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TECHNICAL EDUCATION AND RESOURCE MATERIAL.

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New approaches and many technical innovations will be required by the junior college to meet the increasing educational needs of technical occupations. A first is information on which the prospective student can base an intelligent choice of occupation. For this he must have a precise job description to determine whether the career fits his abilities and interests and whether the training required for it is within his time and money limits. Librarians must acquire this information for the counselors and students, not only from the standard sources, but also directly from industry, so that it will be accurate and up to date. The second need is for instructional material at an appropriate level of college specialization. This, too, should come from business and industry, probably best through the advisory committees for various job clusters. Only prospective employers can supply this material and they must cooperate closely with the librarian. Appendices to the paper show vocational guidance and orientation charts, student interest as revealed by education information activities of the San Antonio campus. (HH)

TECHNICAL EDUCATION AND RESOURCE MATERIAL

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Conference

on

LIBRARY SERVICES TO VOCATIONAL-TECHNICAL EDUCATION PROGRAMS IN JUNIOR COLLEGES

Sponsored
by

AMERICAN ASSOCIATION OF JUNIOR COLLEGES
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TECHNICAL EDUCATION AND RESOURCE MATERIAL

The American Business world depends today on the technician who makes ideas work! When Congress passed the Vocational Education Act of 1963, it set forth the basic goal that persons of all ages in all communities should have ready access to vocational education based upon individual needs, interests, and abilities.

By mandating accessibility to vocational-technical education for all the people, it rightly placed much of the education in the community college. It is the only segment of higher education open to all the people in most of the states. The impact of this Vocational Education Act of 1963 is evident from the yearly statistics on enrollment in vocational education programs:

"Year	Enrollment
1962	4,072,677
1963	4,217,198
1964	4,566,390
1965	5,430,611
1966	6,070,059
1967	6,880,000 (approximate)"[1]

In the fiscal year of 1967 the greatest enrollment was distributed in secondary schools, 3,048,248 and Adult Programs, 2,530,712. The post secondary schools with 442,097 and the youth with special needs, 49,002 made up the rest of the enrollment. It has been said that "Vocational and technical education is the right answer for 80% of American students."[2]

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1. Vocational Education, the bridge between man and his work. SUMMARY AND RECOMMENDATIONS. Adapted from the General Report of the Advisory Council on Vocational Education 1968. (Published by the U.S. Office of Education, Department of Health, Education and Welfare) p. 5.

2. 16 mm film - "Where the Action is."

Thus, the critical issue of this discussion is the problem of sufficient materials as resource aids to guide the individual toward a suitable career which will answer his or her needs financially and personally.

Civilizations have been built on man's ability to create, manipulate and control his environment. These same civilizations will be maintained by his creative ability and insight into perpetuating advancements, and more important, how to continually adapt them to any and all environmental changes. His ability to adapt, to invent and to create has been the measure of his lasting success. Man continually resists changing his ways to increase productivity through new techniques and therein lies his dilemma.

The nature of man's work has changed as indicated by the fact that in 1945 over half of the labor force was in service trades, while in 1955 over half of the labor force was in white collar jobs. In 1880 some 60% of the labor force was on the farm and in 1960 less than 6% of the labor force can be found there. These environmental changes of man's world have ushered in a technological world in which he must find meaning for his life and a new relationship to his work.[3]

A world of technology must be supported by extensive educational programs and coupled with this will be an ultimate raising of the expectancies of the people who are educated. We find ourselves living in a society in which education is our license to practice, a certificate if you please of entry into the society.[4] The present challenge is to not only train workers to survive on one job, but to truly educate them so that they maintain mobility in the world of changing work.

This level of education for society demands that public educational institutions and private industry must join hands to produce men and women capable of functioning as whole men and women in a society in which they must be able to identify

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3. Charles R. DeCarlo. Seminar on Manpower, Policy and Programs, Systems Design and Nature of Work. p. 9.
4. Ibid. p. 22.

themselves and the values they support. In this age of technology men and women must be educated so as to maintain a sense of belonging, a sense of community and a sense of humaneness.

