

THE DEVELOPMENT OF A PROPOSED OCCUPATIONAL
TRAINING INFORMATION SYSTEM (OTIS)
FOR THE PHILIPPINES

By

ADELTRUDIS MANUEL CRUZ

Bachelor of Science in Agricultural Education
Central Luzon State University
Nueva Ecija, Philippines
1968

Master of Science
Kasetsart University
Bangkok, Thailand
1971

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF EDUCATION
May, 1975

MAY 12 1976

THE DEVELOPMENT OF A PROPOSED OCCUPATIONAL
TRAINING INFORMATION SYSTEM (OTIS)
FOR THE PHILIPPINES

Thesis Approved:

Robert R. Price

Thesis Adviser

Robert Tomy

Richard S. Prawat

Dean F. Schreiner

James P. Key

N. N. Durbin

Dean of the Graduate College

938910

ACKNOWLEDGMENTS

To my graduate advisory committee:

Dr. Robert R. Price

Dr. James P. Key

Dr. H. Robert Terry

Dr. Dean R. Schreiner

Dr. Richard S. Prawat

To my sister Patricia, brother-in-law Charles, brothers Emmanuel, Feliciano and Emilio, and sister-in-law Thelma,

To Dr. J. B. Morton and to my respondents,

To my dearest mother,

And to those others who in one way or the other helped in completing this study,

Simply but wholeheartedly, gratitude is expressed with a very sincere "Thank You."

This work is also lovingly dedicated to my father, to my brother Michael and to a good friend Mrs. Kamploy Snidvongs.

TABLE OF CONTENTS

Chapter	Page
I. THE PROBLEM	1
Introduction	1
Statement of the Problem	2
Purpose of the Study	2
The Need for the Study	3
Definition of Terms	10
II. REVIEW OF LITERATURE	12
Introduction	12
Challenges to Education	12
The Need for OTIS in Planning	14
Concepts on OTIS	16
III. METHODOLOGY	19
Procedures	19
IV. PRESENTATION OF DATA	23
Occupational Training Information System in Five States in the United States	23
Appraisal of OTIS in the Philippines	27
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	38
Summary	38
Conclusions	38
Recommendations	40
SELECTED BIBLIOGRAPHY	46
APPENDIX A - AN OTIS -- A PROGRAM OF MERIT FOR THE PHILIPPINES	49
APPENDIX B - QUESTIONNAIRE	67
APPENDIX C - COVER LETTER	69

LIST OF TABLES

Table	Page
I. The Nature and Extent of the Use of Selected System Units in Collection and Assessment of Manpower Needs Among Five States	24
II. Response as to the Value of an OTIS for the Philippines	28
III. Support for the Implementation of OTIS	30
IV. Responses Received Regarding Selected Items of Information	33
V. Personal Estimates of Reaction to an OTIS by Various Groups	34

LIST OF FIGURES

Figure	Page
1. Recommended Framework for Implementation of an Occupational Training Information System	41

CHAPTER I

THE PROBLEM

Introduction

It is the appropriate time for people from all walks of life to develop more cognizance on the importance of information on job, labor market and demographic data available for manpower. The educational administrators, planners, evaluators, placement officials, counselors, teachers and students are most particularly in need of manpower information so as to adequately present educational programs responsive to the growing, emerging and/or declining employment areas.

In this rapidly changing world, relevant information has to be produced to provide a basis for matching educational programs more closely with the actual needs of employees. This interfacing helps relate data to economic development and assist in job development approaches.

Information is also needed as a basis of manpower projections for educational uses as well as job uses. There is an urgency to translate manpower forecasts into program and specific curriculum requirements. Besides producing information on manpower requirements in various occupations, it is also necessary to know the current and future occupational supply and demand.

The United States has used an organized approach called the Occupational Trainning Information System (OTIS) in correlating manpower

needs, occupational training, manpower projections, source of manpower supply and location of labor markets.

In the context of the foregoing statements, a program similar to OTIS is proposed for implementation in the Philippines to better organize manpower information and systems for education.

Statement of the Problem

To achieve quantitative and qualitative targets for manpower development, it is the major responsibility of the Philippine educational system to provide the right amount of trained manpower with the right skills relevant to the economic growth of the nation. The development of an OTIS per se aims at such targets of emphasizing manpower training suitable to the requirement of the development program of the country.

An organized OTIS is, thus, imperative to maximize the economic benefits from the investment of resources in the process of producing manpower.

Purpose of the Study

The purpose of this study is to thoroughly study both established and developing occupational training information systems in certain states and then develop a system that describes and develops a systematic, flexible, and rational system of detailed occupational training information which can be adapted to fit the particular situations in the Philippines. This system, serving as a tool to aid in more meaningful decision-making and planning for more effective career-oriented training programs can relate well to significant manpower needs of the

nation. In addition, the system will also provide a framework for the description of a systematic procedure to identify activities in a formal and logical manner.

It is also the purpose of this study to ascertain whether an OTIS is feasible or not to the Philippines and at the same time develop a cognizance among leading people of the importance of OTIS -- a system that could facilitate decision-making and planning for more effective and proper use of educational and other available resources.

The Need for the Study

The Status of the Philippine Educational System

Since education must serve the purpose of providing the student with the right skills, abilities and knowledge that will make their training and qualifications marketable in the employment world, educational institutions in the Philippines are committed to training programs that turn out manpower who contribute significantly to nation-building.

The present status of the educational system in the Philippines reveals the urgency for a national assessment of the human resources as a basis for a more objective and functional structuring of an educational system. At this point, it is deemed necessary to view the obstacles hindering the success of the achievement of this goal.

Educational institutions in the Philippines are still admitting enrollees in areas considered to have little or no bearing on developmental efforts and aspirations.

The Filipinos still have the tendency to stick towards the popular

inclination to white-collar occupations. This state of occupational preference stems from the absence of quantitative restraint on enrollment in the economically unneeded courses, coupled with the absence of incentives for enrollment in the economically beneficial areas of study.

The serious fact is that the Philippines has a surplus of manpower with unneeded preparation and training, and a dearth of manpower equipped with economically relevant skills.

General Enrollment

As revealed by a study, the Philippines has an enrollment percentage of 38 in the arts, law, and humanities. Both the mature economies and the undeveloped countries have 32 percent and 34 percent, respectively, facts which point that the higher the stage of development the lower the percentage of enrollment in arts, law and humanities (1).

In the Philippines, the secondary school is the major source of potential manpower for skilled workers and technicians. Of the 1,310,867 students enrolled in this level of education in 1966-67, 87.18 percent took the general or academic secondary curriculum, 12.82 percent took the vocational curriculum. From the students that pursued the vocational courses: 23 percent took agriculture and fishery, 60 percent took trade and industrial courses, and 17 percent took business and commercial education.

There were 532,323 students enrolled in various colleges and universities in 1966-67. Of this number 92.5 percent were enrolled in private institutions; 2.2 percent in the normal schools of the Bureau of Public Schools; 1.6 percent in the technical and teacher-training schools of the Bureau of Vocational Education; and 3.1 percent in state

colleges and universities. Ninety percent of college enrollment was in the following areas: teacher-training, commerce and business administration, nursing, liberal arts, engineering and law. The combined enrollment in teacher-training, commerce, and liberal arts was more than 75 percent of the total enrollment. Enrollments in such courses as agriculture, chemistry, technical (industrial) or applied technology were way down the scale -- less than 10 percent of the total college enrollment (2). The above statistics reveal that the Philippine education is given for reasons other than to meet the manpower needs of the country. A critical fact is that one out of four persons in the unemployed labor force belongs to the 'high level' manpower. There are quite a number of youths with education not useful for employment purposes, and hence, the swelling poll of the "educated unemployed". The country's high manpower level includes 137,000 high school graduates together with those who had completed from one to three years of college schooling and 31,000 who had completed four or more years of college. The latter group includes college degree holders, bringing an aggregate manpower of 168,000 'high quality' labor force unutilized or not producing and remaining as liabilities instead of productive assets (3).

Teacher Education Enrollment

As an example, the enrollment alone in teacher-training was quite a staggering figure, yet there is shortage of teachers in such fields as mathematics, science, and the vocational-technical courses. There has been a lack of teachers in industrial arts, practical arts, and elementary agriculture for the last 20 years. Yet, colleges and universities magnify the already critical situation by allowing more students

to pursue teacher education courses where the possibility of employment is almost nil. Leaders in teacher education in the country must give a second look at the worsening conditions of the teacher-training programs. A redirection of goals and objectives to meet the present challenges is very urgent.

Technical Education Enrollment

There is also a dire need for adequately trained manpower to work in manufacturing establishments, construction enterprises, communication services, or transportation facilities. Although industry calls for skilled craftsmen and technicians, only three out of 100 students enroll in technical courses.

A study from a sample of 116 selected industrial firms (60 from greater Manila area and 56 from the provinces) shows the following distribution of a total of 95,498 employees in 1970:

Management	9.69%
Sales	9.98%
Production distributed as follows:	80.33%
Scientists	0.22%
Engineers	3.69%
Technicians	7.04%
Skilled Workers	43.07%
Non-skilled	45.98%

100.00%

The significant proportion of technicians employed by these firms points to the need for technical education (4).

The Need for a Change

Furthermore, courses which are being offered in training institutions need re-examination. There is a need to unshackle from the traditional practice of just equipping the student with the operational skills and technical information of a certain trade. The industrialists themselves are not quite agreed as to the type and extent of training for the men they need. There is a need to increase the knowledge between educators and industrialists on the standards of training and thus result in students with a broader understanding of employment requirements.

