analysis Division of their State Employment Departments were their primary sources of data. Publications from the state Departments of Commerce and Labor and from economic development associations were also used. Additional books cited included: Beacons for Change, The Information Society, Education for Tomorrow's Jobs, Careers with a Future, Megatrends, and The Next Economy.

Journals, newsletters and professional papers cited were: Occupational Outlook Quarterly, Industry Week, High Technology, Voc Ed, Inc. (The Journal of the American Vocational Association), Community and Junior College Journal, Western Business, Society of American Foresters Journal, factory updates from equipment manufacturers, and publications from NWREL and the National Center for Research on Vocational Education.

The Private Sector Connection

Respondents were not asked specifically about the role of the private sector or advisory councils; however, several mentioned these two groups as important sources of information. One Idaho school that draws students from a ten-state area has 300 private sector members on advisory committees. Advisory councils are used to bring in new ideas, to coordinate employer-school collaboration in training program design, and to lobby for funding. One respondent said, "Our advisory committee members have a network of contacts. This network keeps us up-to-date." Another said, "We need to be more aware of industry changes. Our best focus is from advisory councils and industrial contacts."

In addition to advisory council input, many planners use their own network of contacts in the private sector, supplemented by formal or informal surveys to provide information.

Planners described their informal research techniques. One respondent related how a new telecommunications program was drafted after a late night social meeting with friends from AT&T and MCI. Another described his school's internal research process. He and his colleagues design a brief employer survey, then meet at the site with employers to chat and look around. Afterwards, they fill out the survey in the car so as not to waste the employer's time.

Examples of more formal internal research include:

* A Washington community college convened a faculty committee on "Emerging Education and Technology." The committee surveyed close to 100 businesses and conducted 35 in-person interviews with private sector representatives.

* The Montana Office of Public Instruction contracted with a company to conduct a mail survey of 1,650 small businesses in order to explore projections of small business use.

* A mail survey sent to local Idaho employers includes the question, "What new training programs should be offered at our vocational-technical center?"

Concerns about using private sector information for planning fell into two general categories. Some respondents felt that business and industry do a poor job of forecasting their own needs and that job demand projections are far more optimistic than realistic. As an example, one major company asked a school to train office

personnel, but began laying off those already employed a few months later.

The second area of concern was that, because of confidentiality and competitiveness, industry is unwilling to share forecasts and innovations, even with schools and JTPA planners. As one administrator said strongly, "We need more cooperation and less rhetoric."

Integration: The Planning Process

Many factors are considered prior to implementing, revising, or phasing out training programs. The operational issues of availability of trained faculty and tenure status, training facilities, cost to start up, length of time to start up, and funding, must be weighed against placement potential. While keeping in mind that the decision to start a training program in an emerging area cannot be made independent of these considerations, our respondents were asked if they use information on new and changing occupations to implement or revise programs. Many responded in the affirmative, but qualified with operational considerations. They were then asked to describe how the information affects program planning.

The most frequent example cited by respondents was that the impact of office automation had caused them to integrate the use of microcomputers and word processing into the business and office cluster.

Other examples included:

* Information from personal contacts in industry led a community college planner to survey local machine shops. Survey results provided the basis for starting courses in computer-aided drafting and computer-aided manufacturing.

* Research conducted by a Washington community college concluded that $150,000 would be needed to update equipment in the machine program and that the job market for graduates was questionable. It concluded that keeping up with new technology vis-a-vis job placement was not cost effective, and the program was phased out.

Ideas for Change

Respondents offered many concrete ideas for improving information and making it more useful to them. The three areas targeted for improvement were: upgrading the collection, presentation and dissemination of data; sharing curriculum information; and collaborating more closely with industry.

Improve Information

Suggestions included:

* A data bank should be established so schools can have immediate access to program information from those schools already offering curricula in areas of interest. Just knowing what schools to contact would be useful.

* Better planning and articulation models should be developed and shared among educational institutions in the region.