What is the definition of technical education? It has been said that "Technical education prepares for the occupational area between the skilled craftsman and the professional person such as the doctor, the engineer, and the scientist. The technical-education curriculum must be so structured that it prepares the graduate to enter a job and be productive with a minimum of additional training after employment, provides a background of skills and knowledge which will enable him to advance with the developments in the technology, and enables him with a reasonable amount of experience and additional education to advance into positions of increased responsibility.[5]

Where are the resources? Technical education may be for you, we say to a person, but, how does he know? What is a technician and what does he do? What are some of the technical careers, and how much education is required? What about salary and what will be the conditions of the job? What are the employment possibilities in this vocation?

To the young person entering this world of vocational-technical jobs, where, how, when and from whom does he get the information to make an intelligent and adequate choice? What are the resource materials available to him and how comprehensive, accurate and timely are they? These are the questions most often asked when technical education is discussed, and obviously represent only one aspect of our topic. Granted, occupational information <u>about</u> the job is as important as is also career planning. Another aspect, however, and perhaps the most difficult one to research, is the provision of materials for instruction within the technology itself. The community college library has been handicapped in the past. Appropriate materials have not been available in relation to the college level of specialization. Admitting this problem forces us to rectify the deficiency. Much of the available material has been general and geared to high

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5. <u>Technician Education Yearbook</u>, 1967-68. p. 105.

school "Industrial Arts" courses. Publications have lagged in the support of the new technologies, nomenclature for which is a challenge to define, i.e., Algology, Audio-animatronics, Community Ecology, Cytogenetics, Lachesiology, to cite but a few. Such unusual terms are included in the list of Current Occupations and Occupational Fields listed by the COLLEGE STUDENT PERSONNEL INSTITUTE, Claremont, California. To quote from the introduction:

> "Such lists as these can never approach completeness because of the continual change in characteristics of jobs and also because a large number of jobs cannot be given a specific job title. Jobs change with the development of industry and company and person associated with the job. They also commonly involve a variety of activities that cannot be defined with a specific job title. For these and other reasons, occupational decisions of high school and college students that involve anything more than the tentative choice of a broad occupational area are frequently unrealistic and unnecessary. Occupational decisions that are unnecessarily early and unnecessarily specific may lead to premature narrowing and limiting of a person's development and to premature commitment and a feeling of being trapped in an occupational field that has lost its early attraction."[6]

Another source cites additional problems:

> "To further complicate matters, the amount of knowledge to be communicated during the process of education is increasing in geometric progression year after year. There have been estimates

6. .COLLEGE STUDENT PERSONNEL INSTITUTE, Some Current Occupations and Occupational Fields, p. 1.

that as much technical knowledge will be developed in the next thirty years as has been accumulated in the entire past history of mankind. In this country alone, we produce approximately 25,000 technical papers every week, along with 400 books and 3,500 articles. This is quoted from the report, "Automation and Technology in Education," prepared by the Subcommittee on Economic Progress of the Joint Economic Committee of the United State Congress.

With all of these requirements facing educators in the future, it seems very unlikely that using traditional approaches--such as, conventional buildings and facilities, traditional methods of utilizing teachers and other personnel, and existing organizational structure--will permit the necessary expansion to meet these increasing demands. New approaches and considerable technological innovations will be needed if we are to have an even chance of success."[7]

More has been published about occupation and career planning and less has been published for the technical resource materials which can support instruction. Industry and business have extensive educational material to place in the library, both in the nature of selling the industry to the perspective worker, as well as educational and upgrading bulletins for workers already on the job. The materials may or may not reach the library for student usage. In this catagory we find house organs, trade catalogs, and laboratory manuals for limited usage. In many cases such publications are too specific and unfortunately some are purely flagrant promotional material. Occasionally, however, valuable handbooks, company histories, charts, cut-aways, etc. are made available. This is not a criticism of industry, but indicates a poignant need for closer communication by the junior college librarians

7. Criteria, Evaluation, and Statewide Planning for Technical Education Programs. p. 98.

with industry in exploring needs. Moreover, little technical bibliographies research has been undertaken by education until the National Information Retrieval and Dissemination System for Vocational and Technical Education was recently established at The Center for Vocational and Technical Education at Ohio State University.