It is important to ascertain the kinds, types, categories, specific skills of trained manpower that is needed to support the economy. The country's manpower must be so developed that it can perform the essential work of society at all levels. There must be complete assessment of the actual needs in such areas as management and supervision, development, and design of industrial commodities, basic and applied research, and actual skilled and technical operations required for production jobs. The occupational training information system can address its efforts to this foundational information that would become the basis for any re-structuring, improvement, or escalation of curricular endeavors in the educational system. Such a system when implemented can help avoid groping in darkness and thus fashion an educational and training program that would answer the needs of a changing Philippine economy.

Economic Inconsistency

The Philippines has a school system that provides education to one

out of four Filipinos - a ratio that is comparable to many affluent and near-affluent nations of the world. But the economy is far from satisfactory. Seventy percent of the people live on barely forty centavos a day, ten percent on barely twenty centavos, ten percent on 1.70 pesos, and five percent on 2.40 pesos. (In 1965 one peso is equivalent to four U.S. dollars). Only the remaining five percent live in affluence and abundance (5). The figure of the Bureau of Census and Statistics shows that only 2.6 percent of the families of the country have an income of 10,000 pesos or more a year in 1965 (6).

A study of Harbinson (7) further illustrates some inconsistencies in the structure of the Philippine educational system. It was revealed that:

There is a correlation between a country's educational development and its economic productivity. This principle was applied by Harbinson and Myers in their study of 75 countries. The Philippines, however, cannot be classified under any of the four categories of countries. The composite index of the Philippines as computed by the Institute of Population of the University of the Philippines is 80. This would bring Philippines between Level III (50) and Level IV (115) countries. However, the Philippines per capita GNP of \$138 does not fall within the range of \$380-\$1,100, the GNP per capita in the countries grouped under category III and IV. The first level (elementary) enrollment ratio of 53 falls between Levels II (42) and III (62); the second level enrollment ratio of 24 falls between Levels I (20) and Level II (45). On the other hand, the third level enrollment ratio of 11 brings the Philippines even with Level IV (11) countries. Yet, the per capita GNP is barely one tenth of the per capita GNP of the countries belonging to Level IV (p. 127).

These are the effects of a system of education that does not directly support the economic program of the country. This observation is compounded by the fact that few people are satisfied with the performance of the educational institutions. Many employment establishments demand more and specifically trained manpower to meet their varied needs.

This brings the major challenge that with an occupational training information system, the educational institutions would be able to cope with the need to generate adequately trained manpower to meet the needs of a changing economic structure.

Geographical Locations of Educational Institution

There is also the problem of organizing and establishing schools that are not in accordance with population concentration, location of industries, or availability of natural resources. Hence, the maldistribution of schools results in the inefficient and uneconomic utilization of educational resources.

Metropolitan Manila has an approximate population of more than three million and a volume of industrial production amounting to more than two billion pesos (8). The industrial concentration in this area is a distinct feature of manufacturing in the Philippines. In 1960, this area accounted for approximately 53 percent of the total manufacturing employment in the Philippines leaving 47 percent scattered unevenly in other parts of the country (9). Yet, there is only one trade-technical school operated by the government within the area. On the other hand, Western Visayas comprising six provinces with a volume of production approximately one fourth that of the Manila area has seventeen trade-technical schools. Also, there are six municipalities with less than 10,000 population and no existing industries that have vocational schools and yet such provinces as Surigao, Camarines Norte, and Bukidnon -- all rich in natural resources -- have no trade-technical schools.

Summary

In establishing the need for the study, it was determined that the educational system of the Philippines is not the best design to meet the general and specific needs of manpower. The educational system should induce a shift of enrollment towards fields and disciplines that are necessary for social and economic growth. This requires a drastic revision of the educational system through which trained manpower is produced.

It is, therefore, worth considering a composite occupational training information system that will provide the present stage of development with guides for attaining maximum economic efficiency. This would entail a deliberate system that will bring about changes in programming and planning of human resource development.

Definition of Terms

OTIS - Occupational training information system is a tool which can provide information about people and/or jobs in order to have a basis or guide for program decision-making and planning activities involved in manpower development.

Manpower Supply Unit - Data on the anticipated numbers of trained manpower that will be available for each occupation to fill job openings over a specific period of time. Enrollment data, type of programs and number of completions will be collected from private, public and all other training institutions.

Manpower Demand Unit - The manpower requirements on estimated employment opportunities by occupation over a specific period of time.

Data for this unit are based on surveys or on census using the Bureau of Labor Statistics Occupational Matrix.

Interfacing Unit - Matching the demand and supply units to determine the difference (net manpower needed) for a selected set of occupations.

Data Dissemination Unit - Promotes awareness of manpower needs.

Placement Unit - Training institutions have also the responsibility to help graduates find related occupations. This unit will facilitate this responsibility by providing information of possible jobs available to graduates and helping them secure these jobs they were trained for.

Follow-up Unit - Collects, analyzes and reports information on occupations and relationships to training programs, income, job satisfaction, and need for retraining of graduates and dropouts from educational training.

Manpower - All employment at all level.

CHAPTER II

REVIEW OF LITERATURE

Introduction

One of the prevailing needs today in the Philippines is a system complimented by strategy, that will make for the most favorable efficacy of the educational pursuit of economic development. Such a system has to be concerned with the developmental planning to tap fruitfully the most viable resource of the country which is trained manpower.

Challenges to Education

The importance of trained manpower in national development is being underscored by economic scientists. Their studies revealed that a country may have abundant natural resources and adequate capital, but if it lacks a pool of trained manpower, it cannot progress much. With improved quality and productivity of the labor force, education plays a dominant role in the social and economic growth of a nation (8).

Today there is the advent of rapid changes in this modern society. Science and technology are leading to an increased specialization of knowledge and functions, thus requiring properly trained individuals. Human resources then ought to be integrated as effectively as possible to the new requirements of the changing society.

The economy is also shifting its trend in such a fashion that points to the need of redirecting human resource strategies in order to

meet the specific manpower requirements of the economy. Belen, quoting from the "Projected Employment by Major Industrial Sectors" shows that:

..... estimates furnished by the Presidential Economic Staff (PES), available statistics showed 61 percent of the labor force was employed in agricultural enterprises while 39 percent were in non-agricultural employment. Five years later, i.e., in 1967, the percentage of agriculture decreased to 55.6 percent and that of non-agricultural employment increased to 44.4 percent. The same sources were predicted that in 1970 the share in agricultural employment will drop to 51 percent while that of non-agricultural employment will increase to 49 percent. These trends in the structure of the labor force have great significance to education as a whole (8, p. 1).

These strategies of human resource development have to be assessed and redirected to meet these shifting trends. Unless new directions are conceived and implemented gradually to meet the changing nature of labor force, the Philippines will continue to suffer the lack of 'employable' manpower in the various sectors of our country (8).

Maurice Roney and Paul Braden (10) maintain that only through reconciliation of training institutions keyed to the changing occupational requirements and the development of human resources can an economy be avoided which is characterized by job openings requiring educated and skilled people, and, at the same time, a body of unemployed and under-employed, too poorly trained to make a contribution to the economy.

The statements of Roney and Braden were supported by Gerald Somers (11). He reported the following major labor market changes:

1. A market shift from employment in agriculture and other primary industries to the so-called tertiary industrial sector-service industries and especially government;
2. A revolutionary increase in the labor force participation of women, especially married women - a movement from the home to employment;
3. A market occupational shift from manual, unskilled work to white-collar, professions and technical skills;
4. A continuing shortage of highly skilled craftsmen and a growing number of complaints about the inadequacy of apprenticeship system;
- and 5. An increasing concern with the

labor market position of the unemployed and the disadvantaged (p. 32).

In another discussion, Somers (11) stated that many educators are vitally concerned about the responsiveness of their offerings and new programs to manpower requirements. Their efforts to implement their wishes along these lines are sometimes thwarted by the absence of labor market data in the quantity and form they need, and by their own traditions in establishing new programs and courses.

Consequently, crucial changes are creating challenges as enumerated below (10):

1. the revolutionary discoveries of science and advances in technology;
2. the decrease in unskilled jobs and increase in semiskilled, skilled, and technical categories;
3. this disappearance of many traditional jobs while complex machines and processes are creating new ones;
4. more trained manpower are needed at a faster rate than the public and private institutions can supply; and
5. changes in industry, business, and agriculture require additional highly trained workers as well as the retraining of those whose skills have become obsolescent (p. 1).

Since education must serve the ends of manpower preparation, any plan that the educational system may espouse must have quantitative and qualitative targets. These targets can help much in enabling the educational system to provide the right amount of trained manpower in accordance with the manpower needed. An occupational training information system can stress or point the required training of manpower relevant to the requirements of the development program of the country and thus maximize the economic benefits from the investment in the efforts and expenditure involved in the process of training manpower.

The Need for OTIS in Planning

Ample evidence has been provided by leaders in the vocational and

technical education system to support the need for a continuous information system for occupational training. This must be consistent with the benefits or outcomes desired and the resources which must be expended for securing these benefits (13).

Edward Jakabauskas (14) related that effective vocational and technical educational planning involves choices among alternative occupational training programs; it involves an evaluation of capabilities and capacities of trainees; and it involves a very complex matching process between occupations and workers. To obtain and utilize manpower data, more effective coordination among disciplines within the academic community is needed, as well as between academic community and action-agencies responsible for carrying out programs in manpower and related fields.