* Technical/vocational planning should be conducted on a regional basis. Regional training centers serving a multi-state area would save money and make purchasing the most up-to-date equipment possible.

Resource Sharing Among Educators

Respondents called for more information-sharing among educators and planners and offered specific suggestions:

* A multi-state idea-sharing forum would provide better communication between education units in the Northwest and within each state.

* All occupational deans in a state (or maybe in the Northwest) and state vocational education representatives should meet three to four times per year. This way educators would have constant stimulation and would compete to

stay ahead, to look good in the eyes of their peers. There should be a "Winners and Zingers" session so participants will learn from each other.

Improve Private Sector Collaboration

Suggestions for improving collaboration between the private sector and education/training included:

* Industries should do more sharing of their long-range plans and provide more assistance in interpreting how general economic data relate to their specific projections. Short-range plans affecting training needs must also be shared in a timely manner. One respondent complained, "We are never ahead of the game. It takes us awhile to tool up, but they come to us in a crisis. Last year I had to release instructors for three months on an emergency basis to learn new skills we could have been geared up to teach."

* Industry and educators should collaborate on staff development. Industry should assist programs in upgrading skills. If needed, companies should provide experienced employees to conduct faculty training.

* Statewide committees should be established, such as the one the governor of Montana has convened on "The Future of Forest Products." Representatives of economic development, labor, industry, training, and education should sit on these committees.

* Funds should be provided to allow teachers to retrain in industry on a regular basis. One school requires faculty to retrain in the summer and provides a stipend to supplement wages.

* An employee from a state's vocational education division should be housed within the state's department of commerce to work with business, especially those planning to relocate.

* Closer ties should be encouraged among planners, faculty and local industries to provide ongoing, industry-specific information. A school administrator commented, "Sometimes employers have asked us for new skills and we don't even know what they are talking about, or we find out incidentally from graduates that skills we are teaching are no longer relevant." A Washington administrator stated, "We need to know if Boeing and Weyerhaeuser want us to teach the Dvorak Keyboard."

Provide Better or More Useful Data

There was no consensus among respondents as to whether sufficient data are currently available for planning purposes. Some felt they have far more than needed, others felt the need for more. Some respondents stated that available data need to be presented in a more usable manner.

One administrator proposed that a three-page monthly publication addressing the impact of economic trends on local training programs should be disseminated to local school districts. Concerns regarding usefulness of data fell into three general categories: better forecasting, accuracy for local areas, and level of detail in occupational/skill categories.

Forecasting: Are the Data Timely? Several of the respondents noted that the time lapse from implementing a program in a new area to graduating students can be as long as three years. Therefore, they need accurate three- to five-year forecasts for programs and competencies needed. Ongoing shorter-term forecasts are also necessary. As one respondent pointed out, "During the first year of development, we can still change the type of equipment we will buy and whom we will hire." This points out the need to update data annually in order to help capture short-term business cycle shifts.

Are the Data Applicable to Our Local Economy? Although U.S. Department of

Labor and state employment service data are widely used, they are less helpful in predicting local impact. Recommendations included:

* A document should be made available which capsulizes regional and national economic and training trends and ties them to our local economy. This would help in planning and in documenting needs to funding sources.

* Publications should provide analyses of occupational information in relation to the larger economic picture. For instance, the anticipated impact of international trade on industries important to the local economy should be addressed.

* Locally based major industries should share internal projections. A company's decisions have an enormous impact on a small community.

* Job projections should be coordinated by regions. Planners from a Montana school want projections for Spokane, Missoula, Great Falls, Coeur d'Alene, Billings and Denver. Idaho electronics graduates find jobs throughout the Pacific Northwest.

Is the Level of Occupational and Skill Data Applicable to Program Planning Needs? Many respondents felt that information on skills and occupations should either provide more detail or be reformatted and presented in a more useful manner. The following improvements were proposed:

* Develop more information on new equipment and labor force requirements, presented by area of technology.

* Provide more detailed information on the projected impact of new technologies on existing occupations.