> "This clearinghouse is responsible for acquiring research reports and other documents related to any aspect of the general field of vocational and technical education. Included are reports on the specific fields of agricultural education, business and office occupations education, distributive education, health occupations education, home economics education, technical education, trade and industrial education, training in new technical fields, and the related fields of industrial arts education, labor economics, occupational psychology, and occupational sociology. These materials are screened, abstracted, and indexed. The abstractors are professionals in their respective vocational fields. Abstracts and full texts of the items will be produced on microfiche. These will be available from The Center or from the ERIC Reproduction Service at nominal cost."[8]

As a result bibliographies, conference proceedings, curriculum materials, curriculum studies, research and research-related reports, research reviews, and subject or position papers are beginning to be available.

Communication between faculty and librarians has and will suffer as a normal consequence without adequate information-resources, and supporting library personnel. Up to this time specialized library personnel has been limited and usually non-existent. Although professional memberships in societies and associations are available and make possible

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8. Ibid. p. 16.

much valuable information, money is usually not budgeted for libraries in order that they may take advantage of this service. Personal memberships are sometimes taken by instructors and as a consequence materials may reach a department without being made available to the library for student use. High cost of memberships, however, usually precludes personal membership. Monetary restrictions and local education codes placed upon libraries have frequently prevented junior college library memberships in associations and societies. Recently an announcement was made in SCIENCE INFORMATION NOTES, December 1967-January 1968 issue, to the effect that a new information bulletin has been established for users, students and implementers of the computer programming language, Fortran. Since this is available only through membership in the Association for Computing Machine any such valuable materials may not be received by the library without the financial and administrative support. In the meantime, instructors within that field will be deprived of valuable information.

Industry-Education councils provide a good meeting ground for exchange of needs, but channels for supplying concrete assistance are still evasive. We find the following quote by the executive vice president of Ford Motor Company from a symposium on technology sponsored by them:

> "While Ford needs Phd's for basic research and handling complex product development problems the Company has an even bigger and faster-growing need for young people who have an interest in, and knowledge of, production machinery--people who get satisfaction out of making, assembling and servicing fine products. "Just as we are most anxious to establish better communications with you", Mr. Patterson noted, "We presume that you are always seeking a better understanding of exactly what we are doing in industry and how we are doing it."[9]

As machines multiply, so do the jobs -- in sequence trained people to fill these jobs must be found. Action now is imperative! According to the third edition of the Dictionary

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9. Ford Motor Company, Symposium on Technology. p. 2.

of Occupational Titles there are 6,432 more jobs listed than in the previous second edition. "The number of occupations listed in the Professional, Technical and Managerial categories has increased from 1,750 in the second edition, to 2,550 in the 3rd edition."[10] The need for materials to resource these new jobs is obvious.

As one will note from published literature, emphasis has been placed upon developing instructional curricula rather than supplying lists of resource materials for these instructional programs. This is a natural development, but one which we cannot ignore. The AAJC National Project to Assist in the Development of Services in Professional and Technical Education Programs in the Two-Year College has been very helpful through its publication OCCUPATIONAL EDUCATION BULLETIN in its attempt to inform the colleges about new developments in technical-occupational curricula. Librarians would welcome a similar publication which would supply information on instructional materials, bibliographies and research reports which would assist in new course implementation.

Such a clearinghouse would have helped our Dean of Agriculture who worked with the U. S. Office of Education in the completion of a comprehensive study on Crop Production just submitted to Washington for publication. As a curriculum guide for field and forage crops, fruit and vine production, many bibliographic resources have been included with the assistance of our local library staff.

This brings us to the second vital point of concern: How can the librarian best present the materials to the student in order to help him determine that a technical-occupational career would be rewarding? On the local campus close cooperation among counselors, librarians and the placement office is essential. The counselor directs the students into the technical occupational curricula while the instructor provides the framework within which to study skills of varying gradations. The librarian furnishes resources for the instructor, the counselor, the student and the Placement Office. It should be noted at this point that the librarian assumes the role of occupational information specialist, as well as that of consultant and researcher.

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10. A. B. Erickson, "What's New in the DOT," Employment Service Review, p. 9.