To plan any program of human resource development, developing countries must follow a system which provides an estimate of the numbers to be accommodated in the program. This model must permit a program that will balance between what it would like to do and what it can and must do. What most countries must do is produce sufficient numbers of educated and trained people to staff government and private institutions and man the economy (12).

It is customary today for many countries to formulate plans for economic and social development. These plans, if properly designed and widely accepted, present in essence a strategy for attainment of goals. Every plan should include as an essential element a strategy of human resource development. Admittedly, the weakest sections of nearly all development plans are those dealing with education, training, and other aspects of building the capacities of people. Some approaches and

methods of analysis is therefore suggested for more systematic consideration of human resource development problems. An OTIS has a vital role to play in this situation.

Some of the major concerns of education stem from the fact that young men and women leave the education system without sufficient skills to survive in the world of work. It is believed that the problem can best be solved through planned change strongly based on research and development activities. To facilitate the needed change and to achieve maximum results in meeting individual and manpower needs, a workable system must be employed (15).

Concepts on OTIS

Any decision will call for a systematic base from which better decisions can be made regarding the allocation of resources to educational programs. However, our goal in developing the system cannot be accomplished until the information is considered a part of the planning process (16, p. 1).

The Commonwealth of Kentucky, through its various state agencies, has undertaken the development of a comprehensive data system which provides information to those state and local agencies concerned with planning for the development of the state's human and economic resources. This information system is of great benefit not only to education planners, but also helpful to other state agencies and business and industry in the planning process (17).

Similarly, Kansas Manpower Utilization System for Training (KMUST) was developed to provide an information base and management tools which can be used by occupational education planners and administrators to optimize the societal and student benefits received from the expenditure of vocational monies (18).

Oklahoma justified the concepts behind the development of the Kentucky and Kansas systems through the following terms:

Oklahoma has developed a comprehensive, statewide, and continuous system for matching manpower supply and demand which represents a basic step in the direction of active manpower policy. It is currently providing information on the supply of and demand for sub-professional manpower which is basic for improving decision making relative to effective manpower utilization (19, p. 1).

Labor market conditions are extremely important in Oklahoma's strategy for economic development. The fundamental objective of this strategy is to create more and better jobs and income for the people of Oklahoma by increasing the rate of growth of Oklahoma's economy. This program can be implemented by encouraging big financial investments to be directed towards large and new income generating activities. Information is necessary on demand, supply, and other market factors in order to implement any such strategy (19).

The central purpose of OTIS was to assist state officials of Oklahoma in planning and developing a state wide occupational training information system as an integral part of a planned manpower development program. This system contains detailed information on the State's public and private occupational programs. The enrollments in these programs are matched with data on existing manpower needs. The U.S. Office of Education Program Codes and the Dictionary of Occupation Titles were used to facilitate this matching (19).

An occupational training information system is generally composed of basic components. They are the manpower supply and demand components. In the Kentucky system, the manpower demand component provides information which estimates present, short-run, intermediate, and long-run employment opportunities by specific industry, occupational code, and

geographic location (17).

For the supply component, Missouri Occupational Training Information System (MOTIS) reflects the array of currently available skills, the nature and magnitude of changes that are expected to occur in this pattern over time, and some indications of the responsiveness of the flow of qualified people to changes in market condition (16).

An important feature of the Oklahoma Occupational Training Information System is the interfacing of the demand and supply component. The major purpose of the interfacing is to reveal anticipated differences between manpower supply and demand which have implications for program planning. The procedures of interfacing job clusters with the training program clusters included the research work of Emmanuel Weinstein, an Occupational Analyst, and others. Their research related the U.S. Office of Education Instructional Codes to the Dictionary of Occupational Titles which was published by the Office of Education, U.S. Department of Health, Education and Welfare and the Manpower Administration, U.S. Department of Labor (19).

In summary, the Philippine educational system should gear itself to the trained manpower requirements of the present economy. To accomplish this, there is a need for more and better information. With decisions based on information available on the jobs (demand) for which training is required (supply), meaningful manpower planning can bring forth most beneficial results.

CHAPTER III

METHODOLOGY

The basic design of this study was to develop an occupational training information system for the Philippines.

Materials pertaining to occupational training information system in the United States were collected from certain selected states where an organized occupational training information system had been functional. The materials gathered were reviewed and used as the basis for developing a proposed occupational training information system for the Philippines. After a thorough review of the materials gathered, a composite pattern of operation for systems in the United States was formulated. The composite pattern was carefully analyzed for projection as an application to the Philippines. A questionnaire was developed which attempted to secure an appraisal of the feasibility of the system for implementation in the Philippines.

The questionnaire accompanied by the proposed system was submitted to a jury of 30 individuals occupying leadership positions in various fields of occupation in the Philippines. The jury was asked to make value judgements as to the possible adaptations of the proposed system.

Procedures

This study, which can be characterized as developmental research, was conducted in the following manner.

Due to the nature of this study, it was decided that information had to be obtained from the United States. Five states directing programs on occupational employment and training were asked for current reports and other publications describing the operation of each of their occupational training information systems. The materials with reference to Kansas Manpower Utilization System for Training, Missouri Occupational Training Information System, Kentucky's Information Training and Education System, Oklahoma Occupational Training Information System and Pennsylvania Vocational Education Management Information System were gathered and reviewed thoroughly to determine criteria for the development of a proposed OTIS for the Philippines. The nature and extent of the use of selected system modules in collection assessment of manpower needs among the five states were compared.

From the documents studied, a detailed proposed occupational training information system was organized in accordance with the particular needs of the Philippines. Six components of the proposed OTIS for the Philippines were developed.

In order to determine the feasibility of an OTIS for the Philippines, it was decided that a questionnaire would be the best method of collecting data for appraisal of OTIS in the Philippines.

The constructed questionnaire was examined by two members of the researcher's graduate advisory committee and by a person who had done a great deal of work with Oklahoma OTIS, Dr. J. B. Morton, Coordinator of Information Services, Oklahoma State Department of Vocational and Technical Education, Research, Planning and Evaluation Division.

A person capable of distributing and collecting the questionnaire from key people was contacted in the Philippines. The questionnaire and

the proposed OTIS were then sent to the Philippines. Two cover letters were used in transmitting the questionnaire. One letter was from the Chairman of the researcher's graduate advisory committee supporting the request of the researcher's personal letter.

The jury of 30 individuals selected to participate in this study was composed of department secretaries, directors/commissioner, presidents of organizations/universities/colleges, other officials, and industry leaders. The specific composition of respondents were as follows:

Department Secretaries

Secretary of Education and Culture

Secretary of Agriculture and Natural Resources

Secretary of Education (Former Secretary of Education)

Directors/Commissioner

Commissioner, National Science Institute of Technology

Director General, National Manpower Youth Council

Director, South East Asian Regional Center for Graduate

Study and Research

Director, Bureau of Agricultural Economics

Director, Bureau of Vocational Education

Director, Bureau of Private Schools

Director, Bureau of Plant Industry

Director, Philippine Council for Agricultural Research

Program Director, National Skills Training Program

Presidents of Organizations/Universities/Colleges

President, Philippine Association of State Universities

and Colleges

Former President, Funds for Assistance of Private Education

President, Association of Colleges of Agriculture in the
Philippines

President, Development Academy of the Philippines

President, University of the Philippine System

President, Central Luzon State University

President, Mindanao State University

President, Mountain State Agricultural College

President, Philippine College of Commerce

President, Visayas Agricultural College

President, Mindanao Institute of Technology

Vice President, Corregidor College

Other Officials

Executive Secretary, UNESCO Commission in the Philippines

Chief, Legal Officer, Department of Education and Culture

Assistant Director, Bureau of Vocational Education

Professor of Graduate Studies, Centro Escolar University

Industry

President, Gregorio Araneta Machineries Incorporated (also
agriculturist and religious leader)

Fishing Magnate and Civic Leader

The answers of the above mentioned respondents are presented in Chapter IV. Summary, conclusions and recommendations are presented in Chapter V.

CHAPTER IV

PRESENTATION OF DATA

The purpose of this study was to develop a proposed OTIS for the Philippines. A thorough review of the occupational information system from five states of United States was made to develop a proposed OTIS. The developed proposed OTIS accompanied by questionnaire was sent to a jury of 30 key people in the Philippines to ascertain the feasibility and significance of OTIS in the Philippines. The jury of key people asked to participate was especially cooperative as indicated by the returns and the remarks made.

Occupational Training Information System in Five States in the United States

The information gathered about the organized occupational information systems in the United States was used as the basis for developing a proposed occupational training information system for the Philippines.

Table I summarizes the information gathered from five states that have organized occupational training information systems which had been successfully functional.

All the five states reviewed used the manpower supply unit and the manpower demand unit in their systems. Kentucky, Oklahoma and Pennsylvania used the survey method while Kansas and Missouri used the Bureau of Labor Statistics Matrix in gathering the data for the manpower demand

TABLE I

THE NATURE AND EXTENT OF THE USE OF SELECTED SYSTEM
UNITS IN COLLECTION AND ASSESSMENT OF
MANPOWER NEEDS AMONG FIVE STATES

System Units	Kansas Manpower Utilization System for Training (KMUST)	Kentucky's Information Training & Education System (KITES)	Missouri Occupational Training Information System (MOTIS)	Oklahoma Occupational Training Information System (OTIS)	Pennsylvania Vocational Education Management Information System (VEMIS)
1. Manpower Supply Unit	Yes	Yes	Yes	Yes	Yes
2. Manpower Demand Unit	Yes**	Yes*	Yes**	Yes*	Yes*
3. Interfacing Unit	Yes	Partial	Partial	Yes	Partial
4. Data Dissemination Unit	Yes	Yes	No	Partial	Partial
5. Follow-up Unit	No	Yes	Yes	No	Partial
6. Placement Unit	Yes	No	No	No	No

* Data gathered through survey

** Data gathered through the use of the Bureau of Labor Statistics Matrix

unit.