* Use already existing secondary sources (e.g., ODAS-Occupational Data Analysis System) to design a matrix showing primary, secondary, and tertiary transferable skills.

* Encourage employment service and Department of Labor publications to offer more detail within occupational categories. Many new occupations simply do not appear. Emerging occupations by industry could be described in detail.

* Design a matrix that shows skills currently in demand and projected to be in demand by occupation and by industry.

* Identify and disseminate information about growing and declining occupations within industries. For instance, in telecommunications, internal plant technicians are projected to be in demand, while the need for technicians working outside the plant (e.g., cable splicers) is expected to decline.

* Provide regional analyses of structural changes in important Northwest, industries such as agriculture, lumber and electronics.

* Develop more information on other aspects of occupations, such as basic skills required, or educational level desired for advancement. How will the definition of work readiness change in the computer age? This information would also be useful in planning programs emphasizing math, science and problem-solving skills at the elementary and secondary levels.

Reader Reactions

Draft copies of this Ideas for Action were sent to reviewers throughout the Northwest for feedback and reactions. Here are some of their thoughts:

* A state administrator of vocational education appropriately reminds us that vocational education is based not only on

satisfying employer needs, but also the needs of students.

* A business executive acknowledges that some of our respondents' criticisms of industry may be well-founded, for example, when industry representatives issue optimistic (rather than realistic) job demand projections, or when they are unwilling to share forecasts and innovations with schools and JTPA planners. This executive adds, however, that there may be good business reasons for these practices.

* A director of a consulting firm sees in the findings a trend in which planners are seeking a wider information base for planning vocational education.

* A state employment and training program administrator suggests that since private industry directly benefits from quality labor market information and quality program planning, they should be urged to invest in such information--especially since the federal government is reducing funding in this area.

* A labor market economist indicated that occupational patterns don't change overnight; rather this takes about 12 years. Occupations which are sometimes labeled as new, such as "geriatric social worker," are often existing occupations applied in a specific setting.

* A government official wondered if the private sector should take over the training function from the schools.

Noteworthy Quotes From Our Readers

The following insights from some of our readers are of special interest:

"Planning for vocational education increases in importance as competition for resources to support programs becomes more keen. The importance of planning is also reflected: 1) in what appears to be a dramatic change in the overall workforce precipitated in part by new technology, and 2) in this country's position in the international marketplace.

"Our traditional concepts of how young people enter the workforce, of entrepreneurship as a viable career option, of how technology will affect jobs and job performance requirements, and in career ladder patterns are all being severely challenged in today's workplace. As always, accurate and objective data are a key to gaining insight into these changes. Equally important is the need for our planners to become much more skilled at the analysis, interpretation and application of these data to plan for program changes. Our educational bureaucracies must adopt new policies and procedures to adopt and implement the plans for change more accurately and more quickly if we expect to get on top of the power curve and have our students ready for the contemporary job market.

"We need to continue research efforts such as this one to encourage and enable us to strengthen our planning processes. The quality of service to the students we serve and their service to the job market they are to enter are highly dependent upon our ability to be accurate in the plans we make and to effect change with those plans."

Dr. Ron Dougherty, Executive Director, The Northern Institute, Anchorage, Alaska

"Counselors are a key group in this process. The problem they face is a myriad of other responsibilities. We need to find time for them to get involved with the private sector. The long-term payoff for students, employers and vocational training leaders will be great if counselors become more knowledgeable about employment needs and issues."

Ted Woodhouse, Executive Director, Washington Occupational Information Coordinating Committee

"Improving the amount and quality of information on new and changing occupations will require analytical skill and considerable financial resources. One approach would be to hire a 'New and Changing Occupations' Analyst in the Employment Services' Occupational Employment Statistics Program. This analyst would study OES survey forms, particularly residual categories and occupations which employers have added to the form, to identify potential changes in the content and structure of jobs. After contact with employers and employees and through job analysis, an annual report of new and changing occupations in the state would be prepared and distributed. Each state in the region would then share its research with the others.