The freshman orientation course which is characteristic of many community colleges can play a very dynamic part in exploring and developing the interest of students as they study vocational goals. In most courses a vocational analysis is required of each student to stimulate realistic thinking and planning. A sample copy of one such analysis is attached. (See Appendix 1) To be effective the total vocational orientation of the student must include the close cooperation of the librarian, the counselor, and the placement officer. The college placement officer should stress the getting of the job, the librarian should concentrate on collecting vocational information, making it easily accessible and presenting it, either informally, or formally, to individuals or classes, while the counselor should relate the information and goals of the student to his potential. Brochures and resources should be prepared and distributed to the student in guiding him to know more about vocational careers and various jobs within that field.

Not only should there be the traditional print materials, such as books, pamphlets and periodicals, but there should also be available the multi-media. Recordings, (tapes, disc and video), films, slides, microfilms, transparencies, and other innovations can be used sometimes more effectively at this educational level. The skillful use in the presentation of all of these materials at the proper time will enhance their value. For example, in an orientation designed for engineering techniques at Mt. San Antonio College, the librarian mentioned, during a carefully structured presentation, a brochure just received from the San Onofre Nuclear Generating Station. Two students came up immediately after class enthusiastically expressing their interest and desire to obtain more job information for working at this station. They were directed to the Southern California Edison Company for further details. This is an example of how industry may cooperate at the vital moment. Perfunctory handling of such an inquiry would have stifled budding enthusiasm.

It is apropos at this time to emphasize the importance of the carefully prepared presentation by the librarian. In the instance cited above the librarian was able to "strike while the iron was hot" because immediate information was available. It is sometimes helpful to place in the hands of the students prior to the carefully illustrated lecture, using

the overhead and opaque projector, an outline of resource materials which may be used for reference. For example, one such guide was prepared which includes a short explanation of procedures in finding out about careers. Publications were listed such as Career Guide for Demand Occupations, Dictionary of Occupational Titles, Occupational Outlook Handbook, Occupational Outlook Quarterly, Employment Service Review, etc. In addition annotations with directions how to use these publications were included.

The occupational-information librarian should maintain a record of requests for vocational information in subject areas as a feedback technique of student response and interest. For example, the vocational count at one college indicated the areas of greatest student interest were in the following priority listing: Air Transportation, Electronic Computer Occupations, Law Enforcement and Medical Occupations. (See detailed listing in Appendix 2-5.) In the fall, 1967-68, there were over 2,193 individual requests for resource materials in 86 vocational areas. The trend indicates that the total for the fall and spring semesters will double last year's count.[11]

Provision of materials in answer to student requests, regardless of the obscurity of the technical field must also be of concern to the librarian. One request for information as to the requirements needed to become a jockey is such an example. Although material was not readily available on this subject in the resource file, a request was sent to the American Jockey Guild, and as a result one student was made very happy. Because of the anticipated demand for professional divers, a file was built up which turned one person from a job at Aerojet to become a student in the diving school in the State of Washington.

Not only should materials be made readily available to students and faculty within the library, but counselors and placement office personnel need to be continually alerted about up-to-date reference publications to which they can quickly refer during conferences with students. It is

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11. Mt. San Antonio College. "Library Usage Analysis: Vocational-Technical Education," September 1967 to January 1968.

therefore the responsibility of the librarian not only to resource the library, but also to keep these additional areas updated. Such publications as the Dictionary of Occupational Titles and the Occupational Handbook are purchased in multiple copies at Mt. San Antonio College in order to make such reference materials readily available. Since the Vocational Education Act of 1963 requires the State Employment Service and educators to coordinate their manpower and skill needs surveys, statistical reports, such as these which reflect current trends in demand and supply, should be available for ready reference. Titles such as EMPLOYMENT SERVICE REVIEW, OCCUPATIONAL OUTLOOK QUARTERLY, California Employment Directory, are included in this category. A close working relationship between the state and local employment offices with the local campus college library will furnish up-to-date Federal, State, County and City Civil Service bulletins and announcements. Frequent listings by the campus Placement Office of job openings and hirings should also be posted and readily accessible for the students. An example of one such listing appears in the appendix, 6-7, of this paper.