Both Kansas and Oklahoma were found to have fully developed the interfacing unit with other states just partially utilizing it.

On the supportive units of an occupational training information system, Kansas had implemented all these units except for the follow-up unit. Kentucky, on the other hand, did not include the placement unit in its supportive components.

Missouri incorporated the follow-up unit fully. However, the rest of the supportive units were not included at all in its system. The Oklahoma occupational training information system in its final report included a documentation of some of the supportive components in its system. Oklahoma had been concentrating fully only on the three major components of an occupational training information system and partially on the data dissemination unit among all the supportive units. Pennsylvania on the other hand partially covered most of the supportive units except for the placement unit which was not considered at all.

The above systems mentioned were reviewed to determine some of the criteria for the establishment of OTIS in the Philippines. It was found out that, basically, the above systems were organized to produce useful information and at the same time provide a system along the path for improved planning -- an approach which is also needed in the Philippines.

From the information gathered, the researcher listed six components thought to be desirable for inclusion in the OTIS for the Philippines. These components are the manpower supply unit, manpower demand unit, the interfacing unit, the data dissemination unit, the placement unit, and the follow-up unit.

The manpower supply unit would provide data on the anticipated

numbers of trained manpower available for each occupation to fill job openings over a specific period of time. Enrollment data, type of programs and number of completions will be collected from all private, public and all other training institutions.

The manpower demand unit would provide information on estimated employment opportunities by occupation over a specific period of time. The demand information could be gathered either by going to the employing establishments to conduct survey or by using the data from census and then formulate the employment projections by use of the Bureau of Labor Statistics Occupational Matrix.

The interfacing unit would attempt to use the input from manpower demand unit and supply unit to determine the difference (net manpower needed) for a selected set of occupations. The matching of data from these mentioned units (expressed in occupational and program titles for a given time period and within specific geographic region) would have implications for educational program planning.

The data dissemination unit would attempt to promote awareness of manpower needs data. Dissemination techniques could be used for effective coordination between this whole system and potential users. These techniques could be: a) mailouts of data to potential users, b) personal contact with potential users, c) presentations at educational meetings, d) in-service training, and e) mass media releases.

All these techniques would try to explain how the data was developed and the expected accuracy of the data. These would also explain how administrators can use the data in the planning process in relation to the training needs, employment opportunities, employment trends, etc.

The placement unit would provide an approach that would facilitate

in absorbing the trained manpower supply in accordance to the manpower demand. This unit would attempt to provide an information which determines where jobs exist and which opportunities are provided in placing trained individuals.

The follow-up unit would collect, analyze, and report information on the experiences of graduates and dropouts from educational training, including information on occupations and relationships to training programs, income, job satisfaction, and need for retraining.

The sequence of steps that can possibly be undertaken in the implementation of OTIS in the Philippines is presented in detail in Appendix A.

Appraisal of OTIS in the Philippines

A jury of 30 key people were asked to participate in this study. The questionnaire (See Appendix B) was distributed to these 30 key people. A total of 29 or 97 percent returned the completed questionnaire.

A large majority of the respondents numbering 25 or 86 percent of the total 29 returns, indicated that the value of an OTIS for the Philippines is very favorable. Only four judged the value of OTIS as favorable with no respondents indicating their judgement as unfavorable. Table II shows this information.

Remarks were given by 14 respondents in regard to the question on the value of an OTIS for the Philippines. The remarks are as follows:

1. To minimize oversupply of graduates, educated unemployment and underemployment.
2. A developing country like the Philippines cannot afford waste.

TABLE II
 RESPONSES AS TO THE VALUE OF AN OTIS
 FOR THE PHILIPPINES

Indicated Response	Responses	
	Number	Percent
Very Favorable	25	86
Favorable	4	14
Unfavorable	-	-
Cannot Estimate	-	-
Total	29	100%

People must be trained for jobs that are needful and available.

3. This would be a valuable guide for students, manpower training institutions, government, policy makers and business firms.

4. "I have discussed this with the manpower training program," a comment given by Dr. Clemente, the President of Mindanao Institute of Technology.

5. The development of OTIS for the country, in so far as component No. 6 (placement unit) is concerned, would complement an allied (vocational preparation program) activity of this Agency that has been started middle of this year. Career information and vocational guidance materials for use of in-school and out-of-school youths/unemployed are expected outputs of this scheme. Further, the OTIS would be useful for planners in the fields of manpower and education.

6. It is important in planning the development: it helps avoid

glut in some sectors.

7. It is badly needed by a developing country.

8. Urgently needed for determining vocational courses to be offered.

9. At present, both the public and private sectors are working together to determine the supply and demand for people for the various occupational skills.

10. This is important in order to place people in jobs where they have undergone training.

11. However, this may not be a top priority need.

12. We need such a system to properly allocate the available manpower resources to the best possible utilization for national progress.

In answer to the question "Do you think an OTIS for the Philippines will be supported financially?" 26 or 90 percent of the respondents checked "Yes" and three or 10 percent of the respondents did not respond (see Table III), while judgement of the likelihood of political support elicited an answer "Yes" from 19 respondents as contrasted with three "No" answers, three "Not Sure" and four "No Response."

Remarks made on financial support indicated that OTIS will be supported financially by both government and private citizens who are philanthropically oriented. Another remark given was that the private sector should also contribute.

Two of the respondents who did not respond on the question about political support gave remarks. Those who answered "Yes" numbering 13 also gave remarks. Only one of those who answered "No" and one of those who was not sure gave remarks.

TABLE III
SUPPORT FOR THE IMPLEMENTATION OF OTIS

Indicated Response	Responses		Responses	
	Number	Percent	Number	Percent
	Financial		Political	
Yes	26	90	19	66
Not Sure	-	-	3	10
No	-	-	3	10
No Response	3	10	4	14
Total	29	100%	29	100%

The remarks given by those who answered "Yes" are as follows:

1. It is in line with declared national policy.
2. The time is ripe for the development of such a system in the Philippines.
3. It should be supported.
4. Some work along this line is being done by a member of agencies (National Manpower Youth Council, etc.) but it is somewhat fragmentary.
5. Private enterprises and foundations might be persuaded to support the program.
6. This is an urgent program of the government.
7. It is badly needed by a developing country.
8. The government welcomes the idea of supporting such a system.
9. There is increasing recognition of the need to offer courses relevant to the needs of the country.

10. We believe the government as well as the private sector will support it.

11. The Philippine educational system is undergoing changes to conform with the supply and demand for manpower as dictated by the requirements of blue collar jobs for the country's economic growth and development.

12. Both the Department of Education and Culture and the Department of Labor can maintain such a system.

13. OTIS will save the government a lot of money by providing a ready source of manpower index.

Two of the respondents who did not respond gave the following remarks:

1. Some government agencies and even private institutions would not hesitate to support this study if it turns out to be viable in the Philippine setting. However, some work in this direction has already been initiated by the National Manpower Youth Council (NMYC). Nevertheless, some placement work in some training institutions may benefit from the study, if new and innovative techniques can be recommended, and if limited resources that seem to characterize the institutions that perform this placement work can be improved.

2. It will be financially supported since it will redound to the benefit of the mass of workers, technicians and industry. Under the New Society, the politics is out.

The respondent who answered "No" gave this as a remark: Various forms of occupational training information units exist in the Philippines and these are good inclinations that a system of this nature is likely to be supported financially, but not politically because of the

martial law.

For the respondent who was not sure of her answer, the remark given was "We have more pressing need so I am not sure about this."

Table IV reflects how the respondents answered the following questions:

1. Do you think there is a need to have information on manpower supply now and in the next few years?
2. Do you think there is a need to have information on manpower demand now and in the next few years?
3. Do you think there is a need to know where students go after their training, their occupations, income, and job satisfaction?
4. Do you think the students need more help in finding the jobs they were trained for?

On the three former questions, all the 29 respondents answered "Yes" and on the latter question, one answered "No" while the rest answered "Yes".

The last item on the questionnaire was about the personal estimates of reaction to an OTIS by various groups. Table V shows the estimate of reaction of students to OTIS as very favorable according to 19 respondents and favorable according to 10 respondents. Estimates on the parents reaction are very favorable according to 20 respondents and favorable according to eight respondents. One did not give any response. On the business and industries 16 or 55 percent of the respondents estimated the reaction to be very favorable, 35 percent as favorable, three percent as unfavorable and seven percent could not estimate.

On the other employment establishments, 15 or 52 percent of the respondents estimated the reaction to be very favorable, 35 percent

TABLE IV
 RESPONSES RECEIVED REGARDING SELECTED
 ITEMS OF INFORMATION

Information Needed	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
1. Present and future manpower <u>needs</u>	29	100	-	-	29	100%
2. Present and future manpower <u>demands</u>	29	100	-	-	29	100%
3. Post training knowledge of students' <u>occupation</u> <u>income and job satisfaction</u>	29	100	-	-	29	100%
4. Post training student <u>assistance</u> in finding jobs	28	97	1	3	29	100%

TABLE V
PERSONAL ESTIMATES OF REACTION TO AN
OTIS BY VARIOUS GROUPS

Various Groups	Very Favorable		Favorable		Unfavorable		Cannot Estimate		No Response		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1. Students	19	66	10	34	-	-	-	-	-	-	29	100 %
2. Parents	20	69	8	28	-	-	-	-	1	3	29	100 %
3. Business and Industries	16	55	10	35	1	3	2	7	-	-	29	100 %
4. Other Employment Establishments	15	52	10	35	1	3	2	7	1	3	29	100 %
5. Planners and Decision Makers of Educational Resources	24	83	5	17	-	-	-	-	-	-	29	100 %

favorable, three percent unfavorable, seven percent could not estimate and three percent did not give any response.