"One advantage of this strategy is that it would reduce duplication of effort among the many organizations that need updated job description information. This coordinated research effort could serve vocational education, JTPA, career information delivery systems, public and private vocational rehabilitation and economic development organizations in a cost-effective and creditable manner."

Nancy Hargis, Executive Director, Oregon State Occupational Information Coordinating Committee

"Planning for new and changing occupations has to be one of the most challenging tasks facing the program planner. Not only is there a lack of solid data or information on what is likely to happen, the planner also knows there will be little or no immediate indication if his or her judgment is correct. Because these are new or changing occupations, immediate placement opportunities probably are not numerous, nor is feedback about the appropriateness of the curricula. Therefore, the planner will have to combine knowledge of what makes a productive, career-life employee--regardless of occupation--with an analysis of industry/occupation trends."

James L. Adams, Chief, Employment and Training Programs Bureau, Idaho Department of Employment

Acknowledgements

Survey participants included:

Jim Adams, Chief, Employment and Training Programs, State of Idaho; Bob Arnold, Director, SOICC, Montana; Joanne Colozzi, Dean of Instruction, Leeward Community College, Hawaii; Chuck Corrigan, Associate Dean of Occupational and Continuing Education, and Academic Dean, Flathead Valley Community College, Montana; Don Eshelby, Director of Program Services, Division of Vocational Education, Idaho; Rob Fieldman, Vocational Director, Kelso School District, Washington; Gene Forrester, Supervisor for Secondary Vocation Administration, Washington; Nancy Hargis, Director, SOICC, Oregon; Dick Johnson, Dean, School of Vocational/Technical Education, Idaho State University; Dennis Lerum, Director, Missoula Vocational Technical Center, Montana; Bill Mailer, JTPA Program Manager, Alaska; Scott McDonald, Director, Idaho Department of Employment; Al Miller, Hillsboro Union High School, Oregon; Chuck Mollerup, Director, SOICC, Idaho; Beverly Postlewaite, Associate Dean of Instruction,

Highline Community College, Washington; Neil Rosenthal, U.S. Department of Labor; Bob Ruthemeyer, State Plan, Research and Reports Specialist, Office of Public Instruction, Montana; Pat Stanley, Director, SOICC, Hawaii; Joan Stoddard, Coordinator of Program Development, Division of Vocational Education, Oregon; Mel Streeter, Dean of Vocational Education, Lewis-Clark State College, Idaho; George Warren, Assistant Dean for Vocational Programs, Clackamas Community College, Oregon; Walt Wong, Administrator for Planning and Research, Washington Commission for Vocational Education; Ted Woodhouse, Director SOICC, Washington; and Ray Worden, Planning and Grants Supervisor, JTPA, Oregon.

Reactors to our draft were:

Jim Adams, Chief, Employment and Training Programs, State of Idaho

Ron Bucknam, Senior Researcher, National Institute of Education

Gene Christiansen, Assistant Superintendent, Montana Department of Vocational Education Services

Ron Daugherty, Executive Director, The Northern Institute, Anchorage, Alaska

Nancy Hargis, Executive Director, Oregon SOICC

Ben Langston, Staffing Manager, Portables Group, Tektronix, Inc.

Tom Lynch, Labor Market Specialist, Oregon Employment Division

Ted Woodhouse, Director, Washington SOICC

This Ideas for Action was prepared by Dr. Tom Owens of NWREL and Ms. Carolyn Cohen, a Seattle-based consultant. Appreciation is extended to Kathleen Cotton for editing, to Barbara Blincoe for typing this document, and to Adelle Lund for proofreading services.

Northwest Regional Educational Laboratory
300 S.W. Sixth Avenue
Portland, Oregon 97204

This report is produced by the Northwest Regional Educational Laboratory, a private, nonprofit corporation. The work upon which this publication is based was performed pursuant to Contract No. 400-83-0005 of the National Institute of Education. It does not, however, necessarily reflect the views of that agency.