The impact of the multi-media materials is broadening the scope and placing more responsibility on the librarian. By means of a videotape, Industry can be brought to the library. What originally amounted to an all day field trip in visiting business and industrial plants, can be now recorded on videotape and can become a part of the resource materials available for immediate retrieval. Hospital procedures and techniques can instantly be brought directly to the library and classroom via videotape. Perhaps it should be noted at this point that the field of the Allied Health Services is one of the fastest growing fields of technology.

Taped interviews can be made by personnel in both industry and education, recordings for which may be made available in the college library. McGraw-Hill Book Company has recently announced a series of disc recordings on "A Man's Work", edited by Gordon Lish. The San Diego School System is using aperture cards for the quick retrieval of occupational information printed on microfilm. (V.I.E.W.) Filmstrips are used frequently by agriculture instructors to provide instructional materials for students to view in the library. A

sound filmstrip program on "Preparing for the Jobs of the 70's" has recently been previewed by librarians and counselors. During the past year a noticeable increase was reflected in the library budget request on our campus for 1968-69 in supplying the demand of instructors for the use of transparencies, 8 mm film loops, and programmed instruction, particularly in the nursing programs. Each year requests are repeated by welding instructors for up-dated 16 mm films to illustrated the varied welding techniques. Unfortunately many of the requests cannot be filled. Producers cannot keep pace with the rapidly changing content of technological courses.

On our campus as on many, the departments teaching technological courses are among the most active users and supporters of the library. Our Deans of Apprentice and Trade Training and Technical and Industrial Education continually report their needs to the librarian designated to work with the instructors specialized within these courses. The Deans also keep channels of communication open between Advisory Committees, the Library, and Business and Industry. Consequently, current materials pertinent to class instruction are thus channeled to the library.

WHERE ARE THE RESOURCES, AND ARE THERE ENOUGH?

The Ohio State University Center has been mentioned as a clearinghouse of information, but this is only one resource center for the entire United States. The question rises, will one center be adequate, geographically? Will this center have the resources to systematically research specific bibliographies of instruction materials for the hundreds of technology courses now developing? Local libraries do not have the personnel or money to develop such on the scale needed. A recent issue of the SOUTHERN CALIFORNIA INDUSTRY-EDUCATION NEWS states: "SCIENCE/TECHNICAL LIBRARY PLAN ... Industry representatives work with librarians to establish up-to-date collections of scientific and technical books and periodicals in the Public Library. These materials are made readily available to advanced students and other persons in the community. Special libraries also make their facilities available to selected students. Pilot program is underway by San Fernando Industry-Education Council. Chairman of program is JAN KRCMAR, Head Librarian, BUNKER, RAMO CORPORATION."

More valuable resources can be developed with close cooperation between industry and education. Closer communication between librarians and advisory committees might be very fruitful. Would it be possible for the local campus library to automatically receive publications and educational materials issued by the corporations represented on local advisory committees?

OVERCOMING GAPS IN MATERIALS

Individual libraries can specialize more in multi-media presentations utilizing the personnel of industry as well as the teachers in the technical program on the campus. Greater cooperation is needed between industry and education, as mentioned by Mr. Patterson, in keeping the information in the library pertienent and up-to-date with changes in the requirements of various technical jobs. Many companies have educational budgets and are eager to share them in order to develop this kind of pre-employment information. Film loops giving a single concept about particular skills used on the job are helpful to a student. Films showing the process and the product is of great importance. Many students can intelligently talk about a technical job and not know what actually is manufactured or processed. Industry must supply the information which only they know and so as to be brought into a close planning, cooperative relationship with the vocational area of the library and the needs of the librarian.

Questionnaires and surveys to industry produce much valuable information to augment the library resources. The following questions might be used in such a survey:

1. What materials can industry supply to the library?

2. How can the library maintain continuous communication with industry as materials are developed?

3. How can the library provide updating time to maintain the vocational/technical materials?

4. Can the junior college library and the industrial library share their resources?

In order to better ascertain what gaps exist in information desired by the students a questionnaire concerning stated occupational goals of the students is very valuable.