On the group of planners and decision makers of educational resources, 83 percent of the respondents estimated the reaction to be very favorable and 17 percent as favorable with no personal estimates indicating unfavorable reaction by planners and decision makers.

The questionnaire sent to the jury also provided space for open remarks. Seventeen members of the jury responded to this and their remarks are as follows:

1. This is a very timely and worthy endeavor considering present thrust of Philippine education to develop human resources of the nation to the maximum and harness these for optional economic development.

2. At a certain point in a country's economic development an OTIS would be imperative as a balancing device for manpower production and utilization.

3. This is a welcome development in educational planning and programming. The youth should be trained to lead to a productive and useful life, not only for their sake but also for the sake of the country.

4. In the Philippines, there are excess education, Bachelor of Arts and Business graduates. For the present there is shortage of agricultural and engineering graduates especially in Mindanao.

5. The establishment of an OTIS is necessary in the educational system of the Philippines to keep graduates, particularly of vocational technical schools, posted on current needs of the industrial sector. By this way the graduate can easily look for jobs where their training and experiences fit in.

6. This is a worthwhile study.
7. This system will help government formulate such plans and programs as will ensure efficient allocation, development and utilization of the country's manpower, thereby promoting employment.
8. Miss Cruz is on the right track in ascertaining the possibilities of developing and implementing an OTIS in the Philippines.
9. An OTIS will certainly effect a more efficient development of appropriate manpower for the needs of industry.
10. Parents should not select the courses to be pursued by their children. Children should be guided to take the courses relevant to the needs of the society.
11. The problem is now to achieve the objective of OTIS without compulsory measure that may smack off authoritarian rule; is it not true that over a period of time students do take courses that prepare them for an available job?
12. The National Manpower Youth Council has recognized the need for information mentioned in the items of the questionnaire. An assessment of the demand for/supply of manpower was initiated last year. In fact, as of this writing analysis of the survey results has been made. The supply component of this assessment is slated late this year. These studies have been envisioned to provide NMYC data for planning purposes, including planning for the basic skills, training of out-of-school youth and the unemployed. A research study to give a basis for planning higher education in the Philippines is also planned in the immediate future.
13. OTIS in the Philippines at present is very limited both in government and private industries. There is a need to establish a centralized system for this purpose for a more effective and greater

utilization and efficiency of the country's manpower resources.

14. The manpower skills training programs are now being conducted jointly by the government with public and/or private agencies on the various occupational/trade skills in agriculture, industry, manufacturing, management and entrepreneurship as dictated by the demand and supply markets.

15. The students must create employment for himself by creating jobs for others, by being an employer not employee.

16. It will serve as a guide to students and parents in choosing the occupation that offers openings.

17. Dr. Leonor of the Department of Agricultural Education at the University of the Philippines at Los Banos had started a similar project last 1970 with funding from ACAP, EPDITAF, and SEARCA for middle and high level manpower in the Philippines.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to review the occupational training information system in five states in the United States and then develop such a similar system that is suitable to the Philippines. It was established that OTIS was a favorable instrument that could be used to facilitate organization of information about people and/or jobs. Such organized information could be used as a basis for identifying activities significant to manpower development and utilization.

Six components of the proposed OTIS for the Philippines were organized in accordance with the information gathered from the study of the occupational training information systems of five states in the United States. These components were manpower supply, manpower demand, interfacing, dissemination, placement and follow-up.

Some questions were formulated to get an appraisal of the developed OTIS. The responses on the returned questionnaire were tabulated and presented in Chapter IV. It was established through a majority of the respondents that an occupational training information system would be very timely and useful to the Philippines.

Conclusions

The following important conclusions were found based on information

obtained during this study and on comments made by the jury of respondents.

1. An OTIS as a planning tool has tremendous potential on unifying and strengthening education's role in manpower development.
2. Important decisions are being made about education and training programs without adequate information. Therefore, an OTIS would be most appropriate to point the way to improved decision-making by government and institutions on questions of priorities among types, levels and fields of education and training program and on decisions about allocation of resources to these programs.
3. An OTIS adaptable to the Philippines would consist of the components on manpower demand, manpower supply, interfacing, data dissemination, placement and follow-up.
4. Based on the majority of the respondents the value of OTIS for the Philippines is very favorable. Such a system is needed to properly allocate the available manpower resources to the best possible utilization for national progress, thus, maximizing oversupply of graduates and unemployed and under-employed of the educated.
5. From the positive response of most of the respondents, it appears that financial and political support will be provided in implementing OTIS.
6. The majority of the respondents expressed their personal estimates of reaction to OTIS by students, parents, business and industries, other employment establishments, planners

and decision makers of educational resources as very favorable.

Recommendations

Figure I illustrates a recommended framework for the implementation of OTIS for the Philippines. The organization of the diagram portrays the possible components of OTIS and their respective functions.

In previous chapters, it was discussed that manpower supply does not equal manpower demanded. This is due to lack of information on the labor market and on how many individuals are needed to be trained for available jobs.

Manpower Supply

The public, private and all other educational institutions are the main sources of manpower supply. These institutions should be responsible for educating and preparing individuals for employment. It should be considered to be their major responsibility to provide the number of individuals trained to be in proportion to the number of manpower demanded. In other words, educational programs should be designed in such a fashion where individuals should be trained in programs where there is possibility of jobs upon completion of the training program.

It is recommended that these educational institutions should properly develop files for individuals who are admitted in specific educational programs.

The file on each individual in the program should include the training needs, and the job potential plus the specific jobs he or she will be referred to when ready for employment. Then later the training

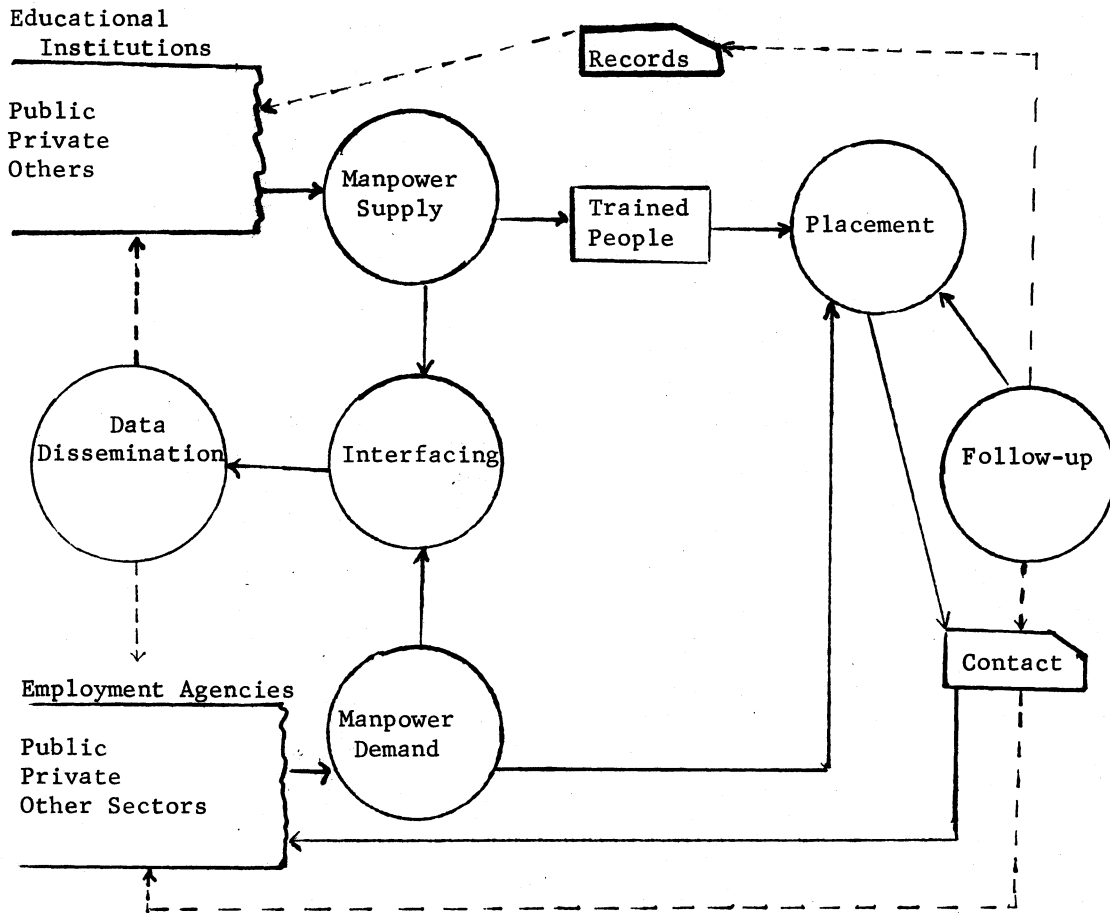


Figure 1. Recommended Framework For Implementation of an Occupational Training Information System

completed, job he or she was assigned, and his or her salary should also be part of this file. The file should also contain a section for detailing in the future the progress of the individual on his or her job, what happens and what kind of follow-up has been required. This should provide the basic information source for easy review of the manpower program.

Manpower Demand

The manpower demand component should provide information on estimated employment opportunities by occupation over a specific period of time. The demand information should be obtained from public, private and all other employment agencies.

It is important to have the manpower demand information available on current basis so that educational programs can be adjusted accordingly.

This component should make projections on what jobs will remain open, when new jobs are going to become available and what jobs will be created for people and how many will be there.

Interfacing

The number of students enrolled in specific training programs will determine how many individuals will be available for job assignment. This will be regulated in accordance with the manpower demanded. An interfacing of the manpower demand and supply will determine the net manpower needed (the difference) for a selected set of occupations. The use of interfacing unit as a reference is a good way of assigning individuals to training programs that will pay off handsomely after

completion of the training.

Placement

The process of placement needs attention. Evidently, the individuals should be placed immediately on jobs. This is the compensating climax to the whole process of education.

Working relationships must be established with business, industries, and other employer to facilitate job placement of those individuals trained. Therefore, a two way communication should be made between all those institutions responsible for providing the manpower supply and those employment establishments responsible in absorbing the supply in accordance to their manpower demand.

The role of placement should be viewed as an activity which determines where jobs exist and which provides opportunities for placing trained individuals.

Job Follow-Up

Placement of trained individuals on the job and follow-up can provide an important base of information to educational planners, administrators, future students and employers.

The follow-up can be carried out by going back to the records and look at the whereabouts of a person as to where he or she can be contacted.

Follow-up should be conducted to get report on how the employee is doing. The employers should also be contacted to make sure that they are satisfied with the employees. They will be asked to fill out short forms to answer questions on the adequacy of the training of the employee,

the need for more training, the effectiveness of the function of placement, benefits derived from placement and suggestions as to how to improve the whole process of the system.

Information obtained through follow-up can secure feedback on how well the system is serving the consumers and the information can also be used for program evaluation, redevelopment and improvement.

Data Dissemination

Data dissemination will involve the training institutions, the employment agencies and all others who are concerned.

Information will be disseminated on the results of the interfacing. The details pertaining to formulation of the interfacing will be explained. The training institutions will find the data dissemination helpful because they will be able to gear program to demand.

The employment agencies will be made aware too of the supply of manpower that could be available to them.

The data dissemination will attempt to explain the overall system and functions of the several components of OTIS.

Finally, the educational planners and employment agencies should be knowledgeable about the existence of OTIS and how it should function. With such awareness of OTIS, more people could be served and manpower problems could be minimized.

Limitations of OTIS

OTIS, however, has its own limitations and these are the following:

1. It should be supplemented with some instruction with regard to economic and sociological factors affecting employment.

2. It should not replace making the student aware of economic and sociological aspects.
3. The OTIS should not be used as the sole determinant of success of educational program but may well be combined with such considerations as:
 - a. mobility of potential trainees
 - b. attractiveness of the occupation for the individual, and
 - c. prerequisite required prior to entering direct training for the occupation.
4. It should not be used to exclude a minimum amount of training in group consciousness and leadership for the individual.

SELECTED BIBLIOGRAPHY

- (1) Smail, R. W. "Contribution of Education to the Development of Human Resources in the Republic of the Philippines." Manila, Philippines: Communications Media Division, USAID, 1965. (Mimeograph).
- (2) Statistical Bulletin of the Board of National Education and the Bureau of Private Schools, 1966-1967. Manila, Philippines: Board of National Education and the Bureau of Private Schools, 1967.
- (3) Bureau of Census and Statistics. Labor Forces Including Educational Attainment Data. Series No. 19. Manila, Philippines: Bureau of Census and Statistics, 1965.
- (4) Annual Report 1970-1971. Manila, Philippines: Bureau of Vocational Education, 1971.
- (5) The Daily Mirror. Manila, Philippines, January 30, 1967.
- (6) The Daily Mirror. Manila, Philippines, May 24, 1968.
- (7) Harbinson, F. "Education for Development." Technology and Development. New York: Penguin Books, 1963, p. 127.
- (8) Belen, H. F. "Vocational-Technical Education and Manpower Development Status and Projections." The Researcher, V, No. 1 (February, 1969), p. 1.
- (9) Luna, T. W. "Manufacturing in Greater Manila." The U. P. Research Digest, Vol. 2, No. 1 (January, 1963), p. 19.
- (10) Roney, M. W., and P. V. Braden. Occupational Education Beyond the High School in Oklahoma. Stillwater, Oklahoma: The Research Foundation, Oklahoma State University, 1967.
- (11) Somers, G. "The Response of Labor Market Changes." The Journal of Human Resources, Supplement III (1968), p. 32.
- (12) Davis, R.G. Planning Human Resource Development. New York: Rand, McNally and Company, 1966.
- (13) Mudzo, M. G. "The Development of a Decision Model for Statewide Planning Related to Vocational and Technical Education." (Unpub. Ed.D. dissertation, Oklahoma State University, 1970.)

- (14) Jakubauskus, E. B. Coordination in Obtaining and Utilizing Manpower Data for Vocational-Technical Education Planning. Prepared for Summer Research Institute on Manpower Surveys for Vocational-Technical Education Planning. Storrs, Connecticut: University of Connecticut, 1968.
- (15) Illinois Research and Development Coordinating Unit. A Master Plan of Research, Developmental and Exemplary Activities in Vocational and Technical Education. Springfield, Illinois: Illinois Research and Development Coordinating Unit, June, 1970. ED 047 135.
- (16) Missouri Occupational Training Information System 1972-1973 School Year Report. Division of Career and Adult Education. Jefferson City, Missouri, 1973.
- (17) Kentucky's Information for Training and Educational System. Occupational Information Unit, Division of Program Supporting Services, Bureau of Vocational Education. Frankfort: Kentucky State Department of Education, Fall, 1973.
- (18) System Documentation Kansas Manpower Utilization System for Training. Final Report Volume I. Manhattan: Division of Vocational Education, Kansas Department of Education and Department of Adult and Occupational Education, Kansas State University, August, 1973.
- (19) Braden, Paul, James Harris and Krishan Paul. Occupational Training Information System Final Report Complete With System Documentation. Oklahoma State University, Stillwater, Oklahoma: Research Foundation, June 30, 1970.
- (20) Eninger, M. U. Pennsylvania Vocational Education Management Information System. Pittsburg, Pennsylvania: Educational System Research Institute, June, 1971.
- (21) Morton, J. B., Edwina Lyle, and William Stevenson. Cycle Six Report, Occupational Training Information System. Stillwater, Oklahoma: Oklahoma State Department of Vocational and Technical Education, Division of Research, Planning and Evaluation, Information Services Unit, January, 1974.
- (22) Missouri Occupational Training Information System 1973 Technical Report. Jefferson City, Missouri: State Department of Education, Division of Career and Adult Education, 1973.
- (23) Azanza, R. V. "The Need for Balanced Expansion in Education in the Philippines." The Researcher, IV, No. 2 (August, 1968), p. 39.

- (24) Braden, P. V., et al. "Occupational Training Information System Cycle Two Report -- A Second Yearly Report Complete With System Documentation." Mimeographed Report. Stillwater: Oklahoma State University, January, 1970.

APPENDIX A

AN OCCUPATIONAL TRAINING INFORMATION
SYSTEM --- A PROGRAM OF MERIT FOR
THE PHILIPPINES

AN OCCUPATIONAL
TRAINING INFORMATION
SYSTEM ---

A Program
of Merit for
the Philippines

TABLE OF CONTENTS

Part	Page
I. Introduction	52
II. Function and Objectives of an Occupational Training Information System	52
III. Why an Occupational Training Information System for the Philippines	53
IV. Possible Components of an Occupational Training Information System for the Philippines	55
Manpower Supply Unit	55
Manpower Demand Unit	57
Interfacing Unit	60
Data Dissemination Unit	61
Follow-up Unit	61
Placement Unit	66

A GUIDE ON THE USE OF THE OCCUPATIONAL TRAINING INFORMATION SYSTEM (OTIS)

Introduction

The OTIS was developed in several states in United States in response to an awareness that program decision and planning activities were frequently dependent on deficient information about the context within which training occurs. Data about people and/or jobs were collected and compiled but were fragmented and were not adequately disseminated to the right people. And so as to effectively administer the training programs and to provide for better organization, OTIS was designed to enhance making meaningful decisions and planning for manpower (all employment at all level) development.

Function and Objectives of OTIS

Primarily, OTIS in the United States has successfully functioned to accomplish:

1. easier identification of occupations for which new program offerings or expansion of existing offerings are most beneficial.
2. the curtailment of selected offerings or perhaps termination of certain program offerings to prevent an over supply of trained persons who have little to no opportunity for employment.
3. implementation and maintenance of all educational programs for more effective counseling of students on what priorities various training programs may demand in the future, particularly with regard to growing, emerging and/or declining occupational areas.

4. an identification of 'critical' occupations which may require special arrangements with business establishments, industries and other employing agencies for training.

These accomplishments in the United States are needed somehow in the Philippine society.

Why an OTIS for the Philippines

From readings and article reviews published in the Philippines and by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the opinion was developed that the following specific problems justify the need of an OTIS for the Philippines:

1. There seems to be a need for a better systematic procedure for selecting or planning for its location of training programs. Training institutions should be established in accordance with population concentration, location of businesses and industries, or availability of natural resources.
2. The educational structure could be made more effective by having criteria and priorities for establishment. The criteria should include the contribution to the economic development and consequent job opportunities for trainees.
3. Several agencies now engaged in manpower planning and development have activities which can be recognized as somewhat overlapping.