RESTRICTIONS OR LIMITATIONS ON MATERIALS USE

Many of the limitations and restrictions concerning the use of the materials are related to the recently developing technological fields, and the multiplying of the levels in these fields. The jobs develop faster than either industry or education can define the specifications and education necessary for the job. Many of the very recent occupational families have not published job requirements which are definitive as to entry skills, educational background and advancement mobility. The content of the recent bulletins, brochures and reviews from industry is unrelated to a known field by the student. With the coining of new names one is unable to define what is meant by the job. One general tendency in new technologies is to rely on the known academic or educational requirements and thus discourage many students who could well handle the job. One example of this is the tendency of many companies to classify many jobs under the heading of professional engineering when a student with technical skills can successfully handle the requirements. The word "engineering" needs to be interpreted to the student as there are many levels to be considered.

The supply of resources is not adequate, mainly in the level of the language presentation, and the relationship of the specific job to a larger family of jobs. Too much of the available material assumes a knowledge of the field by the reader. In much of the material, general inclusive terms are used which carry no meaning to the reader, unless he knows the educational orientation of the writer in relation to the job description. An example of this is found in regard to mathematics in which the description will say "a knowledge of mathematics". This could mean anything from general basic math to calculus. Job descriptions and entry level requirements need to be written with explicit terms and a clarification of the level desired or demanded.

There needs to be more multi media used in giving information concerning technical requirements. In relation to the

use of films or closed circuit T.V., there is a very serious problem in that some companies are prohibiting, in their contracts, the use of their films for single showing on closed circuit. They are requiring single classroom showing of the films. These restrictions can limit the showing of general films to large groups of students as are found in freshmen orientation classes in the community colleges.

The specialized occupational librarian must constantly update the materiald and systematically clear the shelves of out dated or obsolete information. With the knowledge explosion, and resulting new job developments, the problem of searching and retrieving materials in a limited time is almost an impossibility.

> "Not all libraries have the finances to modernize in as startling a fashion as some. Simply keeping track of the endless roll of the presses which last year produced 21,819 new books and 8,231 new editions of older books, 22,262 periodicals and 80,000 technical reports in the U.S. is a big enough task."[12]

This points to the absolute necessity for the sharing of indexed collections by libraries so that the combined resources of all are available to each participating library.

If industry is to be served, it also will have to serve. We need only to look at the enrollment figures of our junior and senior colleges to realize the educational institution cannot adequately do the job without the full partnership and cooperation of industry. This means resources prepared by industry and placed in the library, cooperative financing of studies, and use of the knowledge of their personnel as resource people. Statistics indicate a forty percent (40%) population increase from 1950 to 1970, a fifty percent (50%) increase in the college-age population, and a

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12. Library of Congress. "The New Knowledge Industry" (Reprinted through the courtesy of PACE PUBLICATIONS, Los Angeles) p. 4.

staggering 233 percent increase in high school graduates enrolling in our colleges.[13]

These young men and women are the work force of the future and their needs must be served honestly and adequately if their full potential is to be developed and they are to enjoy a happy marriage between the work life and their personal life. The greatest need in the world of work seems to be in the group encompassing technicians and kindred workers. In a time when jobs become obsolete with the invention of a machine, and when we can expect each person to experience two to three vocational changes in their life time, industry and education must become close partners to share knowledge and procedures. Education must assume the responsibility for using this worker's education efficiently. Machines have now assumed the unskilled to the semi-skilled work which means that the human worker must be educated to the technical level if he is to find employment and contribute to the industrial world.

The nature of work has changed in our present day world; man no longer works with his hands, but is removed from the fundamental transformation of nature. Therefore, we are in a world of technology and man must find satisfaction in incentives which relate his work in a meaningful way to the value system of his life.

In summation, the role of technology is to remove man from the hands-on aspect in regard to routine and repetitive tasks, and to challenge him with the opportunity and responsibility of turning ideas and theories into actual results of marketable products or needed services. This removal from the actual confrontation with the materials, or with the transformation of his environment will create personality problems in man. It will demand greater communication between men as they will work above the call of routine and in the realm of function and ideas. It will create a greater need for deeper interpersonal relationships with people. Therefore education must concentrate on the interpersonal

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13. op. cit., Technician Education Yearbook 1967-68. Tooling up for the New Technical Education by Douglas F. Libby, Jr. p. 162.

skills of the worker as a technician.

In the last analysis it will create time in which man will be free to pursue his individual interests. It will create an emphasis for a liberal education to accompany the technical education so that man may maintain his wholeness as a person in his relationships with his environment.

In closing we might quote from Eric Hoffer:

> "The newly emerging individual can attain some degree of stability and eventually become inured to the burdens and strains of an autonomous existence only when he is offered abundant opportunities for self-assertion and self-realization. He needs an environment in which a-chievement, acquisition, sheer action, or the development of his capacities and talents seems within easy reach. It is only thus that he can acquire the self-confidence and self-esteem that make an individual existence bearable or even exhilarating."[14]

The challenge is here. The problems have been analyzed. The answer lies in adequate understanding by education and industry. Planning, financing, and resourcing are the essential ingredients for the solution.

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14. Eric Hoffer, "Introduction and Summary of Recommendations", New Careers and Roles in the American School. p. 2.

APPENDIX

MT. SAN ANTONIO COLLEGE
Orientation and Guidance
Vocational Analysis

1. Vocational title:_____
2. Brief description of the work performed:_____
_____
3. Qualifications:

A. General:
_____
_____
_____

B. Special:
_____
_____
_____

4. Education and/or training required:
_____
5. Working conditions:
_____
6. Opportunities for employment (Localized? General? Seasonal?):_____
_____
7. Special equipment of clothing required? If so, who provides?_____
8. Possibilities for and methods of advancements:
_____
9. How does one enter this vocation?
_____
10. What is the projected future of this vocation?
_____
11. Compensation:_____
12. Special benefits:_____
13. Other considerations:_____
14. More information is available: (Sources?)_____
_____
15. Materials for this report obtained from:_____
_____

TO: Harriett Genung, Dean of Library, Mt. Antonio College

FROM: Rita Mae Gurnee, Reference Librarian, Science-Technical Education, Mt. San Antonio College

SUBJECT: INTERIM OCCUPATIONAL INFORMATION REPORT Sept. 1967-68

The attached tally sheet reflects the activity which has been recorded in the occupational information area at the Physical Science Reference desk during the fall semester of 1967-68. If one checks other annual tallies in comparison with this half year activity, the following figures are revealed:

	1965-66:	1320 Requests
	1966-67:	2585 Requests
½ year (fall)	1967-68:	2193 Requests

There are some random subject areas which have reflected a large interest increase.

	1965-66 2-semesters	1966-67 2-semesters	1967-68 1-semester
Air Transportation (Hostess-Mechanics-Pilots)	148	296	270
Electronic Computers Occupations	40	135	180
Law Enforcement	61	78	180
Medical Occupations	18	24	105
Military Service	32	84	85
Oceanography	7	5	20

RMG:vg
c.c: Marie Mills
Tom O'Connor
Bruce Paulson
John Rogers

VOCATIONAL COUNT - Sept. 1967 - Jan. 1968

ACCOUNTING	66
ADVERTISING	17
AGRICULTURE	9
AIR TRANSPORTATION (Hostess-Mechanics-Pilots)	270
ANTHROPOLOGY	2
APPAREL INDUSTRY OCCUPATIONS	7
ARCHITECTURE	8
ART	22
COMMERCIAL	19
ATHLETICS	2
AUTOMOBILE INDUSTRY	5
BAKERY OCCUPATIONS	1
BANKING OCCUPATIONS	11
BEAUTICIAN	1
BIOLOGY	16
BUSINESS ADMINISTRATION	29
CHAMBER OF COMMERCE	2
CHEMISTRY	4
CHIROPRATIC	2
CITY PLANNING	2
CIVIL ENGINEERING	4
CIVIL SERVICE	8
COUNSELING	10
DENTISTRY	23
DIVING	4
DRAFTING	23
ECONOMICS	1
ELECTRONIC COMPUTERS OCCUPATIONS	184
ELECTRONICS	12
ENGINEERING	53
ENTOMOLOGY	1
FIRE FIGHTING	11
FOOD SERVICE	7
FOREIGN SERVICE (including overseas occupations)	20
FORESTRY	23
FUNERAL SERVICE	2
FURNITURE INDUSTRY	1
GEOLOGY	7
GEOGRAPHY	2
GRAPHIC ARTS	2