Economists and other researchers frequently call attention to the fact that the Philippines has a surplus of manpower in a number of occupational areas. Also educational programs have included some unnecessary preparation. Equally as serious is the all too prevalent lack of manpower equipped with economically relevant skills (1). As one example, the Bureau of Census and Statistics reported that in 1965, there was quite a number of high level manpower within the unemployed labor forces (2). This 'high quality' labor was little utilized or non-producing and functioning somewhat as liabilities to society instead of as a productive assets (3). Some may even assert that, by

and large, "our current education system does not directly support the economic program of the country" (4).

Consequently, with an OTIS, the education system in the Philippines will hopefully be more directed towards the following goals:

1. develop graduates who are equipped with the most efficient technique and knowledge needed by the economy.
2. establish cooperation between educators and employing establishments in the design of relevant training program.
3. emphasize the need for a continuing research and study of manpower needs.
4. coordinate all agencies engaged in manpower planning and development into a nation-wide career oriented occupational training system.

In final analysis, a deliberate consideration of an OTIS will result in near-full employment, general upgrading of labor force, elimination of wasteful efforts and expenditure incurred in the educational training program in occupations that already have an over supply.

-
- (1) Azanza, Rodolfo V. "The Need for Balanced Expansion in the Philippines." The Researcher. Vol.IV, No. 2 (August, 1968).
 - (2) Labor Forces Including Educational Attainment Data, Series No. 19, October, 1965. Bureau of Census and Statistics, p. xvii.
 - (3) Belen, Hermogenes F. "Vocational-Technical Education and Manpower Development Status and Projections." The Researcher. Vol.V, No. 1 (February, 1968).
 - (4) Ibid., p.15.

The Possible Components of OTIS for the Philippines

The description of the components of OTIS was developed based on the review of the systems of five states in the United States.

Two major components (the manpower supply unit and the manpower demand unit), the interfacing unit, and three supplemental components (the data dissemination, follow-up and placement units) were selected to be most valuable to the Philippines.

Each component provides valuable independent information. However, the best utilization of the information is in the system context.

Each of the components with examples will be explained below.

1. Manpower Supply Unit - provides data on the anticipated numbers of trained manpower that will be available for each occupation to fill job openings over a specific period of time. Enrollment data, type of programs and number of completions will be collected from all private, public and all other training institutions. There are several ways of gathering the above information. One example is asking the registrar (or any person responsible for the enrollment) to fill up the enrollment report at the beginning of the school year and the completion report at the end of the school year.

Examples of the Report Forms

Enrollment Report

Name of Educational Institution _____
 Name of Registrar (or any person responsible for enrollment) _____

Total Number Enrolled _____ Date _____

Student Name	Educational Objective Code (Use enclosed guide)	Sex F or M	Level*

*Level

B. S. Degrees

- 1 - Freshman
- 2 - Sophomore
- 3 - Junior
- 4 - Senior

- 5 - Graduate Student
- 6 - Special Student
- Two Year Post Secondary Courses
- 7 - 1st year
- 8 - 2nd year
- Secondary
- 9 - Senior

Completion Report

Name of Educational Institution _____
 Class _____
 Date _____

Compl Code	Student Name	*****
*	*	*
*	* T B SMITH	* For each student on this report enter
*	* B E JACKSON	* the appropriate completion code in the
*	* A S ANDRES	* column at the left of this report. Use
*	* C B FELIX	* the completion codes listed below.
*	* M J AGUILAR	* 1. Completed the training program and
*	* R M CRUZ	* graduated or left school.
*	* Z B KEN	* 2. Completed the training program and
*	* J Y YEN	* remained in the school in other
*	* Add students	* course work.
*	* Not listed above	* 3. Completed this year in the training
*	*	* program and plan to continue in
*	*	* other program.
*	*	* 4. Dropped out of the training program
*	*	* but continued in other program.
*	*	* 5. Transferred to another school.
*	*	* 6. Dropped out of school and is
*	*	* employed full-time in the field
*	*	* for which trained.
*	*	* 7. Dropped out of school and is not
*	*	* employed full-time in the field
*	*	* for which trained.
*	*	* 8. Dropped or transferred and status
*	*	* is not known, or is deceased.
*	*	* 9. Was not in my program this year.
*	*	*
*	*	*****

Total Students 8

2. Manpower Demand Unit - provides information on estimated employment opportunities by occupation over a specific period of time. Some states in the United States gathered demand information by going to the employing establishments to conduct survey. Other states gathered their demand information by analyzing the data from census through the use of the Bureau of Labor Statistics Occupational Matrix. Both methods are illustrated in the following pages.

A. Sample of survey instrument

Part I. General Information

Name of Establishment _____
 Address _____
 Respondent's Name _____
 Nature of Business _____
 Total Employment _____

Part II. Employment by Occupation

OCCUPATIONS	Actual Total	Expected Employment in 19__
A. Service Occupations		
1.	_____	_____
2.	_____	_____
3.	_____	_____
B. Maintenance, Construction, Repair and Powerplant Occupations		
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
C. Production Occupations		
8.	_____	_____
9.	_____	_____
10.	_____	_____
D. Managers and Officers		
11.	_____	_____
12.	_____	_____
13.	_____	_____
E. Professional Occupations		
14.	_____	_____
15. Mechanical Engineer	730	774
F. Technician Occupations		
16.	_____	_____
17.	_____	_____
G. Sales Occupations		
18.	_____	_____
19.	_____	_____
H. Clerical Occupations		
20.	_____	_____
21.	_____	_____
I. Others		
22.	_____	_____
23.	_____	_____
24.	_____	_____

Sample of Entries from Survey of Manpower Demand

<u>Occupations</u>	<u>Employment</u>	
	Present or Actual Year	Projected 19__
A. Service Occupations		
1.	_____	_____
2.	_____	_____
3.	_____	_____
B. Maintenance, Construction, Repair and Powerplant Occupation		
4.	_____	_____
5.	_____	_____
E. Professional Occupations		
14.	_____	_____
15. Mechanical Engineer	730	774
I. Others		
22.	_____	_____

B. The use of the Bureau of Labor Statistics Occupational Matrix - In projecting industry employment, a time series of annual average wage and salary employment is prepared at the appropriate level of geographic and industrial detail. Wage and salary employment series are projected to the target year (1979) by method of ordinary least squares. The resulting projections are adjusted to census employment concepts by adjusting for government, self-employed and unpaid family workers. Agricultural employment is similarly projected.

In projecting occupational employment, industry-occupation matrices--tables of ratios of employment in a specific occupation to total employment in each industry--were constructed from 1970 census data. Each industry's estimated total employment for 1973 is multiplied by its industry occupation matrix and the results are summed over all industries to yield total employment by occupation for 1973. The same procedure is followed for each industry's 1979 projected employment.

Employment growth over the projection period is obtained by subtracting target year employment (1969) from base year employment (1973).

To estimate replacements due to permanent withdrawals from the labor force over the projection period, the following is the method used:

1. Age and sex distributions for each occupation are calculated from the 1970 census.
2. Each age and sex distribution is multiplied by the average projected employment by occupation.
3. Next, age and sex specific annual net separation rates are multiplied by the age and sex distributed average projected employment.
4. Summing across all age and sex groups yields the total annual separations for each occupation. The latter is multiplied by the number of years in the projection period to yield total separations by occupation over the projection period.

The above descriptions are used to develop the 1973 and 1979 projections.*

3. Interfacing Unit - attempts to use the input from manpower demand unit and supply unit to determine the difference (net manpower needed) for a selected set of occupations. The matching of data from these mentioned units (expressed in occupational and program titles for a given period and within specific geographic region) will have implications for educational program planning.

*

From Missouri Occupational Training Information System 1973 Technical Report, State Department of Education, Jefferson City, Missouri.

Interfacing Sample

Cluster of Occupations (Listing of jobs or job cluster)	Manpower Needs	Manpower Supply						Net Manpower Needs (Demand Minus Adjusted Supply)	Cluster of Training Program (Training Program or Cluster of Programs which can be most appropriately interfaced)	
		Public			Private					Other Sources
		Secondary	Post Secondary	B.S. Degree	Secondary	Post Secondary	B.S. Degree			
Computer Programmer	183	2	5	6	3	3	4	3	158	Computer Programming

4. Data Dissemination Unit - attempts to promote awareness of manpower needs data. There are five dissemination techniques which can be used for effective coordination between this whole system and potential users. These techniques will be:

- a. mailouts of data to potential users
- b. personal contact with potential users
- c. presentations at educational meetings
- d. in-service training
- e. mass media releases

All these techniques will try to explain how the data was developed and the expected accuracy of the data. These will also explain how administrators can use the data in the planning process in relation to the training needs, employment opportunities, employment trends, etc.

5. Follow-up Unit - collects, analyzes, and reports information on the experiences of graduates and dropouts from educational training, includ-

ing information on occupations and relationships to training programs, income, job satisfaction, and need for retraining.

Examples of Follow-up Instruments

Sample I (To be filled up by graduates)

Please let us know what you are doing at this time by completing the questions below. This should not take no more than a few minutes of your time. We need this information to help potential graduates and to know how to improve our programs. Thank you.

- I. Did you complete the educational program in which you were enrolled?
(Check one) 1 Yes 2 No
What program were you enrolled in?
- II. Employment Status (Check one only)
 1. Working full time in occupation for which you were trained.
 2. Working full time in occupation not related to training.
 3. Continuing full time in school in field related to previous training.
 4. Continuing full time in school in field not related to previous training.
 5. In armed services.
 6. Employed part time, but not attending school.
 7. Unemployed, seeking employment.
 8. Unemployed, not seeking employment.
- III. If employed:
a) What is your job?
b) Location of job
- IV. If employed, what is your monthly range?
 1 under 100 ₱
 2 100 - 200 ₱
 3 200 - 300 ₱
 4 300 - 400 ₱
 5 400 - 500 ₱
 6 500 - 600 ₱
 7 600 - 700 ₱
 8 700 - 800 ₱
 9 800 - over ₱
- V. How would you rate your educational training program in terms of employment benefits to you?
 1 High
 2 Average
 3 Low
 4 Not Applicable
- VI. Do you need more educational training? Yes No

Sample Entries for Follow-Up

TABLE I

RESPONSE TO THE QUESTION AS TO WHETHER THE STUDENT
COMPLETED THE PROGRAM HE WAS ENROLLED

Number of Possible Responses	Returns	
	Number	Percent
Graduated		
Did not graduate		
No response		
TOTAL		

TABLE II

EMPLOYMENT STATUS

Employment Status	Type of Educational Programs					
1. Working full time in occupation related to training received.						
2. Working full time in occupation not related to training received.						
3. Continuing full time in school in field related to previous training.						
4. Continuing full time in school in field not related to previous training.						
5. In armed services.						
6. Employed part time, but not attending school.						
7. Unemployed, seeking employment.						
8. Unemployed, not seeking employment.						
TOTAL						

TABLE III
JOB, LOCATION, AND SALARY RANGE

Jobs	Location						Salary Range									
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	

TABLE IV
RELATION OF EDUCATIONAL TRAINING
TO EMPLOYMENT BENEFITS

	Returns	
	Number	Percent
High		
Average		
Low		
Not Applicable		
No Response		
TOTAL		

TABLE V
THE NEED FOR MORE TRAINING

	Returns	
	Number	Percent
Yes		
No		
No Response		
TOTAL		

Sample 2 (To be filled up by a registrar or any person responsible for enrollment)

FOLLOW-UP REPORT

Name of Institution _____
 Class _____ Date _____

FLWUP CODE	STUDENT NAME	
*		*****
*		*
*	T J HARRIS	* For each student on this report enter
*	M B VILLARTA	* the appropriate follow-up code in the
*	S T CAMOS	* column at the left of this report.
*	F M GARCIA	* Use the follow-up code listed below.
*	R L JAINAR	*
*	E J CORREA	* 1. Continuing in school full time in a
*	I F ESTRELLA	* related field.
*	B M MORRIS	*
*	J C TORRES	* 2. Continuing in school full time in a
*	E F CARMEN	* non-related field.
*	V L STAN	*
*	A C ISABEL	* 3. Not in labor force. (Marriage, Health,
*	B F CHU	* etc.)
*	J L LEE	*
*	Z V ISLAM	* 4. Working full time in occupation for
*	W Z SANTOS	* which trained.
*	J M MARIE	*
*	F G GREGG	* 5. Working full time in occupation
*	H L LARRY	* related to training.
*	A G MANUEL	*
*	E M CRIS	* 6. Working in non-related occupation.
*	B Z LIMA	* (Full time)
*	E L BUSSEY	*
*	T Y YEN	* 7. Working part-time. (Does not include
*	Add students not	* those in school)
*	listed above	* 8. Unemployed, seeking employment.
*		*
*		* 9. Unknown.
*		*
*		*10. Did not complete the program last year.
*		*
*		*11. In the armed forces.
*		*
*		*****

Total Students 24

6. Placement Unit - Since the major purpose of training institutions is to prepare students for entry level employment, this unit when developed will aid graduates in finding related employment.

This unit will inform graduates about potential employers. Training institutions will gather lists of potential employer with name of business, address, size (by number of employment) and principal service or product.

Also, the largest employing institutions with reasonable number of employers will be mailed lists of training programs with the type and location of the program, name of institution, expected number of graduates and expected graduation date.

To fully carry out better placement, the institution who trained the graduates should also take responsibility in placing the graduates in occupations they were trained for. Contacts or even contracts should be made with the employing establishments to help graduates get the chance to use the training they have obtained.

APPENDIX B

QUESTIONNAIRE

QUESTIONNAIRE

Please respond to the following questions in terms of your value judgement.

1. In general, your judgement of the values of an occupational training information system for the Philippines is:

1. very favorable 3. unfavorable
 2. favorable 4. cannot estimate
 5. Remarks _____

2. Do you think an occupational training information system for the Philippines will be supported:

1. Financially? Yes No
 2. Politically? Yes No

Remarks _____

3. Do you think there is a need to have information on manpower supply now and in the next few years? Yes No

4. Do you think there is a need to have information on manpower demand now and in the next few years? Yes No

5. Do you think there is a need to know where students go after their training, their occupations, income, and job satisfaction? Yes No

6. Do you think the students need more help in finding the jobs they were trained for? Yes No

7. In the spaces to the right, please check the appropriate column that most closely gives your personal estimates of reaction to an occupational training information system (OTIS) by various groups.

Various Groups	Very Favorable	Favorable	Unfavorable	Cannot Estimate
1. Students				
2. Parents				
3. Businesses & Industries				
4. Other employment establishments				
5. Planners & decision makers of all educational resources				

8. Other comments _____

APPENDIX C

COVER LETTER

Department of Agricultural Education
Oklahoma State University
Stillwater, Oklahoma 74074
July 3, 1974

I am conducting a study on the "development of a proposed occupational training information system (OTIS) for the Philippines." The OTIS is a system that provides comprehensive data primarily on the supply of and demand for people trained in selected occupations. These data will be used by people concerned with the educational development and economic growth of the Philippines.

In the United States, I have read and observed that the OTIS has made several accomplishments which are needed in a like manner in the Philippines. The OTIS has enhanced decision making and planning for more effective use of educational resources. It has contributed much in obtaining maximum benefits from efforts and expenditures used in the process of educational training.

From a review of several articles about the Philippines, I have concluded that implementation of a program similar to OTIS is an important strategy for the educational structure of the Philippines. Such a program would easily identify which program offerings should be added, expanded, curtailed or terminated to prevent unnecessary trained efforts and costs. It would also identify what priorities various training programs may demand in the future, particularly, with regard to growing, emerging and/or declining occupational areas, and the location of labor markets in which trained manpower was needed.

I am asking for your opinion as one of the leading educators, businessmen, industrialists, or laymen in the Philippines about the development of an OTIS for the Philippines. A stamped, self-addressed envelope is enclosed for your convenience in answering the green survey. I realize that you have a very busy schedule but your cooperation is vital to the success of the possible implementation of OTIS in the Philippines.

Upon completion of my study, I will send you a summary of the results of the study. I will appreciate it very much if you could return the questionnaire at your earliest convenience.

Thank you for your time and effort which I know are very important to you.

Sincerely yours,

Adeltrudis M. Cruz

Department of Agricultural Education
Oklahoma State University
Stillwater, Oklahoma 74074
July 3, 1974

Re: Study of Proposed Occupational
Training Information System for
the Philippines

To Potential Respondents:

Miss Adeltrudis Cruz, a doctoral student at this University is attempting to ascertain the possibilities of developing and implementing an occupational training information system for the Philippines. She has thoroughly studied both established and developing systems in certain states here and has attempted to briefly describe these programs. At this point she is greatly dependent upon your assistance as she requests your judgement as to the development of a somewhat similar system.

We found Miss Cruz to be an excellent student and a charming young lady, ably representing your good country. As her major advisor, I will personally appreciate your completion of the questionnaire.

Sincerely,

Robert R. Price
Professor and Head

Department of Agricultural Education
Oklahoma State University
Stillwater, Oklahoma 74074
April 11, 1974

Dr. Janie Jones, Director
Occupational Information Unit
Bureau of Vocational Education
Department of Education
Frankfort, Kentucky 40601

Dear Dr. Jones:

One of our very fine doctoral students, Miss Adel Cruz from the Philippines, is undertaking a very ambitious task in her research efforts. She is attempting to carefully review programs of vocational education employment systems in selected states as a basis for projecting such a system for the Philippines. You may be somewhat familiar with the system used in Oklahoma--OTIS, Occupational Training Information Systems.

Dr. J. B. Morton of our State Department of Vocational-Technical Education, Planning and Research Division, has indicated that you are directing a similar program in Kentucky. Information relative to all phases of the effort would be most welcome. If you have past or current reports on occupational employment and training or bulletins, guidelines, or other publications describing the operation, they would be most useful and welcomed by Miss Cruz and myself.

Please bill this department for any costs involved.

Sincerely,

Robert R. Price
Professor and Head

mer

cc: Dr. J. B. Morton

VITA

Adeltrudis Manuel Cruz

Candidate for the Degree of

Doctor of Education

Thesis: THE DEVELOPMENT OF A PROPOSED OCCUPATIONAL TRAINING INFORMATION SYSTEM (OTIS) FOR THE PHILIPPINES

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Central Luzon State University, Nueva Ecija, Philippines, February 4, 1947, the daughter of Feliciano L. and Conchita Manuel Cruz.

Education: Graduated from Saint Joseph's High School, Nueva Ecija, Philippines, in April, 1964; received the Bachelor of Science degree in Agricultural Education from Central Luzon State University, Philippines, in April, 1968; received the Master of Science degree in Agricultural Education from Kasetsart University, Bangkok, Thailand, in December, 1971; enrolled in doctoral program at Oklahoma State University, 1972-75; completed requirements for Doctor of Education degree at Oklahoma State University in May, 1975.