GROUP WORK	5
HOTEL & RESTAURANT WORK	3
HOME ECONOMICS	32
INTERIOR DECORATING	5
INSURANCE WORK	2
JOURNALISM	3
LANDSCAPE ARCHITECTURE	1
LAW	31
LAW ENFORCEMENT (including Police work and FBI)	269
LIBRARY WORK	26
LINQUIST	5
MACHINE SHOP WORK	2
MATHEMATIC OCCUPATIONS & RELATED OCCUPATIONS	13
MEDICAL OCCUPATIONS (including Para Med.)	105
MICROBIOLOGY	2
MILITARY SERVICE	85
MUSEUM WORK	2
MUSIC OCCUPATIONS	5
NURSING	33
OCEANOGRAPHY	20
OFFICE WORK	32
PHARMACY	20
PHOTOGRAPHY	4
PODIATRY	1
PHYSICS	1
PSYCHOLOGY	8
PSYCHIATRY	16
PUBLIC RELATIONS	12
RADIO & T.V.	5
REAL ESTATE	2
RELIGIOUS WORK	4
SECRETARY	41
SECURITIES	1
SOCIAL SCIENCE	3
SOCIAL WORK	27
SOCIOLOGY	5
THEATRICAL WORK	5
TECHNICAL ILL.	5
TOOL & DIE OCCUPATIONS	1
TRAFFIC & TRANSPORTATION OCCUPATIONS	12
VETERINARIAN	2

WELDING	1
WILDLIFE MANAGEMENT	7
WINE & WINE MAKING	2
ZOOLOGY	2
VOCATIONAL BOOK	510
TOTAL (folders)	2,193

PLACEMENT OFFICE
CAMPUS INTERVIEWS
Spring 1968

DATE		COMPANIES	
March 20 Wednesday		U.S. Naval Ordinance Test Station Electronic Technicians	Males
April 4 Thursday		General Tire Company Management Trainees	Males
April 5		S.S. Dresge Company (K-Mart) Management Trainees	Males
April 17 Wednesday		Del Monte Corporation Beverage Division Sales Trainees	Males
April 18 Thursday		F.B.I. Clerks, Stenos	Females
April 22 Monday		Beneficial Management Corporation of America Management Trainees	Males
April 24 Wednesday		Firestone Rubber Company Management Trainees	Males
April 25 Thursday		Southern California Edison Company Engineering Trainees Clerical Data Processing Stenos	Males Females
April 26 Friday		Pacific Airmotive Corporation Aircraft Mechanics	Males
April 29 Monday	SUMMER JOB	Jewel "T" Company Routemen Sales	Males Females
April 30 Tuesday		Bank of America Officer Trainees Clerical	Males Females

DATE		COMPANIES	
May 1 Wednesday		J. C. Penny Company, Inc. Management Trainees	Males
May 2 Thursday		T. W. Woolworth Company Management Trainees	Males
May 3 Friday		Campbell Soups Sales Trainees	Males (21+)
May 6 Monday	SUMMER JOB	Allied Foods Material Handlers Food Processors Accountant Clerk Typist	Males Females Male Female
May 7 Tuesday		Pacific Telephone Company Clerks Crafts	Females Males
May 8 Wednesday		Edison Bros. Stores, Inc. Management Trainees	Males (20-30)
May 9 Thursday		Spectrol Electronics Draftsmen Electronic Technicians Machinists	Males
May 10 Friday		T.W.A. A. & P. Mechanics	Males
May 13 Monday		Conrac Corporation Electronic Technicians Jr. Draftsmen	Males
May 14 Tuesday		General Telephone Company Clerks Crafts	Females Males
May 15 Wednesday		Security First National Bank Clerks Stenos Operation Trainees	Females Males

DATE		COMPANIES	
May 16 Thursday		Pacific Metals Division A.M. Castle & Company Sales Trainees	Males
May 20 Monday		Sears, Roebuck & Company Management Trainees	Males
May 21 Tuesday		The Fluor Corporation, Ltd. Draftsmen	Males
May 22 Wednesday		Household Finance Corporation Management Trainees	Males
May 23 Thursday		United California Bank Clerks Officer Trainees	Females Males
May 24 Friday		I.B.M. Electronic Technicians	Males
May 28 Tuesday	SUMMER JOB	Mattel, Incorporated Assemblers Material Handlers	Females Males

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